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Optimising Commercial Cleaning Services Based on Customer Expectations and their Fulfilment

An Empirical Analysis with the Means-End Theory of Complex Cognitive Structures

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Preface of the Editors

Virtually everyone would agree with the statement that a clean house or apartment is the necessary precondition to lead a content and happy life at home. The same applies to businesses. Only a company that has clean and, therefore, well-functioning offices, production facilities etc. can fulfil its core business processes effectively and efficiently. Against this backdrop, it is surprising that the field of commercial cleaning services did not gain more prominence in the managerial and academic spheres.

Exactly this gap is closed by this publication. The authors develop a comprehensive model of performance categories and elements that represents the facets of commercial cleaning services from the customers' perspective. Based on this model, the customer expectations and their fulfilment are examined in an empirical study. Furthermore, strategies and options of how commercial cleaning services providers can improve their performance in the market are derived.

This publication provides commercial cleaning services providers with a valuable framework for market success. It becomes clear on which strengths they can build and which aspects have to be improved. Furthermore, this publication lays the groundwork for academic research so that researchers can advance the knowledge in this too often neglected area within a solid framework.

August 2022

Prof. Dr. Julia Naskrent, Prof. Dr. Marcus Stumpf & Prof. Dr. Jörg Westphal

Directors of the KCMS KompetenzCentrum for Marketing & Sales Management at FOM University

Abstract

This paper aims to shed light on the customer expectations towards commercial cleaning services providers and their fulfilment so that options for improving such services can be deduced. To this end, we develop a comprehensive and three-tiered assessment model of commercial cleaning services and apply it in an empirical study with 304 participants from organisations, using external cleaning services. The methodological basis of our research is the Means-End Theory of Complex Cognitive Structures. Amongst other results, we could show that commercial cleaning services providers should use the current pricing strategy as a strength and can build on this, whilst they are advised to improve the quality of their service offerings with a high priority. With a lower priority, commercial cleaning services providers should improve the competencies of their staff, the direct customer interaction and the communication of their services. This indicates that commercial cleaning services providers should firstly focus on the results of their services and then develop their service processes and communication on this basis.

Table of Contents

List of Figures

List of Tables

List of Equations

1   Introduction

The core business of companies is in the focus of most managerial discussions and academic research projects. Too often, it is forgotten that the core business processes cannot perform effectively and efficiently if the context conditions or supporting processes are not up to standard. One key supporting process is the facility management, the management and maintenance of all of the tangible assets of a company. Within the facility management, commercial cleaning services play a crucial role.

Against this backdrop, our research aims to give a comprehensive overview of the expectations customers have on commercial cleaning services providers, how well these expectations are fulfilled and which options commercial cleaning services providers have to improve their performance.

To this end, we will describe the theoretical background and state of research with regard to facility management and commercial cleaning services as well as develop performance categories and elements of the respective services providers from literature in Section 2. These performance categories and elements will form the basis for a hypothesised assessment model and the research questions, which will be presented in Section 3. In Section 4, the methodology of our empirical research to answer the research question is explained. After presenting the results in Section 5, we will show in Section 6 how commercial cleaning services providers can strengthen and improve their performance.

2   Theoretical Background and State of Research

Facility management and commercial cleaning services are introduced in this section. On this basis, an assessment model for commercial cleaning services is developed.

2.1   Facility Management and Commercial Cleaning Services

Facility management will be described in the first subsection so that commercial cleaning services, which are considered a part of the former, can be characterised.

2.1.1   Facility Management

The theoretical background of facility management is explained in this section by showing its historical background and current situation, defining the term and clarifying its objectives, and explaining the strategic and operational level of facility management.

2.1.1.1   Historical Background and Current Situation of Facility Management

Despite the apparent absence of its clear emergence in literature, the topic of facility management has a rather long history. Some scholars state that facility management occurred during the American railroad expansion in the 1800s (Atkin & Brooks, 2015, p. 4). Other authors such as Nävy and Schröter (2013, p. 26) as well as Pfnür (2004, p. 54) point out that the concept of facility management appeared in the 1950s. In the mid-1980s, facility management reached Europe with its first appearance in the UK, which led to the foundation of the Association of Facility Management (AFM) in 1985 (Nävy & Schröter, 2013, p. 27). In Germany, the German Facility Management Association (GEMFA) was founded in 1989. Since 1996, GEMFA has been laying the groundwork to establish facility management in Germany with the publication of its guidelines (Nävy & Schröter, 2013, p. 27). In the same year, the IFMA Deutschland e.V. was founded as a counterpart to GEMFA. In 2006, the IFMA Deutschland e.V. evolved into the RealFM e.V., which is an association for real estate and facility managers. Both German associations support the national development and further evaluation of facility management (Nävy & Schröter, 2013, p. 27).

The German facility management market volume amounts to about 53 billion Euros in 2018 (Facility Management, ND). The commercial cleaning service industry, the largest part of the German facility management market, represented approx. 20 billion Euros in 2020. (Die Gebäudedienstleister, n.d.). Furthermore, almost 26,000 commercial cleaning service companies employ nearly 700,000 people in the industry, making it the largest German trade in the crafting sector (Die Gebäudedienstleister, n.d.).

These numbers imply that the facility management industry and within it the commercial cleaning sector are of a substantial relevance for the German economy and society. Thus, and despite the recent negligence of facility management and commercial cleaning services on an academic level, more and deeper insights in these areas are advised.

2.1.1.2   Definition and Objectives of Facility Management

The literature presents various definitions of facility management depending on the origin of publication (Gondring & Wagner, 2018, p. 17; Hirschner, Hahr & Kleinschrot, 2013, p. 1; Kahlen, 2001, pp. 12f.; Nävy & Schröter, 2013, pp. 2f.).

Facility management can be defined as a concept for the management, administration and organisation of all tangible resources within a company; in this context, facilities represent land, buildings, rooms, infrastructure, plants, machinery and utilities within a company (Nävy, 2018, pp. 2f.). Facility management can thus be understood as the integration of processes within an organisation to deliver and develop the services that support and improve the effectiveness of the organisation's core activities (Nävy & Schröter, 2013, p. 3). The outcome of these services can be further specified by defining facility management as "a profession that encompasses multiple disciplines to ensure functionality, comfort, safety and efficiency of the built environment by integrating people, place, process and technology" (IFMA, ND). In a similar way, in its Guideline 100-1, the GEFMA defines facility management as a management discipline which focuses on the result-oriented handling of real estate properties and services within the framework of planned, managed and controlled facility processes, satisfying the basic needs of people at work, supporting the company's core processes and increasing the return on investment (GEFMA, 2004, Number 3.4).

As pointed out in the previous paragraph, the decision and objectives of facility management are subordinated to and integrated in the corporate real estate management, which deals with the ownership, operation and use of real estate. The respective real estate lifecycle is characterised by three main stages, namely the

(project) development, utilisation and redevelopment/demolition phases (Braun, 2013; Diederichs, 2006, p. 2; Gondring & Wagner, 2018, p. 264; Kurzrock, 2017). Facility management belongs to the phase of utilisation of the real estate. In this context, facility management primarily aims to design and operate all areas and assets such as buildings, plants and machinery in the best way possible so that the core business processes are effectively and efficiently supported (Diederichs, 2006, p. 554).

As shown above, facility management plays an important role for companies, even though it is not at the heart of their core businesses. Thus, a closer look at the expectations of companies and their fulfilment in this regard should be taken.

2.1.1.3   Strategic and Operational Facility Management

Facility management can be subdivided into a strategic and operational level (Braun, 2013; Hirschner et al., 2013, pp. 7f.). The strategic facility management is closely linked to the real estate management and the corporate strategy, as explained in the previous section, so that these set the framework for the strategic facility management.

The operational level of facility management consists of several tasks which can be structured according to several categories, depending on the definitial basis. According to the GEFMA guideline 100-1, facility management consists of commercial, technical and infrastructural tasks (Diederichs, 2006, p. 580; Heß, 2002, p. 6; Hirschner et al., 2013, p. 8; Kahlen, 2001, p. 123; Preuß & Schöne, 2016, p. 81; Zahn, 2013).

Based on the definition of facility management in DIN 32736, commercial, technical and infrastructural tasks as well as space management form the components of facility management (Czerwinski, 2006, p. 20; Gondring & Wagner, 2018, p. 18; Nävy, 2018, p. 12, p. 6; Zahn, 2013). The latter categorisation of operational facility management with its subordinated tasks is represented in Figure 1. In this framework, professional cleaning services, the research object of this work, are understood to be a part of infrastructural facility management.

**Operative Facility Management
Based on DIN 32736**

Technical FM	**Infrastructural FM**	**Commercial FM**
▪ Operation ▪ Documentation ▪ Energy Management ▪ Information Management ▪ Modernization ▪ Renovation ▪ Re-construction ▪ Tracking of technical warranties	▪ Janitor Service ▪ Gardening Service ▪ Security Service ▪ Internal Mail Service ▪ Winter Service ▪ Cleaning Service ▪ Catering ▪ Central Service ▪ …	▪ Procurement Service ▪ Cost Planning & Control ▪ Contract Management ▪ Property Accounting

Space Management

Figure 1: Overview of the categories and tasks of facility management (own representation based on Nävy, 2018, p. 12).

2.2.2   Commercial Cleaning Services

It was shown in the previous section that commercial cleaning services are a part of the infrastructural facility management during the utilisation phase of the real estate lifecycle (Klungseth & Blakstad, 2016; Nävy, 2016, p. 298).

The main purpose of commercial cleaning services in this context simply is the removal of dirt (Nävy & Schröter, 2013, p. 213). Additionally, the results of commercial cleaning services can lead to further effects, such as strengthening the corporate image (Eley, 1989) or retaining the value of a property (Preuß & Schöne, 2016, p. 730), which are in line with the afore-described objectives of facility management. In summary, the main objectives of commercial cleaning services can be seen in five aspects (Nävy & Schröter, 2013, pp. 216f.):

- Value retention by protecting against violating influences, such as chemicals, biological substances and physical obstructions
- Maintenance of the functionality
- Safeguarding the usage of properties
- Preservation and improvement of appearance
- Production of hygienic conditions

These objectives can be reached by several types of commercial cleaning services. Nävy (2018, p. 299) considers floor care, glass cleaning, maintenance of the utilisation and working space, and supplementary services as the main types of commercial cleaning. Hirschner, Hahr and Kleinschrot (2013, p. 50) define the cleaning and maintenance of constructions, glass, facades, industrial estates, hospitals as well as pest control as basic types. Others add outdoor cleaning and winter service to these lists (Hellerforth, 2006, p. 192; Opic et al., 2018, p. 52). As there are virtually countless categorisations of commercial cleaning types, the following list, which is not exhaustive, shall provide a systematic overview of the commercial cleaning types (Akdemir et al., 2016, p.221; Opic et al., 2018, p. 52):

- Indoor cleaning
- Hygienic cleaning
- Glass cleaning
- Industry cleaning
- Outdoor cleaning
- Facade cleaning
- Pest control
- Winter cleaning

These types of commercial cleaning are normally outsourced by companies. A study of Drees & Sommer (2016, p. 2) found that between 88 % and 96 % of the owners and tenants of commercial real estate use external service providers for indoor cleaning, glass cleaning, facade cleaning, outdoor cleaning and winter service. These numbers even surpass the tendency to outsource facility management tasks in general, as it can be assumed that more than 50 % of facility management activities are already outsourced (Adhikari, Hoffman & Lietke, 2019, p. 5).

Against this backdrop of the complexity of cleaning services and its embedment into a market system, a comprehensive model for assessing commercial cleaning services from a customers' perspective should be developed.

2.2   Performance Categories and Elements of Commercial Cleaning Services

The previous sections showed the relevance of commercial cleaning services, as a part of facility management, from an economic and business perspective. In this context, it was shown that it might be fruitful to develop a comprehensive model for assessing the customer expectations towards commercial cleaning services and their fulfilment. To this end, a three-tiered assessment model, comprising of the commercial cleaning services as a whole and the respective performance categories and elements, is developed in this section.

Fundamental approaches to develop performance categories of commercial cleaning services, which structure the assessment model on the middle tier, can be found in the general characteristics of services and the generic marketing mix.

Services can be characterised on three levels, which represent the potential of a service provider, the process of performing the service and the result of the service (Bruhn, Meffert & Hadwich, 2019, p. 23f.). Services firstly require the potential to provide customers with a mainly immaterial service by combining manpower and/or physical resources (Hentschel, 1992, p. 19f.; Meyer & Mattmüller 1987), e.g. the cleaning personnel, tools and liquids. Secondly, services can be characterised as a process during which a customer enjoys immaterial and/or material benefits through a synchronised contact of provider and customer (Berekoven, 1997, S. 23). Finally, services cannot only be defined by the potential to perform and the performance process, as only the result of these aspects, i.e. the materialised and/or experienced benefits of the customer, justify offering services to a market (Maleri, 1997, p. 4).

The traditional marketing mix can be traced back to McCarthy (1961, p. 126) and consists of the four Ps which stand for product, price, place and promotion. With regard to services the traditional marketing mix was enhanced by adding one (Judd, 1987) or three (Magrath, 1986) additional Ps. Judd (1987) added people to the services marketing mix, whilst Magrath (1986), apart from people, also considered processes and physical facilities as additional Ps.

As described above, the product itself or the result of a service is at the heart of a market performance of a company. In the context of commercial cleaning services this manifests itself in the service offering, which represents the first performance category of our assessment model. Similarly, the price is understood as a performance category of our hypothesised model, as it is not only an essential part of the marketing mix but also a constituent element of exchanges in a (free-market) society. The marketing mix element place is not considered in our model

because we do not focus on internal sales and distribution processes but on the perception of the customers. However, customers of commercial cleaning services evaluate the information they receive about the services that are promoted by service providers. Thus, we propose the communication about the offered services as a performance category, representing promotion within the marketing mix. Within the enhanced services marketing mixes people and process were added as additional Ps. Furthermore, services can be characterised by the performance potential and the process delivering this performance. Against this backdrop, we propose two more performance categories for our hypothesised model: the direct customer interaction and the personnel competencies. Hence, we assume five performance categories on the second tier of our hypothesised model:

- Service offering
- Service communication
- Direct customer interaction
- Personnel competencies
- Price

2.2.1   Performance Elements Within the Category of Service Offering

The following performance elements can be seen as essential within the performance category of service offering:

- Range of services
- Depth of services
- Service quality
- Service innovation
- Service individualisation

The **range of services**, for which service portfolio is a synonym, comprises all the different services offered by a company at the same time (Meffert et al., 2019, p. 400; Homburg, 2017, p. 610; Kotler & Keller, 2016, p. 402). The relevance of the range of services for the overall service quality and customer satisfaction could be confirmed for different industries and sectors, e.g. small business banking (Ennew, Reed & Binks, 1993, p. 66) and retail banking (Culiberg & Rojsek, 2010).

Commercial cleaning services might not only offer different services but also different variations of one particular type of service. This number of variations within

one service line is defined as the **depth of services** (Meffert et al., 2019, p. 400; Homburg, 2017, p. 611; Kotler & Keller, 2016, p. 403). It could be shown that the depth of services forms a substantial element of the service product or core service (Hari, 2014).

The **service quality** reflects the performance level of service delivery (Alzaydi et al., 2018; Ghobadian, Speller & Jones, 1994) and represents the overall quality perception of customers with a link to customer satisfaction (Olorunniwo, Hsu & Udo, 2006; Sureshchandar, Rajendran & Anatharaman, 2002). Taylor & Baker (1994) empirically confirmed the impact of service quality on customer satisfaction in four different industries. Furthermore, Kim and Choi (2013) could show the relevance of service quality for the overall quality experienced by customers.

The service portfolio and its quality can be enhanced over time through **service innovations**, which can form the foundation for the future success of a service provider (Homburg, 2017, pp. 562-563). The association of service innovations and customer satisfaction could be empirically confirmed (Mahmoud, Hinson & Anim, 2017). Furthermore, an indirect link between service innovations, customer satisfaction and a company's value was established by Dotzel, Shankar and Berry (2013).

A constituent element of services is the integration of the external factor, normally the customer or recipient of the service (Bruhn, Meffert & Hadwig, 2019, p. 25). Against this backdrop, service theories like the SERVQUAL model understand the **service individualisation** as a relevant dimension (Parasuraman et al., 1994). Furthermore, other researchers highlight the relevance of service individualisation in the current markets (Wurm, Goel, Bandran & Rosemann, 2019).

2.2.2 Performance Elements Within the Category of Service Communication

We propose that the performance category service communication consists of the following performance elements:

- Service description
- Service documentation
- Information about object-specific requirements
- Quality commitment
- Quality certification

The **service description** is of relevance for service providers, as it is necessary to inform (potential) customers about the service outcome and the involved processes in advance, especially because of the immaterial character of services (Bruhn, Meffert & Hadwich, 2019, pp. 558-561). In this regard, Kim and Kim (2001) point out that describing the offered services might be the first step towards contrasting favourably with competitors and creating competitive advantages. This aspect is supported by a study by Lui and Arnett (2000), which found that the information quality of company websites contributes to the perceived overall quality of the respective websites.

During and after the delivery of a service, a **service documentation**, which describes the key activities, results and other aspects of relevance, is expected from a facility service provider (Nävy & Schröter, 2013, p. 51f.). The relevance and quality of service documentation could be shown in empirical studies, such as the one by Goffin and Price (1996) regarding medical equipment manufacturers.

As pointed out before, services integrate an external factor, i.e. the recipient of the service (Bruhn, Meffert & Hadwig, 2019, p. 25). Thus, services and therewith their communication must be individualised to a certain degree. In this context, Berkley and Gupta (1995) highlight that identifying the information requirements of the customers and then providing individualised information is one of the most important but often neglected aspects of the communication of services. This indicates the need for and relevance of **information on object-specific requirements** in the area of facility management.

A **quality commitment** is often integrated into a service-level agreement, which defines the quality level, detailed scope, response and fulfilment time, and price of a service (Hellerforth, 2006, p. 320). Thus, the quality commitment can be understood as the assurance of the reliability of the service provider, which is also a central dimension of the SERVQUAL model (Parasuraman et al., 1994). The relevance of reliability could be examined with regard to cleaning services by Lim Sanny et al. (2020).

In conjunction with the quality commitment but as a different instrument, a **quality certification** can serve as a communication tool expressing certain quality levels (Bruhn, Meffert & Hadwich, 2019, p. 460).

2.2.3   Performance Elements Within the Category of Direct Customer Interaction

The performance category of direct customer interaction is predominantly determined by the following performance elements:

- Personal service
- Remote service
- Complaint management
- Proximity
- Business/working hours

The social experience of customers during the delivery of services is an important element in the overall customer experience management (Bruhn, Meffert & Hadwich, 2019, p. 358). Thus, we consider the **personal service (on site of the customer)** as a performance element in the category of direct customer interaction. Amongst others, Nicholls, Gilbert and Roslow (1998) as well as Beatson, Coote and Rudd (2006) could establish an association of personal services and customer satisfaction.

Apart from the direct personal contact, customers can use **remote services**, which are personal contacts with the support of media, such as the phone or the internet (Haller & Wissing, 2020, p. 343; Homburg, 2017, p. 898). Paluch and Blut (2013) found out that customers can especially benefit from remote services with regard to their reliability, supporting role and economic benefits. Furthermore, the quality of remote services in the form of telematic services in general can have a positive impact on customer satisfaction and loyalty (He et al., 2017).

As not everything runs as planned, customers might complain about services they regard as being faulty. Thus, **complaint management**, which aims to turn dissatisfied customers into satisfied and loyal ones (Homburg, 2017, p. 952), can play a crucial role within the direct customer interaction. In this context, Lee and Hur (2019) could empirically show that complaint management has an impact on the perceived interaction quality, which, in turn, positively influences customer satisfaction.

The **proximity** of a service provider to its customers might be of relevance for two reasons. The first reason lies in the nature of services which require the integration of an external factor, i.e. the recipient of the service (Bruhn, Meffert & Hadwig, 2019, p. 25). Thus, a geographical proximity of the service provider and its customers has the potential to increase the efficiency, effectiveness and flex-

ibility of service processes. The second reason refers to the local focus and image. With regard to clothing products, Huang et al. (2019) could show that a local focus has a positive impact on the customers' perceived value und their purchase intentions.

Direct customer interactions can only be of good quality if a customer is in contact with the personnel of the respective service provider. Thus, we determine attractive **business and working hours** during which the staff is accessible as a relevant performance element, similar to the SERVQUAL model, which incorporates this aspect (Parasuraman et al., 1994).

2.2.4   Performance Elements Within the Category of Personnel Competencies

Personnel competencies, as a performance category, integrate the following performance elements:

- Professional competence
- Social competence
- Psychological competence
- Methodological competence

The **professional competence** can be seen as the basis or core of personnel competencies. The professional competence of service providers can be understood as the subject-specific knowledge of the personnel (Homburg, 2017, p. 1248). Professional competencies are also reflected in the SERVQUAL model with statements such as "employees who have the knowledge to answer customer questions" (Parasuraman et al., 1994). In empirical research, the professional competence could be determined as a key success factor for service quality (Shieh, Wu & Huang, 2010).

Especially in the service industry, customer contact is of relevance, as discussed above. Thus, the personnel of service providers should have emotional and **social competence**, which includes empathy and communication skills, responsibility, customer focus, self-awareness and self-control, and adaptability (Bruhn, Meffert & Hadwich, 2019, p. 763; Homburg, 2017, p. 1249). The relevance of emotional and social competencies in the service industry could be empirically shown by Genc and Kozak (2020) for restaurants. In the banking sector, Kanning and Bergmann (2009) could show that social competencies are among the main determinants of customer satisfaction.

The services industry in general, and commercial cleaning services in particular, are personnel-intensive. This implies that the motivation, attitude and commitment of the personnel, which can be defined as the **psychological competence** (Bruhn, Meffert & Hadwich, 2019, p. 763), are essential to succeed within the service sector. Ahmadi, Keshtegar and Ghasemi (2016) empirically confirmed the influence of psychological competencies on the overall service quality. Similarly, the impact of motivation on perceived customer satisfaction could be shown by White (2015).

The final competence of substantial relevance for the personnel competencies is the **methodological competence**, which can be understood as the ability to apply different solutions to various problems, learning situations and decision-making contexts (Bruhn, Meffert & Hadwich, 2019, p. 763).

2.2.5   Performance Elements Within the Category of Price

We consider the following performance elements as being subordinated to the category of price:

- Price level
- Payment modalities
- Discounts
- Price transparency

The **price level** is a central element of the cultivation of markets, as it has a strong impact on the sales volume and market share (Simon & Fassnacht, 2009, p. 9f.). With regard to services and, in particular, to the hospitality industry, Radojevic, Stanisic and Stanic (2015) found a correlation between the price and customer satisfaction. The association of the price level with the satisfaction of customers is of particular interest with regard to commercial cleaning services, as this industry is considered to be rather price-driven (Häfliger, 2013).

It appears self-explanatory that, in a free-market society, prices for delivered services have to be paid. In this context, the possible **payment modalities** can be considered a relevant performance element of service providers.

Discounts can be used in the context of pricing policies to attract new customers or to increase sales. Discounts can typically be categorised in group discounts, quantity discounts, natural discounts or loyalty discounts (Haller & Wissing, 2020, p. 338). The empirical findings regarding the effectiveness of discounts are ambiguous. On the one hand, studies like the one by McIlroy and Barnett (2000) come to the result that discounts do not increase customer loyalty. On the other

hand, studies like the one by Noyan and Simsek (2014) suggest that discounts have a positive effect on customer loyalty.

The **price transparency** has increased in various markets in recent years, amongst others driven by the increasing availability of price information via internet channels (Bruhn, Meffert and Hadwich, 2019, p. 214; Homburg, 2017, p. 665). The relevance of price transparency in the services industry could be empirically confirmed in several studies. Matzler, Würtele and Renzl (2006) could show that the price transparency has a positive impact on the overall price satisfaction in the context of banking. Mittal and Agrawal (2016) found an indirect link between price transparency and customer loyalty.

3   Hypothesised Model and Research Questions

The performance categories and performance elements, explained in Section 2.2, can be merged into a hierarchical model, consisting of three tiers, which is represented in Figure 2. The top element of the model represents the commercial cleaning provider. The performance categories are situated on the middle tier. On the lowest tier the performance elements are subordinated to their respective categories.
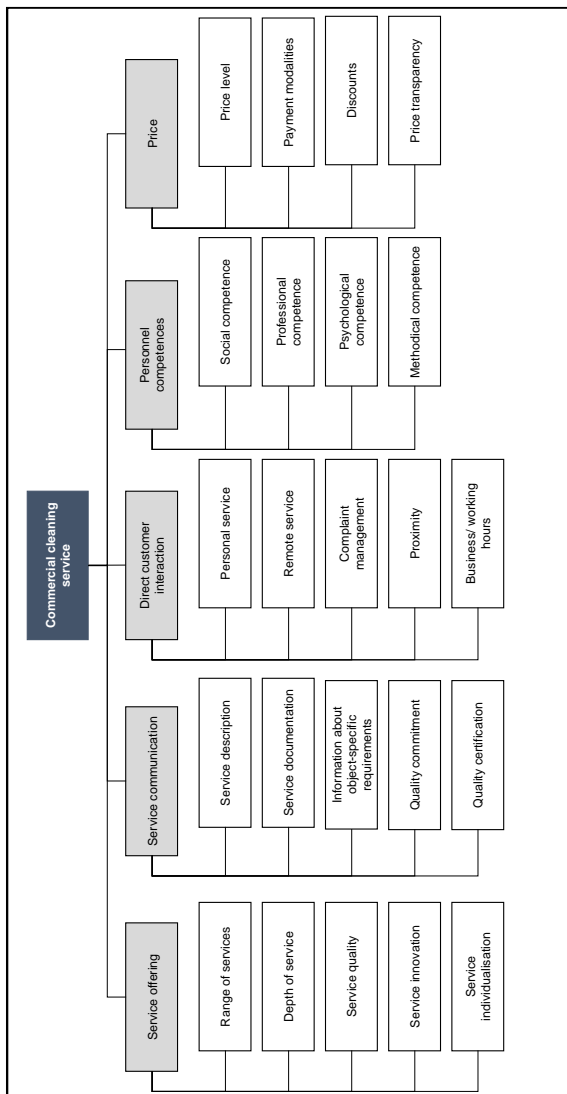

Figure 2: Assessment model of commercial cleaning services.

In Section 2.1, it was pointed out that facility management and therewith commercial cleaning services play an important role for companies within a substantial market. Thus, it makes sense to gain a comprehensive and detailed understanding of the customer expectations towards commercial cleaning services and their fulfilment to deduce optimising options for respective service providers. Against this backdrop and based on the afore-described hypothesised model, the following research questions underlie our research:

- **RQ1 (customer expectations):** Which expectations do customers have towards the performance categories and elements of commercial cleaning services providers?
  - o RQ1.1: Which expectations do customers have towards the performance categories of commercial cleaning services providers?
  - o RQ1.2: Which expectations do customers have towards the performance elements of commercial cleaning services providers?
- **RQ2 (fulfilment of customer expectations):** To what extend do commercial cleaning services providers fulfil the expectations of their customers?
  - o RQ2.1: To what extend fulfil commercial cleaning services providers the overall expectations of customers?
  - o RQ2.2: To what extend do commercial cleaning services providers fulfil the expectations of customers towards the performance categories?
  - o RQ2.3: To what extend do commercial cleaning services providers fulfil the expectations of customers towards the performance elements?
- **RQ3 (optimising commercial cleaning services):** Which options for optimising commercial cleaning services providers can be deduced from the customer expectations and their fulfilment?
  - o RQ.3.1: Which options for optimising commercial cleaning services providers' performance categories can be deduced from the customer expectations and their fulfilment?
  - o RQ.3.2: Which options for optimising commercial cleaning services providers' performance elements can be deduced from the customer expectations and their fulfilment?

4   Methods

In the first subsection, the research design and the sample are described. In the second subsection, the measurement with the Means-End Theory of Complex Cognitive Structures is explained.

4.1   Research Design and Sample

A standardised online questionnaire was used to evaluate the customer expectations and their fulfilment with regard to commercial cleaning services. The data collection took place from 24 June 2020 to 12 November 2020. The survey participants were buyers or decision-makers in the procurement process of cleaning services in Germany. The link to the survey was published in various virtual groups within the social media platforms XING ("Gebäudereinigung, Facility Management, Dienstleistungen"; "Gebäudereinigung und noch viel mehr"; "Bundesverband Materialwirtschaft Einkauf und Logistik"; "Immobilien – Immobilienbetreuung & Dienstleistung"), LinkedIn ("Einkäufer stärken/Enhance procurement skills") and Facebook ("Die Gas- und Gebäudereiniger"; "Reinigen – Pflegen – Schützen: Die Gebäudereiniger"; "FOM Network"; "Gebäudereinigung im Trend der Zeit!"; "Glas und Gebäudereinigung"; "Unternehmer Netzwerk in Deutschland"; "Sozialunternehmer/in"; "Unternehmerstammtisch"). Additionally, an article with the link to the survey was published on LinkedIn as well as on the website of the magazine *rationell reinigen*. Also, the link was published at the July 2020 newsletter of the bdvb.

Furthermore, 3,338 companies, organisations and municipalities were contacted directly. Sixty-seven percent of that direct outreach was conducted via email. Here, the contacts were mainly managing directors for procurement or respective procurement managers. Seven companies were contacted directly using the con-tact form on the company homepage. Outreach via social media networks (XING and LinkedIn) established contact with 1,089 individuals.

Following the outreach efforts, 398 companies, organisations and municipalities participated in the survey. Responses from 23 participants were incomplete and therefore excluded from the analysis. Moreover, 16 respondents were not responsible for ensuring the cleanliness of their spaces, and another 55 respondents utilised internal cleaning resources. Accordingly, those observations were also excluded from the analysis. The final sample, therefore, resulted in 304 complete and usable questionnaires.

Table 1 gives an overview of the sample characteristics. The majority of the companies participating in the survey (approx. 60 %) generate revenues up to 100 million Euros. All of the German federal states are represented in the sample, with the majority of participants being based in North Rhine-Westphalia (approx. 32 %). The majority of participants acquire external commercial cleaning services mainly for offices (approx. 49 %) and industrial spaces (approx. 18 %). Almost all of the participants utilise indoor cleaning. Furthermore, glass cleaning (approx. 77 %) and hygienic cleaning (approx. 51 %) is used by a majority of participants.

Table 1: Description of the sample (n = 304)

Sector of operations	
Craftmanship	1.64%
Industry	23.68%
Public administration	7.34%
Real Estate	11.18%
Retail	7.24%
Services	37.50%
Social sector and churches	3.62%
Other Businesses	7.89%

Revenue in million Euro	
< 2	7.57%
2 to 10	19.74%
10 to 50	18.09%
50 to 100	11.18%
100 to 500	18.09%
500 to 1,000	9.21%
> 1,000	16.12%

Mainly cleaned spaces	
Health care spaces	8.88%
Housing spaces	8.55%
Industrial spaces	18.09%
Office spaces	48.68%
Public adminsitration spaces	3.95%
Retail spaces	6.91%
Other spaces	4.93%

Location of headquarters	
Baden-Württemberg	9.54%
Bavaria	11.84%
Berlin	3.29%
Brandenburg	2.63%
Bremen	2.63%
Hamburg	2.96%
Hesse	4.28%
Lower Saxony	7.24%
Mecklenburg-Vorpommern	2.30%
North Rhine-Weastphalia	31.91%
Rhineland-Palatinate	3.29%
Saarland	3.95%
Saxony	3.29%
Saxony-Anhalt	2.96%
Schleswig-Holstein	3.29%
Thuringia	4.61%

Type of cleaning	
Exterior cleaning	24.34%
Facade cleaning	13.82%
Glass cleaning	76.64%
Hygienic cleaning	50.66%
Indoor cleaning	99.34%
Industrial cleaning	18.09%
Pest control	6.58%
Winter service	27.30%
Other cleaning	2.63%

4.2 Measurement with the Means-End Theory of Complex Cognitive Structures

The content of the questionnaire is based on the hypothesised model, described in Section 3. The analysis of this hierarchical three-tiered system is realised by applying the Means-End Theory of Complex Cognitive Structures (Godbersen,

2016; Godbersen, 2019; Godbersen & Barluschke, 2020; Godbersen, Hofmann and Ruiz-Fernandez, 2020; Godbersen & Kaupp, 2019), which is explained in the following paragraphs.

The customer expectations of commercial cleaning services were measured by evaluating the subjective relevance for each performance category and performance element, applying a scale from 0 (not important) to 100 (very important).

In the first step of the analysis, the normed values are calculated by norming the relevance of the performance elements using Equation 1. The empirical relevance of a performance category is divided by the sum of the empirical relevance of all of the performance categories. The same procedure is applied to the lowest tier of the hypothesised model so that the normed values for all of the performance elements for their respective performance categories are determined. The normed values represent the impact an element has on its superior element, i.e. the impact of the performance categories on the overall commercial cleaning service and the impact of a performance element on its superior performance category.

Equation 1: Calculation of normed values (Godbersen, 2016; Godbersen, Hofmann and Ruiz-Fernandez, 2020).

$$nV_i = \frac{V_i}{\sum_{i=1}^{n} V_i}$$

nV_i, normed values of subjective relevance of performance category i of middle level of the assessment model (service offering, service communication, direct customer interaction, personnel competences and price) for the evaluation of the overall commercial cleaning service.

V_i, empirical relevance of performance category i of middle level of the assessment model (service offering, service communication, direct customer interaction, personnel competences and price) for the evaluation of the overall commercial cleaning service.

In a second step, the total normed values are calculated by multiplying the normed values of the performance elements on the lowest tier of the hypothesised model with the normed value of the respective performance categories on the middle tier of the model, as represented in Equation 2. The total normed values indicate which impact a performance element on the lowest tier of the hypothesised model has on the overall commercial cleaning services.

Equation 2: Calculation of total normed values (Godbersen, 2016; Godbersen, Hofmann and Ruiz-Fernandez, 2020).

$$tnV_j = nV_i \times nV_j$$

tnV_j, total normed values of performance element j on the lowest level of the assessment model (performance elements of the respective performance category).

nV_i, normed values of subjective relevance of performance category *i* of middle level of the assessment model (service offering, service communication, direct customer interaction, personnel competences and price) for the evaluation of the overall commercial cleaning service.

nV_j, normed values of subjective relevance of element j of lowest level of the assessment model for the evaluation of its superior performance category.

As an indicator for the fulfilment of customer expectations, the subjective quality of the performance elements on the lowest tier of the hypothesised model was measured on a scale from 0 (not good) to 100 (very good).

The quality of a performance category on the middle tier of the hypothesised model equate to the sum of the multiplication of the normed values with the subjective quality of all of the subordinated performance elements, as represented in Equation 3. The same procedure was applied to calculate the quality of the overall commercial cleaning service.

Equation 3: Calculation of calculated qualities (Godbersen, 2016; Godbersen, Hofmann and Ruiz-Fernandez, 2020).

$$cQ_i = \sum_{j=1}^{n} \frac{V_j}{\sum_{j=1}^{n} V_j} \times eQ_j$$

cQ_i, calculative quality of performance category i on the middle level of the assessment model (service offering, service communication, direct customer interaction, personnel competences and price).

eQ_j, empirical quality of performance element j on the lowest level of the assessment model for each performance element.

V_j, empirically subjective value of performance element j on the lowest level of the assessment model for each performance element.

The (total) normed values and qualities can be combined in a matrix to derive norm strategies for optimising commercial cleaning services. The matrix, including the resulting norm strategies, is sketched in Figure 3. It was described above that the (total) normed values represent the impact an element of the model has on the evaluation of a commercial cleaning provider. Thus, the (total) normed values are associated with the potential of optimising a performance category or element. This means that all of the performance categories and elements that show above-average (total) normed values should be prioritised in optimising measures. On the other hand, the quality of a performance category or element is linked to the need for its improvement, meaning that a below-average quality of a performance category or element indicates a high need for optimisation, whilst an above-average quality indicates a low need for optimisation. Thus, the quality of former performance categories and elements should be built up, whilst the quality of the latter should be secured.
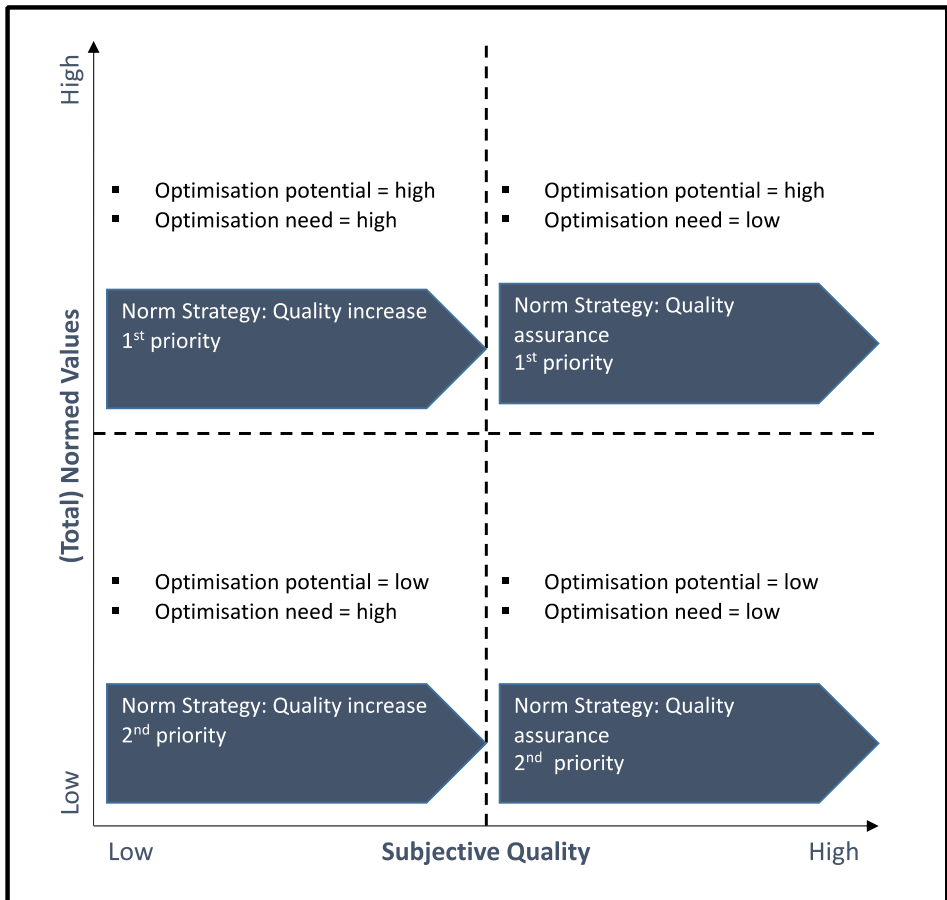
Figure 3: Norm strategies in relation to quality and normed values within the framework of the Means-End Theory of Complex Cognitive Structures (Godbersen, 2018; Godbersen, Hofmann and Ruiz-Fernandez, 2020).

5   Results

The results of the empirical analysis are presented in the following three subsections. The customer expectations towards commercial cleaning services and their fulfilment as well as the resulting options for optimising commercial cleaning services are documented.

5.1   Customer Expectations Towards Commercial Cleaning Services

The customer expectations towards commercial cleaning services are represented by the importance of the performances categories and elements of the hypothesised model. The respective indicators, i.e. empirical values, normed values and total normed values, are represented in Table 2.

Table 2: Empirical values (scale: 0 "not important" to 100 "very important"), normed values and total normed values (values: 0.0 to 1.0) of performance categories and elements of professional cleaning services (n = 304)

Construct	Category	Empirical Relevance		Normed Value		Total Normed Value	
		Mean	SD	Mean	SD	Mean	SD
Service offering		88.99	14.53	0.215	0.033	0.215	0.033
Service communication		81.76	21.42	0.193	0.039	0.193	0.039
Direct customer interaction		79.27	22.33	0.187	0.044	0.187	0.044
Personnel competence		81.94	17.27	0.198	0.041	0.198	0.041
Price		85.17	13.99	0.208	0.041	0.208	0.041
Range of services	Service offering	77.82	23.11	0.209	0.060	0.045	0.015
Depth of services		77.68	22.07	0.209	0.054	0.045	0.014
Service quality		91.68	11.45	0.256	0.062	0.049	0.014
Service innovation		55.39	28.14	0.144	0.064	0.031	0.015
service individualisation		68.75	22.84	0.181	0.046	0.039	0.011
Service description	Service communication	87.28	17.65	0.231	0.066	0.044	0.013
Service documentation		79.11	23.17	0.201	0.059	0.039	0.012
Information about object-specific requirements		75.16	22.78	0.191	0.047	0.037	0.011
Quality commitment		84.69	21.50	0.220	0.071	0.042	0.013
Quality certification		64.63	29.21	0.158	0.063	0.031	0.013
Personal service	Direct customer interaction	78.61	20.95	0.206	0.053	0.038	0.012
Remote service		76.22	22.88	0.198	0.056	0.037	0.014
Complaint management		88.90	16.17	0.236	0.051	0.044	0.014
Proximity		65.84	24.25	0.169	0.056	0.032	0.012
Business/working hours		73.14	26.55	0.190	0.069	0.035	0.015
Social competence	Personnel competence	80.48	19.03	0.257	0.052	0.051	0.016
Professional competence		84.31	15.57	0.273	0.053	0.053	0.015
Psychological competence		81.63	20.84	0.256	0.044	0.051	0.014
Methodical competence		69.63	24.37	0.214	0.057	0.043	0.014
Price level	Price	86.40	13.84	0.293	0.052	0.062	0.021
Payment modalities		67.76	22.88	0.221	0.060	0.046	0.015
Discounts		54.80	28.81	0.172	0.077	0.035	0.017
Price transparency		91.97	13.59	0.314	0.070	0.065	0.019

On the level of **performance categories**, the service offering and the price are more important to the customers than the service communication, direct customer interaction and personnel competencies.

Within the performance category **service offering**, the service quality is of the highest relevance to customers, followed by the range and depth of the offered services, which in turn are more important than the innovation and individualisation of services.

The service description and the quality commitment are the most important performance elements in the category of **service communication**. The relevance of service documentation and information about object-specific requirements ranks on a lower level. Of least importance within this performance category is the quality certification.

Complaint management is most important to customers of commercial cleaning services within the performance category of **direct customer interaction**. Second in relevance in this performance category rank the personal service (on site), the remote service and the business hours. The geographic proximity of the commercial cleaning service provider is of least importance to customers within this performance category.

The performance elements of the category **personnel competencies** rank similarly in importance (social, professional and psychological competence), with the exception of methodological competence, which ranks substantially lower than the other elements.

Within the performance category of **price**, the price level and price transparency are more important to the customers than the payment modalities and discounts.

5.2   Fulfilment of Customer Expectations

The quality, which is expressed on a scale from 0 (not good) to 100 (very good), serves as an indicator for the fulfilment of customer expectations. The respective values for the commercial cleaning services providers as a whole as well as the performance categories are represented in Figure 4.
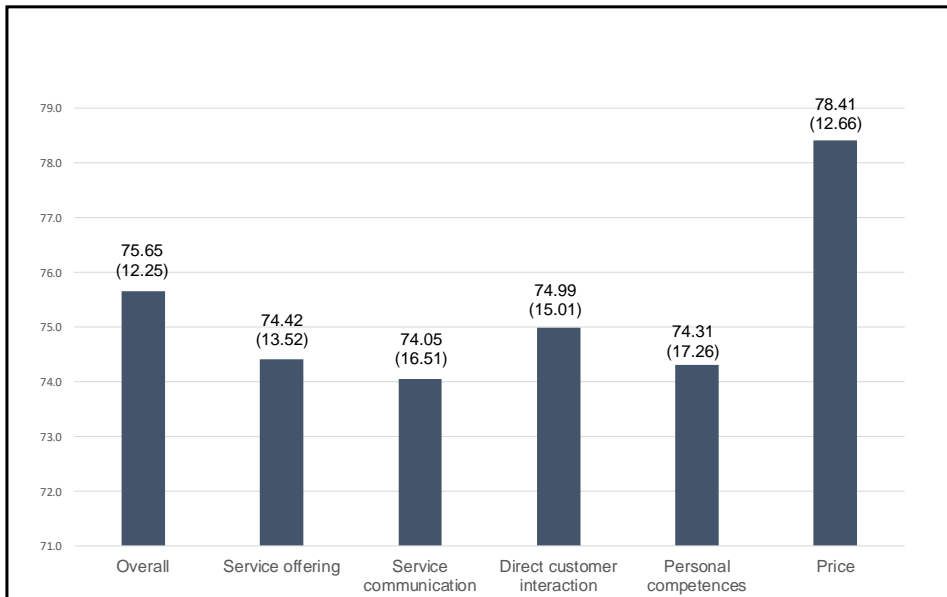
Figure 4: Calculated quality for commercial cleaning services as a whole and their performance categories on a scale from 0 "not good" to 100 "very good" (n = 304)

The commercial cleaning services providers show an overall quality of 75.65. This means that the commercial cleaning services providers fulfil the expectations of their customers by roughly three quarters. This also means that the commercial cleaning services providers have an optimising potential of approx. 25 %, taking the complete fulfilment of customer expectations as a benchmark. The quality of the price is above the one of the commercial cleaning services providers as a whole. The other performance categories (service offering, service communication, direct customer contact and personnel competencies) show lower quality levels.

Figure 5 represents the quality levels of the performance elements.
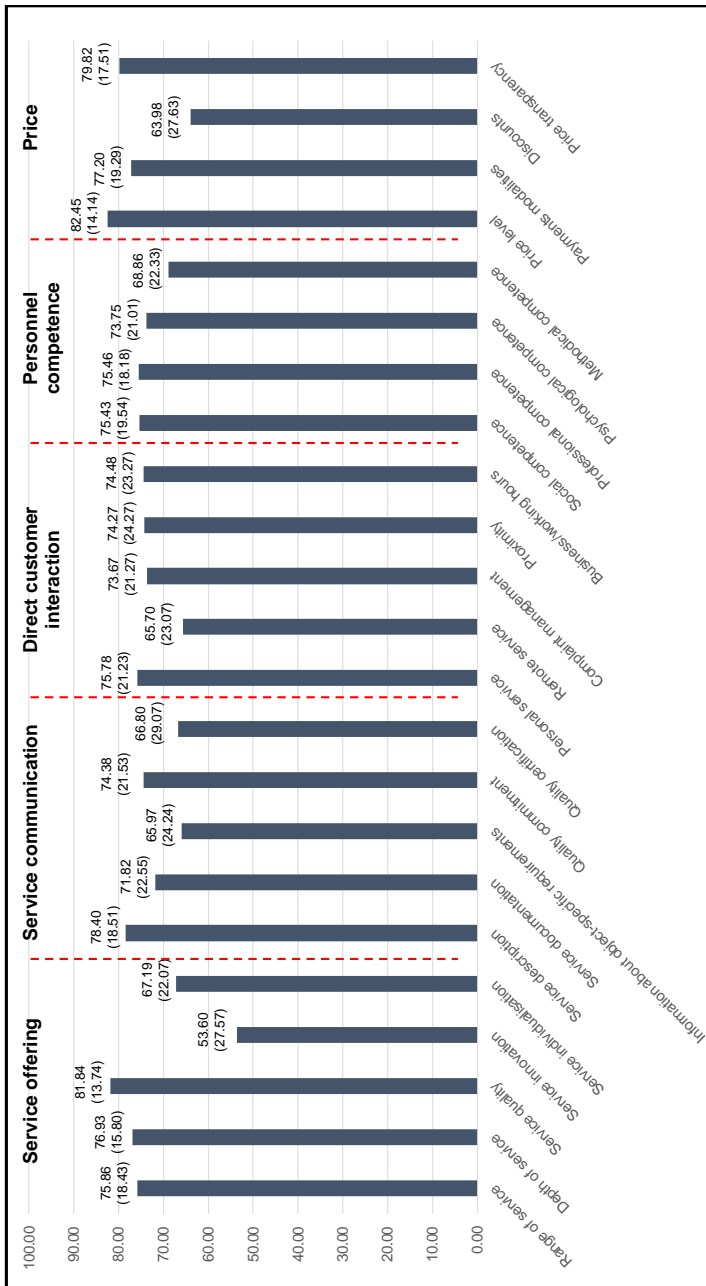
Figure 5: Subjective quality of performance elements on a scale from 0 "not good" to 100 "very good" (n = 304)

Within the performance category of **service offering**, the range of services, the depth of services and the service quality are on a relatively high quality level, whilst the innovation and individualisation of services are on a comparably lower level.

The description, documentation and quality commitment of services show higher qualities than the information on object-specific requirements and the quality certification in the performance category **service communication**.

All of the elements of the performance category **direct customer contact** are on a comparable quality level (personal service, complaint management, geographic proximity and business hours), with the exception of remote services, which rate substantially lower.

Within the performance category of **personnel competencies**, only the methodological competence rates lower than the other performance elements (social, professional and psychological competence), which are on a similar quality level.

The price level, payment modalities and price transparency have higher quality values than the discounts within the performance category of **price**.

5.3 Optimising Options for Commercial Cleaning Services Providers

The normed values and the qualities of the performance categories are combined within a matrix and presented in Figure 6. As described in section 4.2, the normed values indicate the potential for optimisation and the quality indicates the need for optimisation. The price of commercial cleaning services shows above-average values in both normed value and quality. Thus, this performance category has a high potential and a low need for optimisation, and the norm strategy of securing its quality with a high priority is advised. The service offering shows a high potential and a high need for optimising its quality. Thus, the quality of this performance element should have high priority. With a low priority, the quality of service communication, direct customer interaction and personnel competencies should be built up because of their below-average normed values and qualities.
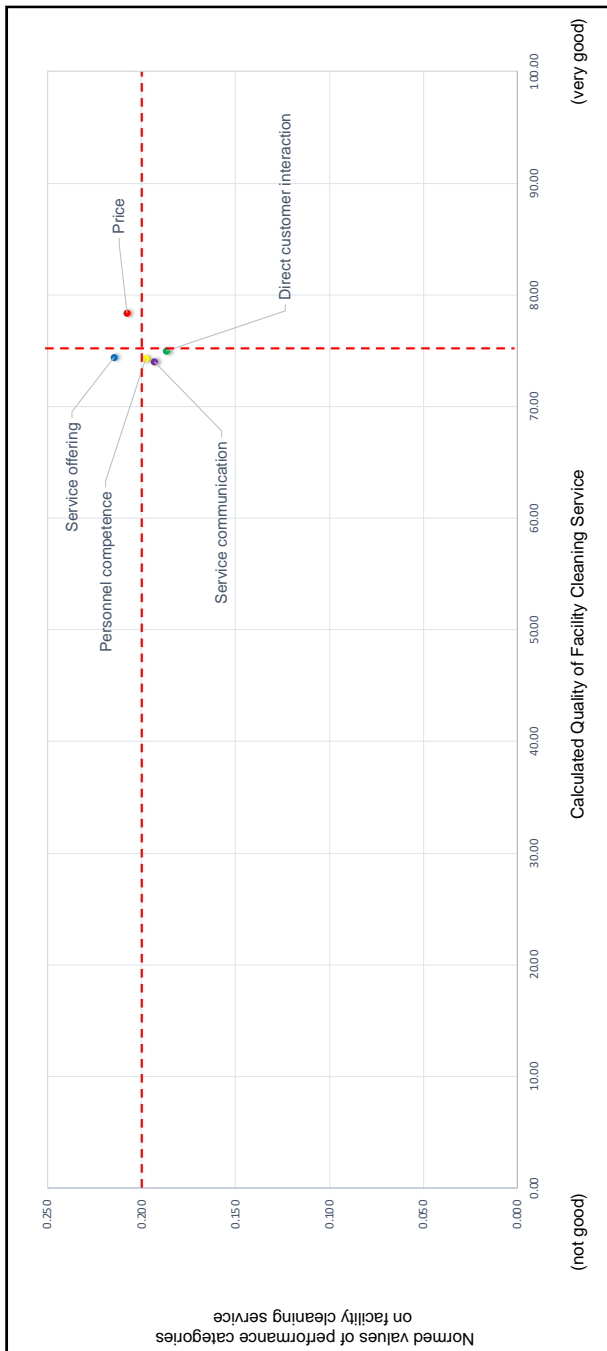
Figure 6: Calculated quality and normed values of the performance categories (n = 304)

The same matrix of total normed values and qualities is also applied to the performance elements. According to Figure 7, commercial cleaning services providers should secure the quality of the following performance with a higher priority (ordered by performance categories):

- Range of services (service offering)
- Depth of services (service offering)
- Service quality (service offering)
- Service description (service communication)
- Complaint management (direct customer interaction)
- Professional competence (personnel competencies)
- Social competence (personnel competencies)
- Psychological competence (personnel competencies)
- Price level (price)
- Payment modalities (price)
- Price transparency (price)

Commercial cleaning services providers should secure the quality of the following performance with a lower priority (ordered by performance categories):

- Quality commitment (service communication)
- Personal service (direct customer interaction)
- Proximity (direct customer interaction)
- Business/working hours (direct customer interaction)

Commercial cleaning services providers should build up quality for the following performance elements with a lower priority (ordered by performance categories):

- Service innovation (service offering)
- Service individualisation (service offering)
- Service documentation (service communication)
- Information about object-specific requirements (service communication)
- Quality certification (service communication)
- Remote service (direct customer interaction)
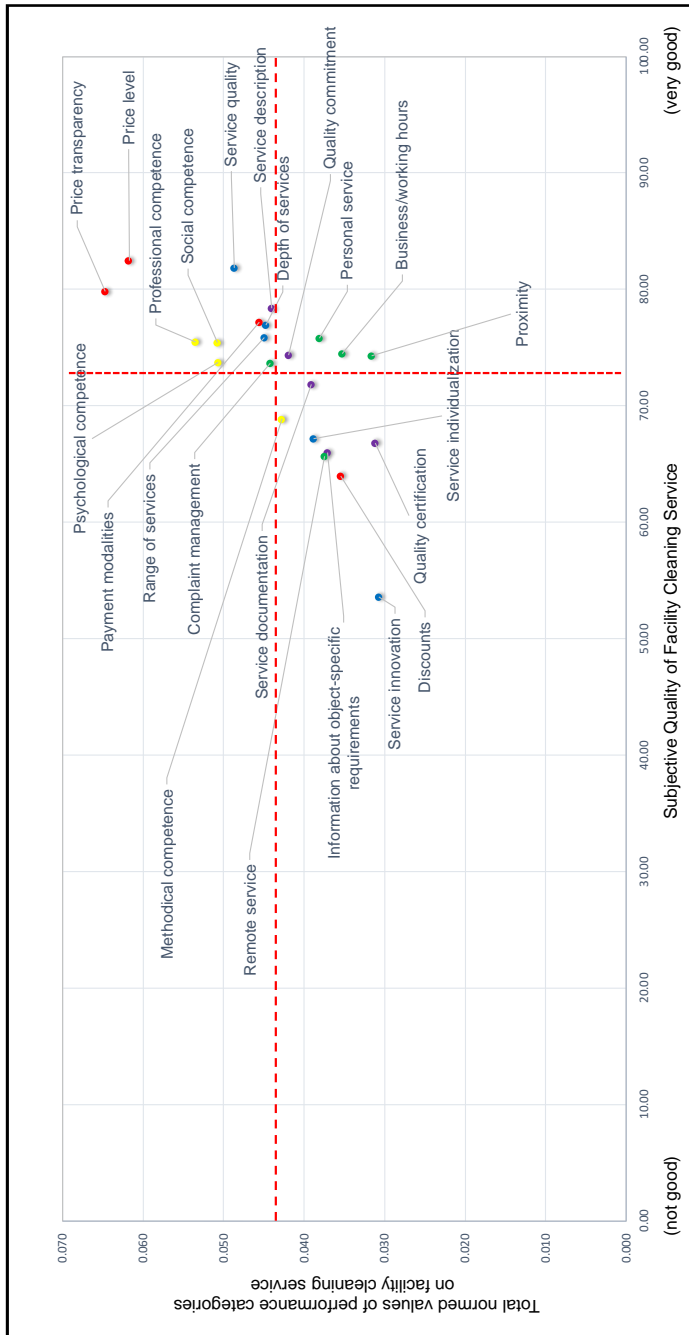- Methodological competence (personnel competencies)
- Discounts (price)

Figure 7: Subjective quality and total normed values of the performance elements (n = 304) (own representation).

6   Discussion

The implications of the afore-presented results, limitations of this study and an outlook on further research are presented in the following two subsections.

6.1   Implications

We could show in section 5.1 that the service offering and the price are of higher relevance to the customers than the service communication, the direct customer interaction and the personnel competencies. As shown in section 2.2, the service offering, in conjunction with the price, can be related to the result of a service. On the other hand, the direct customer interaction and the personnel competencies can be linked to the potential and process dimension of services. This has implications for the management process of commercial cleaning services. Commercial cleaning services providers are advised to focus first on the performance outcome or, in other words, on the eventual benefit for the customer. Building the performance potential and the service processes, which are necessary for achieving the afore-mentioned outcomes, should be viewed as a means-to-an-end, and designed and managed secondly. Thirdly, the communication of services, before, during and after their delivery, should be designed.

It can be deduced from sections 5.2 and 5.3 that the performance category price represents a strength of commercial cleaning services providers and they are advised to primarily focus on securing the respective quality. This accounts especially for the performance elements price level, payment modalities and price transparency, which can be understood as the core of any pricing policy. However, these performance elements still show room for improvement, which should be used by incremental improvements rather than fundamental changes. The remaining performance element of this category, discounts, shows some weaknesses so that more substantial improvements might be useful. Such substantial improvement should, however, be handled with care, as discounts bear some risks and can even lead to negative effects (e.g. Aliawadi et al., 2007; van Heerde et al., 2003).

Similar conclusions can be drawn for the performance category service offering and its subordinated elements. The range, depth and quality of commercial cleaning services perform above-average, whilst the innovation and individualisation of services perform below-average. Thus, commercial cleaning services providers should focus on building on the existing strengths of the former three elements and improving these in incremental steps. Then, the latter two performance

elements should be more substantially optimised without harming the afore-mentioned core of the provided services. In this context, more investments in research and development and market segmentation and analysis spring to mind.

After securing (and incrementally improving) their strengths in the two afore-described performance categories, commercial cleaning services providers should improve the performance categories direct customer interaction and personnel competencies, which can be understood as the potential and process dimension of services. When doing so, commercial cleaning services providers should use the complaint management, personal service (on site), geographical proximity and business hours (direct customer interaction) as well as the professional, social and psychological competencies (personnel competencies) as a starting point, as these elements perform above-average. Then, more substantial improvements should be made to remote services (direct customer interaction) and methodological competence (personnel competencies). Both performance elements might be of growing importance in the future. The advancing digitisation of the (business) world can also impact the commercial cleaning services so that customers potentially request more remote services in the future. Similarly, the methodological competence of the commercial cleaning personnel might gain importance against the background of the advancing complexity of technology and administration.

Finally, commercial cleaning services providers should optimise their communication. This communication should aim to support the performance categories and elements discussed before. Thus, the communication before, during and after the delivery of commercial cleaning services should be deduced from the actual and/or intended results, potentials and processes of commercial cleaning services. So far, commercial cleaning services providers can build on their strength with regard to the performance elements of complaint management and quality commitment. They need, however, to improve the quality of service documentation, information about object-specific requirements and quality certification.

6.2   Limitations and Outlook

This study allowed rather broad insights into the customer expectations towards commercial cleaning services and their fulfilment. Furthermore, norm strategies and options for optimising commercial cleaning services could be deduced so that respective services providers find an approach and framework of how to improve their market performance.

This rather broad research approach, however, comes with a limitation, i.e. not being able to assess all of the examined constructs in depth. Thus, it might be fruitful to concentrate future research on particular aspects of our hypothesised model and to examine the customer expectations and their fulfilment in more detail for single performance elements. Potentially, qualitative research approaches can help generate "behind-the-scenes" insights.

In a different, presumedly quantitative study, the effectiveness and efficiency of measures deduced from the framework provided in this publication should be monitored to gain further knowledge of how the market performance of commercial cleaning services providers can be optimised on a more detailed level.

The data of our study was only collected in Germany so that we cannot rule out cultural influences. Thus, an international comparison of the results, using the same hypothesised model and method, could lead to a deeper and broader understanding of the commercial cleaning services market.

Lastly, we collected our data during the Covid-19 pandemic, which might have had an impact on the general attitude towards hygiene and cleaning and, therewith, on our results. Against this backdrop, a longitudinal study with the same model and method might be advised. Such a longitudinal study would also help to identify trends in the commercial cleaning market.

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