

**THE INVESTIGATION OF THE CRITICAL SUCCESS FACTORS FOR PRICE
STRATEGY OF INFORMATION TECHNOLOGY (IT) SERVICES**

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Abstract

Objectives: The aim of the research is to investigate the critical success factors for price strategy of information technology (IT) services. The discrepancy between the isolated focus of the research on the influential variables on pricing decisions and the multi-dimensional reality of the marketing mix that managers must deal with is the theory-practice gap. This research seeks to reduce the theory-practice gap by identifying the reciprocal dependencies between internal price-setting and external price strategy, examining the personal views of pricing managers on the critical success factors, and determining recommendations for practical pricing process improvements.

Methodology: The researcher sets an antithetic point to the previous, mainly quantitative, pricing research by performing an interpretive approach to overcome the deficiencies in the research quality and provide explorative research. The research method of choice, considering the high complexity of pricing research, is a sequential semi-structured interview accompanied by a cognitive mapping process that focusses on the IT services industry. The case study strategy enables enlarging the horizon of study beyond the context. The appreciation of every single opinion of ten professional pricing managers from different international IT companies serves to gain in-depth insights and a colourful bandwidth of perspectives. Criteria such as trustworthiness, systematicity, reflexivity, and transparency, in conjunction with a member-checking process assess the high research quality.

Contribution: The findings and their interpretations uncover the objectives, the critical success factors, and the reciprocal dependencies of price-setting and price strategy. Recommendations for practical improvement like a versatile pricing manager role, a standardization of the IT service catalogue, a paradigm change in price-setting, and the proposition of a new four-category pricing model toolbox complete the ambition of reducing the theory-practice gap.

Limitations: Limitations can arise through the number of research participants, their individual experience and temporal retrospection, and the complexity of cognitive mapping. Sector-specific findings cannot easily be transferred to other industries.

Author's declaration

I declare that the work in this thesis was carried out in accordance with the regulations of the University of Gloucestershire and is original except where indicated by specific reference in the text. No part of the thesis has been submitted as part of any other academic award. The thesis has not been presented to any other education institution in the United Kingdom or overseas.

Any views expressed in the thesis are those of the author and in no way represent those of the University.

Signed Date

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List of abbreviations

B2B	business-to-business
B2C	business-to-consumer
CPU	central processing unit
CSF	critical success factor
e.g.	exempli gratia (for example)
etc.	et cetera
GDP	gross domestic product
IaaS	infrastructure-as-a-service
ICT	information and communication technology
IP	internet protocol
IT	information technology
KPI	key performance indicator
PaaS	platform-as-a-service
T&M	time and material
SaaS	software-as-a-service
SCP	structure-conduct-performance
SOW	scope of work
MSP	managed services provider

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1 Introduction

1.1 Research interest and the significance of the topic

IT companies are no different from other organizations in their need to price and sell their services to achieve the business' objectives. Whereas the IT service provider seeks to achieve planning reliability, volume commitments, a high degree of staff capacity utilization, and high profitability, the customer seeks a bespoke IT service that offers the flexibility to pay only for the IT services received at an attractive market price. IT services can be defined as the services of an IT provider that support the business processes of a company by providing manpower, expertise, and computer and network technology.

The researcher has been a professional pricing manager for a global IT service provider for many years. He has experienced that an inappropriate price strategy can have enormous consequences such as the loss of market share or decreasing profitability. Related pricing models put product quality attributes, structural variability, customers' business success, and the proportion of risk and opportunities into a financial context.

In his professional role as an IT pricing manager, the researcher experienced that the decision for or against an IT service provider *inter alia* depends on the IT service provider's ability to offer a customized solution according to the phase that a customer's IT organization is in. A first-generation outsourcing is usually characterized by maintaining services as-is without changes in the organizational and procedural structure. End-user equipment and central systems are standardized. A second or third generation outsourcing reflects changes by introducing digital processes and remote services. Making the step from first to second or third generation outsourcing with a package of lessons learned in the previous phase leads to changes in the customer's IT organization, its processes, and necessarily the pricing.

Constant changes in the IT environment and technological progress like cloud services and cloud computing make it challenging to price IT services. Seeking to understand and improve the internal price-setting process in coordination with the external price strategy in practice, the pricing manager starts with investigating studies that cope with pricing in general and pricing IT services. The outcome is quite sobering but motivates the pricing manager to start researching activities himself. In the end, the gap between the limited theoretical perspective and the deficiencies of the applicability in practice is the main

motivation for this research. The researcher considers his hands-on experience in pricing IT services along with his advanced access to experienced pricing managers to be very valuable for a balanced dialogue.

1.2 Shortcomings of the existing research and a new research approach

Shortcomings of the existing research

The literature review (Chapter 2) explains in detail that the existing pricing research often has an isolated focus on pricing objectives like e.g., profit maximization, but neglects the complex interaction of other potential pricing objectives that count in practice such as long-term profits, company market share growth, management incentives, taxation issues, or capacity utilization. This gap between theory and practice is the discrepancy between the isolated research focus of the influential variables on pricing decisions, and the multi-dimensional reality of the marketing mix that managers must cope with.

The researcher as a pricing manager faces practical problems in a complex and competitive environment. Factors like multi-product responsibility, information asymmetries on product demand, dynamics of technological progress, or unexpected competition responses result in applied pricing methods that proved themselves in practice. Searching for advice in academic literature, the researcher noted that pricing researchers focus primarily on reactive measures like demand elasticity, which is influenced by e.g., price, promotion, or quality. Seeking to change price elasticity beneficially does not appear to be interesting for researchers. Furthermore, research on the price-setting process that is harmonized with the price strategy is more than rare.

Thus, the researcher sees a tangible gap between pricing theory and pricing practice. The simple transfer of results from existing pricing research to practice, with special regard to pricing IT services, is bound to fail. Moreover, Rau and Willmott (2012) predict that technological progress will result in changing IT pricing mechanisms. Neither a comprehensive picture of this complex topic with its manifold research variations nor a bridge between pricing theory and practice exist.

New research approach

Pricing IT services takes place in an environment where a few global companies dominate the multi-billion-dollar market of IT services. In those companies, only a few pricing managers act as the interface between the customer and the provider and evaluate and influence the formation of prices. Understanding those key players – their experience of how pricing is influenced, their view on competition, their interpretation of different pricing models, their ideas for new approaches and improvement – can provide insight into their reality and the possibility to investigate unexpected factors.

Yet, pricing is traditionally an area of quantitative research. However, the researcher expects a significant contribution to knowledge when performing a qualitative research approach that focusses on the practitioners' experiences. Furthermore, the researcher expects new ideas that he can interpret adequately due to his practical background. A qualitative research approach is considered appropriate, as this complex and sensitive topic requires a personal dialogue to gain empathy and ensure subject clarification. The ability to gain access to this information is considered a unique feature of this research.

1.3 Research objectives

The aim of the research is to investigate the critical success factors for price strategy of IT services. The research objectives and related research questions illustrated in Table 1 arise both from the identified shortcomings of the existing research and the expectations of additional benefits for practical implementation.

Table 1: Research objectives and questions

No.	Research objective	Associated research questions
1.	Critical illustration, accentuation, and analysis of the theory-practice gap of pricing research in a comprehensive manner.	<ol style="list-style-type: none"> 1. What is the theory-practice gap of fundamental pricing theories? 2. How does previous pricing research contribute to close the theory-practice gap? 3. Which factors are commonly considered critical for the successful pricing of IT services?
2.	Critical analysis of the potential reciprocal dependencies between price strategies and price-setting practices of IT services.	<ol style="list-style-type: none"> 1. Which entrepreneurial and managerial objectives are influential in determining pricing? 2. What price-setting practices and price strategies are currently applied to pricing IT services? 3. Which factors affect a potential two-way relationship of internal price-setting and external price strategy?
3.	Interpretation of IT pricing managers' personal experiences with a focus on the critical success factors.	<ol style="list-style-type: none"> 1. What are the critical success factors of price-setting and price strategies? 2. Which monetary and non-monetary objectives influence the identified critical success factors?

No.	Research objective	Associated research questions
4.	Recommendation of new and original practical improvements for the pricing process.	1. What are the implications of the critical success factors for practical improvement? 2. Which changes might be implemented efficiently?

Source: Proprietary development

Explanation

1. Pricing research is a multifaceted and complex topic – some would call it bumpy and rugged – that is picked out as a central theme by different disciplines. Therefore, it is considered necessary to carve out the existing research streams and their contributions to solve the theory-practice gap of pricing in general but also in particular concerning IT services.
2. Pricing research does not always clearly separate the internal process of price-setting and its influential factors from the external price strategy observable in the market including pricing models. This separation is considered necessary to analyse the possible relations between internal and external pricing, and especially the motivations, objectives, and influential factors behind it.
3. The success of pricing IT services becomes manifest in contracting a deal and, from an IT service provider perspective, in realizing the predicted revenue and profitability. From the customer perspective, paying an attractive price on the market level is considered the main monetary objective. However, from a pricing manager's experience, non-monetary factors are also important. The third research objective and its associated research questions scrutinize the critical success factors of the internal and external pricing process in practice and identify the influencing monetary and non-monetary objectives behind it.
4. Once having access to information about the internal and external pricing processes, critical success factors, and objectives and motivations behind it, it is considered an additional value to make recommendations for practical improvement. The individual pricing manager's perceived possibilities of improvement in an imperfect world can help to overcome deficiencies in the current pricing processes.

Research goal 1

In a nutshell, information asymmetries concerning competition prices or customer value lead necessarily to a price strategy that is influenced by the price-setting process – e.g.,

cost estimation, benchmarking, or experience. When the competition price in a competitive bid is unknown, it is difficult for the decision-makers to decide on price. Extending the current view of a one-way relationship between price strategy and price-setting to a reciprocal, two-way relationship will contribute to theory by incorporating these experiences. As the exploration of the reciprocal dependencies and influential factors is not yet subject to research, this contribution is considered to give new impulses to the research.

Research goal 2

IT managers shall share their experiences of the critical success factors of the pricing process and the individual purposes of pricing models. The goal of investigating the IT-specific critical success factors is expected to contribute to practical improvement and increase management awareness. Composing a new conceptual framework that contains the pricing objectives neglected in research shall enable the generation of hypotheses and thus contribute to theory.

1.4 Originality and contribution to knowledge

This research has the claim to contribute to knowledge significantly and provide an original approach that shall also serve future pricing research to break new ground. The following aspects each represent a novelty that confirms the doctoral level of this thesis:

1. The illustration and analysis of the theory-practice gap in pricing research is new. Researchers just touched upon this topic briefly but not as a whole. In contrast, the analysis of the decision-making deficiencies of four categories of fundamental pricing theories uncovers the underlying problem of pricing research and provides a holistic and critical view on the deficiencies of pricing research regarding their practical benefit. The analyses in the literature review can serve as references for future research that likewise aims to overcome the theory-practice gap in different industries.
2. The call for a paradigm change in pricing research with a different epistemological foundation remained unheard of for a long time. This research opposes the trend (see section 2.2) and uses a qualitative research methodology to overcome the theory-practice gap and to answer the research questions properly. The researcher's practical experience in pricing IT services provides additional authenticity and trustworthiness to the interpretive research approach. The interactivity of a semi-

structured interview complemented by a cognitive mapping process is unique in pricing research and allows richer data to be obtained.

3. Leading pricing researchers like Monroe and Mazumdar (1988) call for more descriptive research on pricing. Descriptive research on pricing is important for creating knowledge about the decision process and heuristics used by managers and buyers. This can help to understand under which circumstances an existing pricing model is applicable and which deficiencies in structure those models have. And, the philosophy-of-science debate releases descriptive research from the role as the unwanted stepchild of academic research and makes it acceptable and legitimate for knowledge development. Thus, this research questions the uncritical reliance on the economic paradigm (see section 2.1.3) and seeks to provide additional value through the practical diversity of descriptive research.
4. Regarding the existing research, this thesis questions the one-way relationship of price-setting to price strategy and broadens the perspective to a two-way relationship with reciprocal dependencies.
5. As a further novelty, this research investigates the case-related critical success factors of pricing IT services that shall lead to practical recommendations for the pricing process.

1.5 Thesis structure

The thesis comprises this introduction followed by the literature review, the methodology, the presentation of findings, and finally the discussion and conclusion.

The literature review is divided into four sections. The first section serves to convey a fundamental understanding of the theory-practice gap of pricing research and it demonstrates the decision-making deficiencies of fundamental pricing theories. Illustrating and analysing the main subjects of debate in the theory-practice dialogue shall enable the reader – also those readers who are outside this subject area – to understand the pricing context and the contribution this research is seeking for. The second section analyses recent trends in pricing research in terms of their priorities, topics, theoretical foundations, research designs, and methods to assess whether potential shortcomings that lead to the theory-practice gap are subject to pricing research. The third section analyses case-related quantitative and qualitative pieces of research that focus on the relation of price-setting and

price strategies, influential pricing factors, and IT service-related research. The construction of a new conceptual framework that brings together elements of case-related research in the fourth section completes the literature review.

The methodology chapter is divided into three sections. In the first section, the researcher debates on the decisive factors for qualitative research like the research questions, case conditions, epistemological contribution, complexity of subjective factors, research approach as a differentiator, and interpretive research design aspects, and decides on the research approach. He then discusses the research design, strategy, and method in detail based on their adequacy with respect to the research objectives and illustrates the implementation process. The methodology chapter finishes with the critical evaluation of the research quality, methodological originality, limitations, bias, and ethics.

In anticipation of a qualitative research approach that appreciates every single opinion, practical experience, and new idea to provide a manifold picture that itself might stimulate reflection on pricing, the findings chapter consistently illustrates the individual cognitive maps and describes their main statements and connections regarding internal pricing, external pricing, critical success factors, and recommendations for improvement of future pricing. In this context, the researcher describes his impressions in terms of the respondents' abilities to grasp the complex context and answer the research questions properly. Moreover, he interprets and abstracts the most important findings regarding the research objectives and correlates these conclusions with the existing research to infer their implication for the proposed conceptual framework. Verifying the conclusions from the main interview sequence by a second, verification interview sequence without cognitive mapping but adapted research questions shall increase the quality of the research.

Finally, the discussion and conclusion chapter relates the findings and the conclusions to the research objectives and discusses their theoretical and practical contributions. In terms of the theoretical contribution, the researcher discusses the significance of the conclusions and research correlations for future pricing research, modifies the newly constructed conceptual framework according to these conclusions, and reflects on the limitations that became apparent during the research. In terms of the practical contribution, the researcher concludes on the innovative practical management recommendations for pricing process improvements and proposes a new categorization of pricing models. A research résumé

that contains a reflection on the achievements of the research objectives and the novelty of this research as well as a proposal for a conceptual orientation of future pricing research completes this thesis.

2 Literature review

The composition of the literature review is divided into three parts. It separately analyses the fundamental theory-practice gap problem of pricing research (2.1), the pricing research trends of the last decade (2.3.1), and the case-related quantitative and qualitative pricing research (2.3.3) that refers to IT services and to particular research objectives. Based on these three elements, the researcher constructs a new conceptual framework that merges the resulting findings, criticism, and conclusions (2.4).

The first section (2.1 The theory-practice gap) is a new analysis of the theory-practice gap in pricing research that some researchers briefly touch upon when justifying their motivation but never derive in detail. It is necessary to convey a fundamental understanding of the theory-practice gap as pricing is a multifaceted and complex topic that experienced researchers approach from different angles in different disciplines. Moreover, research is not an end in itself. Demonstrating the decision-making deficiencies of the main pricing theories shall illustrate the problems of transferability to practice (2.1.2). Giving the reader the possibility to reflect on the fundamentals of pricing research that have influenced generations of scholars and students shall prepare to follow the continual theory-practice dialogue that is rather unapparent (2.1.3). The analysis, its elementary criticism, and the conclusions contribute to knowledge by transparently contextualizing the decision-making deficiencies in a new and comprehensible way.

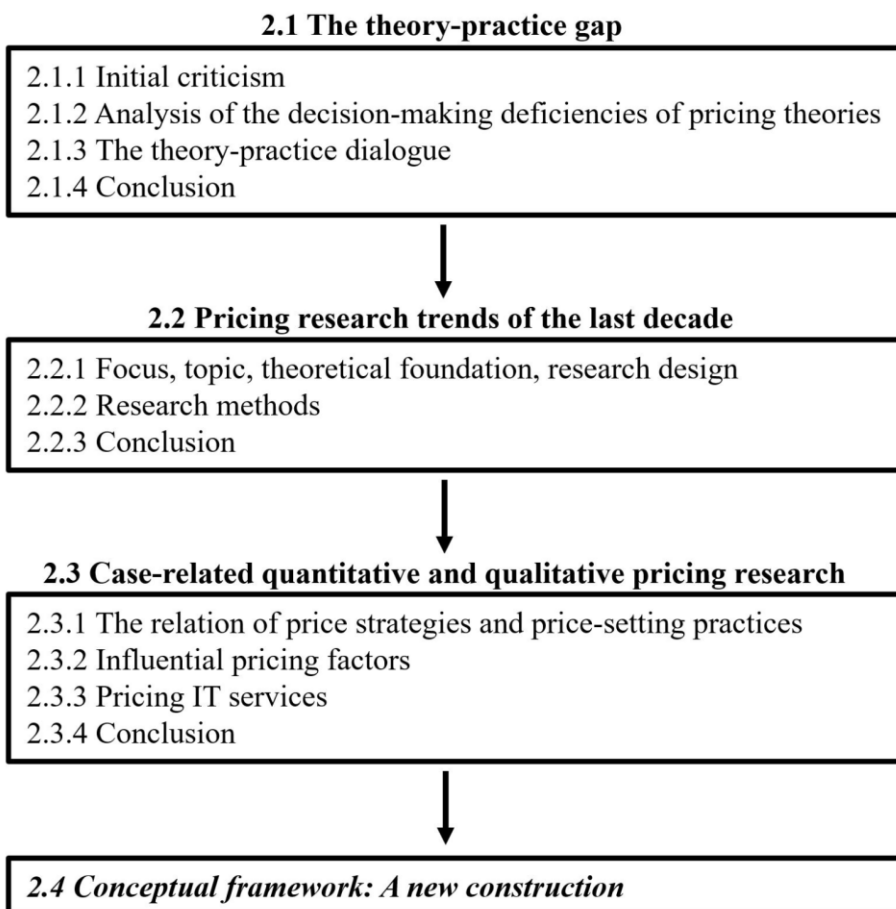
The second section (2.2 Pricing research trends of the last decade) examines the last decade's pricing research regarding its focus, topic, theoretical foundation, and applied research design to determine the development and the current state of general pricing research. The analysis shows to what extent pricing research can pick up the criticism of the theory-practice gap. Furthermore, it indicates a conceptual orientation of a new and innovative conceptual framework that seeks to reduce complexity but simultaneously perpetuates the goal of feasibility.

The third section (2.3 Case-related quantitative and qualitative pricing research) refers to case-related, specific pieces of pricing research that focus on the relation of price-setting and price strategies, influential pricing factors and resource-based capabilities, pricing internal IT services, critical success factors of IT outsourcing, pricing software-as-a-service, value-driven strategies of pricing IT services, and pricing data services. This

section aims to provide a deeper insight into new pricing research trends with a special focus on IT-related research and pricing capabilities to accentuate regarding the research objectives. At this point, it becomes clear that IT services-specific pricing research and the unspecific investigation of the critical success factors of pricing in practice is both more than rare. As a result, the unique feature of this thesis is the composition of its case relation and its focus on the practically relevant critical success factors.

In the end, the literature review (Figure 1) shall prepare the reader to be able to immerge into the topic and the resulting new conceptual framework (2.4) and understand the profundity of the research questions. Providing a different perspective without considering an affiliation to a certain pricing research stream shall be recognized as an additional contribution to this research. Figure 1 illustrates the composition of the literature review chapter.

Figure 1: Literature review composition



Source: Proprietary development

2.1 The theory-practice gap

This section serves to carve out the elementary criticism formulated by the theory-practice gap in pricing research, the ways various researchers cope with this conflict, and the diverse emphases that researchers put on healing this conflict. The section starts with the initial criticism formulated by Oxenfeldt (1973) and maintained by contemporary researchers that explicitly questions the normative research tradition. The analysis of the fundamental pricing theories regarding their deficiencies in decision-making serves to understand the problems of transferability to practice and the different perspectives of the presented theory-practice dialogue. This analysis of the theory-practice gap in pricing research contributes to knowledge as it transparently brings the decision-making deficiencies of the fundamental pricing theories and the unapparent theory-practice dialogue into context. Its conclusions are intended to shape future research in such a way that the theory-practice gap can be overcome without neglecting the versatility of existing research.

2.1.1 Criticism

The conflict

Aspects of the conflict, which address the existing discrepancy between theory and the application of price formation in price research, were shown by Oxenfeldt (1973) in early research. The theory-practice gap in pricing research describes the discrepancy between the isolated focus of the research on the influential variables on pricing decisions and the multi-dimensional reality of the marketing mix that managers must deal with, where price is only one element. Oxenfeldt (1973) states that in practice most of the pricing decisions made by managers are either highly intuitive when coping with new product introductions or based on inflexible standard processes like cost-plus pricing, which is the typical price-setting process in organizations (Klepacz, 2017). Therefore it is no wonder that, according to Dolan and Simon (1997), managers rank pricing as the most difficult decision in marketing. However, the research attempts to identify the suitable methods of price determination rather than the best practices. Oxenfeldt (1973) criticizes that theoretical insights and approaches are not interesting and feasible enough to attract the attention of practitioners, despite the systematic process of pricing.

Oxenfeldt (1973) traces this gap between pricing research and practice back to the researchers' lack of extensive personal experience. Pricing responsible executives face

practical problems in a complex and competitive environment. Organizational factors like multi-product responsibility, information asymmetries on product demand, dynamics of technological progress, and unexpected competition responses result in applied pricing methods that proved themselves in practice (Shy, 2008). Even though research contributions to the development of useful methods for practical application are evident, large gaps can still be identified. Oxenfeldt (1973) points to the one-dimensional analysis of pricing problems considering only small and isolated parts whereas in practice, pricing managers must deal with several influential factors. Researchers also disregard the long-run effects on markets and focus on the impact on immediate market sales. Pricing approaches are rather designed to adapt to the existing demand than increase demand, thus lack innovation.

Oxenfeldt (1973) attributes this failing to the employment of quantitative techniques focussing only on demand elasticity determined by e.g., price, promotion, quality, and not identifying non-quantitative measures that go beyond these. This conceptual error in research is traced back to the objective of price elasticity determination instead of seeking to change this elasticity beneficially. Comparable observations have been made by other researchers (e.g., Diamantopoulos, 1991; Monroe & Mazumdar, 1988).

Pricing objectives

Following Oxenfeldt (1973), Ingenbleek and van der Lans (2013) relate the problems and opportunities associated with pricing decisions to a company's overall objectives. Thus, the explicit definition of corporate objectives can help with identifying and anticipating the potential obstacles but also opportunities in pricing. Some of these objectives of pricing identified by Pachamano and Fabozzi (2011) include e.g., maximization of short- and long-run profits, output and market share growth, market stabilization, price desensitization of the customer, continuation of price-leadership, prevention of competition market entry, speed exit of marginal firms, avoidance of government investigation and control, avoidance of demands for more service, maintenance of the middle man's loyalty, enhancement of the firm's and products' image, trustworthiness, and reliability, creation of interest, support of a product's visibility, and traffic expansion.

Price-setting problems

Trifts, Huang, and Häubl (2013) indicate that price-setting depends on the value that customers attribute to a product, demand changes in the case of price change, competition responses to price changes, and resellers' sensitivity to price change. However, the measurement of these elements is considered highly uncertain. Oxenfeldt (1973) claims that practitioners do face problems while measuring various elements in specific market situations. The availability of information especially in different market contexts is considered the main problem without a valuable contribution from pricing research specialists.

The conflict between pricing objectives and the implementation of the price determination reflects in various problems (Bouchaud, Farmer, & Lillo, 2009):

1. A price increase that seeks to increase profit can result in a decline of sales and thus cause a decline in at least long-term profit.
2. When prices do not reflect the competition prices or the relative benefit of the product, then they are relatively too high or too low. This effect can vary regionally and seasonally.
3. The firm's image can be experienced either as exploitative and not reliable in the case of too high prices or experienced as low-cost and likewise low-quality supplier in the case of too low prices.
4. Too frequent price changes might put financial pressure on resellers; ignoring market changes might lead to a decrease in sales or a loss of profit.
5. A too complex price structure can confuse customers.
6. Price changes can destabilize the market.

This confirms the initial criticism of Oxenfeldt (1973) in stating that the action of price-setting requires more than just shifting the price of a product or service. Acting in an environment that consists of various influential factors like e.g., competition, geography, customer value, and timing makes the pricing process that initially consists of the definition of pricing objectives and the price-setting very complex, although the implementation only takes a little effort.

The importance of this criticism

The clear criticism of the theory-practice gap reflects the questioning of the normative research tradition because of its isolated focus on certain quantitative variables. Pricing objectives that are either qualitative or difficult to measure are rarely the subject of research, thus not part of normative pricing theories and therefore impractical.

2.1.2 Analysis of the decision-making deficiencies of pricing theories

This section sums up the fundamental theories of pricing, their contributions, and criticisms to provide the basis for the understanding of the area of conflict between, on the one hand, the theories among themselves and, on the other hand, the subsequently illustrated theory-practice dialogue. The deficiencies in decision-making theories are outlined as follows:

Conventional price theory

The basis of the conventional price theory was founded on the principles of Smith and Ricardo, which recognized the pursuit of maximum advantage by theorizing the neoclassical price theory (Schindler, 2012). Details of conventional price model are covered by Wetzstein (2013) and Weyl (2018). The contribution of the economists was relevant in the price decision-making based on the assumption of profit maximization. Changes in price can be enhanced through the optimization of production costs and adjustments on margin to suit the market conditions and schedules for individual demand. However, the approach has faced criticism on the assumption of profit maximization that is not specified on time horizon, and the narrow definition of a firm's function (Bradley, 2010; Tenerowicz, 2014). The researchers also criticized the oversimplification of the theory regarding the decision environment, information availability, decision-making under conditions of certainty, and its interpretation.

The absence of the behavioural dimension in the conventional price theory ignoring human behaviour has been criticized by e.g., Kotler (2016). Opposition to this criticism found its origin in the marginalist controversy where the conventional price theory is put into perspective by negating the assumption that the theory shall explain the decision-making process of an individual firm (Downward & Lee, 2001). Nevertheless, the conventional price theory explains the effects of change on the activities of the firm, which does not

predict the behavioural patterns in real organizations (Albert, 2014). Additionally, price theory has been developed to analyse broad economic changes and, with regard to price theory, contribute basic concepts like price- and cross-elasticity of demand, reaction function in oligopoly (competition), and fixed and opportunity costs (Hammock & Mixon, 2013).

Industrial organization theory

The industrial organization theory deals with interdependencies of industry structure, company's business behaviour, and its impact on economic performance. The main distinguishing mark of this theory is the structure-conduct-performance paradigm (SCP) that assumes a chaining between market structure, business conduct, and economic performance (Hazersloot, 2013; Raible, 2013). The conceptual points determining market conditions and structure are e.g., price- and cross-elasticity of demand and supply, market growth, seasonality, technological progress, the location of buyers and sellers, product durability, and purchase methods. Market structure is characterized by e.g., seller and buyer concentration, product differentiation, entry conditions, and industry maturity. Business conduct in this pricing context means the existence and impact of production, price, and promotion policies and strategies, and the willingness to invest in research and production. Market performance as the result of these three elements comprises e.g., profitability, employment, technical progress, and product quality.

However, the one-way causal consideration of the SCP paradigm could not resist criticism. Various studies have indicated that the role of business conduct has been overstated regarding the impact on performance, which cannot be used in the prediction of market structures (Clegg, Courpasson, & Phillips, 2006; Panagiotou, 2006). Likewise, Gavurova, Kocisova, and Kotaskova (2017) argue that there were more than just one-way causations from structure to conduct to performance, namely feedback effects interconnecting various elements of the framework. On the one hand, pricing behaviour affects the entry barriers to a market (e.g., oligopoly) by setting a price below the average total costs while producing a high output, which signals the competitors that entry into the market was not profitable. On the other hand, pricing behaviour itself is affected by the predominant market situation with the existing competitive conditions.

Managerial theories

The theories represent a range of conceptual ideas that are different from the previous two models that use profit maximization as a single motivational factor. The managerial concepts are based on the managers' motives and their corresponding behaviour in contrast to those of entrepreneur or ownership groups (Weinstein, 2012). Causes for this wider consideration of motives lie in the market form of oligopoly as an emerging market form, the addition of the utility maximization perspective as a part of the analysis of the firm, and a separate reflection of ownership and managerial control. Managerial theories demonstrate that in oligopoly, profit maximization is one among other objectives and not necessary for the viability of the firm. In addition, models of the owner-entrepreneur utility maximization show that other objectives can also comply with rational behaviour. The separation from ownership and managerial control shows, why managers' objectives are different from profit maximization and enjoy priority in a firm's microcosm.

In the end, managerial theories only differ in their objectives. According to Reed (2009), the ability to change business objectives redefines utility and maximization. In such a consideration, the theories aim to increase the company's sales revenue, output, utility, or growth maximization. The approach is supported by K. D. Miller and Tsang (2010), who indicate that managerial theories enhance a significant portion in the realism-in-motion in contrast to the realism-in-process. Weinstein (2012) suggests that managerial concepts provide a more reasonable description of how and why business managers reach decisions in producing a more realistic prediction of the firm's ability to change.

However, managerial theories have encountered various critics. Spicer, Alvesson, and Kärreman (2009) show how concepts are only focused on the internal factors, which overlooks the market environment and competition. Weinstein (2012) argues that managerial theories are based on the model assumption of an oligopolistic market structure. Lankoski and Smith (2017) question if the firm's objective functions can be described in one utility model as the manager's satisfaction is influenced by many variable factors like e.g. prestige, pride, self-esteem, and future benefits and material consumption. All in all, managerial theories have the limitation of assuming clear motives and preferences. This clarity of a firm's and its managers' objectives cannot be expected *a*

priori. The conversion of formulating manager preferences and analysing their relevance on decision-making is neglected (Zaman & Karacuka, 2011).

Behavioural theories

Behavioural theories include several different theories that all consider the firm's decision-making as not simply driven by profit. The maximization of profits in the organization is considered an unreachable status due to the complexity of external effects. In contrast to managerial theories, which also try to incorporate realism in pricing behaviour known as realism-in-process, behavioural theories consider the decision-making process itself (Schindler, 2012). The approach of theory construction of behavioural theories is characterized by its descriptive realism, which claims a tight connection to actions and concepts made in the real world (Thomas, 2013). Behavioural theories can be classified into four groups, which are based on full- and normal-cost principles, analogies from physical sciences, organization theory, and decision calculus (Diamantopoulos, 1991). The focus here is directed to full- and normal- cost principles as actual studies reconfirm fundamental assumptions of the Post Keynesian price theory (Lucas, 2003).

Lefebvre and Kotler (2011) argue that the right price is based on the average cost and is the one that should to be charged. Comparable studies reconfirm the fundamental assumptions and the Post Keynesian price theory that, firstly, in an uncertain world under risk, mark-up prices are set up in advance prior to transactions to achieve a firm's objectives. Secondly, prices are calculated by involving average direct cost, overhead cost, and profit (the so-called *mark-up*). Thirdly, prices change due to a decreasing cost base and not due to demand changes. An increasing cost base would not automatically lead to adjustments in price (Blinder, Canetti, Lebow, & Rudd, 1998; Downward & Lee, 2001).

Summary

It is undisputed that pricing theories contribute to knowledge in different ways. Likewise, criticism is manifold but quickens research and sometimes even leads to a resurrection of fundamental assumptions like e.g., the average-cost principles as part of the Post Keynesian price theory. The detailed illustration and discussion of the decision-making deficiencies of pricing theories is important to understand the different motivations behind the theory-practice dialogue. Table 2 sums up the previously identified decision-making deficiencies.

Table 2: Decision-making deficiencies of pricing theories

Pricing theory	Assumption	Deficiencies
Conventional price theory	Profit maximization.	<ul style="list-style-type: none"> • Oversimplification in a complex decision environment. • Unspecific regarding time horizon. • Decision-making under conditions of certainty.
Industrial organization theory	Chaining exists between market structure, business conduct, and economic performance.	<ul style="list-style-type: none"> • One-way causal consideration. • Pricing behaviour takes feedback effects into consideration. • No conceptual scheme to analyse the decision-making process.
Managerial theories	Managerial pricing objectives can be profit-, sales revenue-, output-, utility-, or growth maximization.	<ul style="list-style-type: none"> • Focus is only internal and neglects market environment and competition. • Limitation of assuming clear motives. • Manager preferences and their relevance on decision-making are neglected.
Behavioural theories	Emphasis lies on the decision-making process itself (realism-in-process). Theories based on full- and normal-cost principles.	<ul style="list-style-type: none"> • Imprecise ability to predict prices. • Decision-making does not aim to find an optimal decision.

Source: Proprietary development

Understanding these deficiencies is necessary to follow the initial criticism and the reasons for the theory-practice dialogue (2.1.3).

2.1.3 The theory-practice dialogue

Comparable observations regarding the discrepancy between pricing theory and its application in practice have been made in different research disciplines. The theory-practice dialogue unfolds various aspects of the debate that recognize the challenge of building bridges between theory and practice. Such a consideration helps to understand the reasons for the theory-practice gap.

Realism of assumptions / Information asymmetry

Pricing models have been evaluated on the criteria of realism regarding the applicability for managerial decision-making and the clarity of assumptions. Most of the pricing models have deficiencies in clearly formulating realistic assumptions. The implementation of pricing models requires detailed knowledge to provide unbiased information on the demand curve, cost structuring, and elasticity. This information is usually not accessible to many companies. Moreover, the existing research evidence on the buyers' behaviour and the buyers' use of price information are not implemented in the pricing models (J. Crotty, 2013).

One intensely discussed example of unrealistic assumptions is information asymmetry. Assuming the availability of total information to all market participants as in economic theory conflicts with information asymmetry in practice. Likewise, pricing research has been criticized for its weaknesses set by missing or unrealistic assumptions on information asymmetry (Einav & Finkelstein, 2011; Yan & Pei, 2011).

Empirical validation

In the process of validating empirical values in price models, price-related problems can be evident. The lack of incorporating behavioural evidence into the pricing models' structure explicitly calls for research on the formation of pricing decisions in practice. Proper analysis of pricing practices would be beneficial to the development of an applicable pricing theory. However, the difficulty of empirical validation is finding data that conforms to theoretical formulation structure and the inability of the organizations to authorize access to data or observations by researchers. (Gupta & Cakanyildirim, 2013; Rao, 1993).

Economics vs. marketing

The principal role of economic theory is the explanation of economic principles and particularly the investigation of the rationality of pricing policies in competitive contexts. Consequently, academics and practitioners are disillusioned quite quickly when realizing that economic theories would not give solutions to practical pricing problems. Due to their abstractions in which many variables are simply kept constant, economic models can rarely explain the decision-making process of pricing. However, the strength of economic theory can be linked to the usefulness of empiricism in understanding the consequences of actions by attributing the price-setting of products to marketing and the formation of a successful price strategy to economic theory (Kotler, 2015; Kotler & Keller, 2016).

Economics deals with market behaviour and assumes price as a given value. In contrast, marketing deals with management behaviour and assumes price as an adjustable decision. This difference in emphasis does not prevent marketing research from taking theories of economics as a basis for a theoretical framework. However, concepts and assumptions of economics may not uncritically be adopted but need to be scrutinized and adapted against the background of empirical evidence experienced in marketing and consumer behaviour. Nevertheless, the understanding of market and price equilibria from economic theory is

considered very valuable in predicting action and reaction until price equilibrium is reached (Athanasenas, 2015; Kotler, 2016).

Information on cost

An important function of management accounting is providing cost information for product mix and pricing decisions. Researchers use the neoclassical framework for decision-making analyses and the identification of the so-called *relevant costs* (Ryan, Scapens, & Theobald, 2002). According to Lucas (2003), researchers seem to have brought evidence that full-cost pricing was the dominant appearance of pricing behaviour. Full-cost is typically provided by a firm's accounting system. A profit mark-up, whose amount is variable and depends on e.g., market conditions or capacities, is usually added to generate the price. Under usual circumstances, the full-cost price can be described as the desirable target price. However, these empirical observations contradict common management accounting textbooks where price is at the level where marginal cost and marginal revenue are equal, the previously mentioned neoclassical price theory.

This contrariness between the neoclassical paradigm and the Post Keynesian full-cost price theory, which reflects the dissent between practice and theory, is called the *reality gap*. While the Post Keynesian full-cost approach dominates practical research, the theoretical research favours the neoclassical, decision relevant cost approach. Analysing the reasons for the reality gap, Lucas and Rafferty (2008) discover various approaches in different research frameworks to explain the reality gap. One explanation of management accounting practice is that sophisticated techniques of gathering cost information are too expensive to implement in comparison to their benefit. However, further research was necessary to understand accounting practices and why they differ from accounting theory.

Call for descriptive research

Based on the criticism of Monroe and Mazumdar (1988), researchers like Monroe (2011) and Rao and Kartono (2009) underline the call for more descriptive research on pricing. The philosophy-of-science debate releases descriptive research from the role as the unwanted stepchild of academic research and makes it acceptable and legitimate for knowledge development. Descriptive research on pricing is important for creating knowledge about the decision process and heuristics used by managers and buyers. This

can help to understand under which circumstances existing pricing models are applicable and which deficiencies in structure those models have. This effort could help with building the bridge between theory and practice, namely the uncritical reliance on the economic paradigm on the one hand and practical diversity on the other hand.

Objectives of price-setting

A single pricing model cannot be expected to address the whole pricing decision problem as influential factors and their interrelations are considered complex. Therefore, a model categorization according to its price-setting objectives can help canalizing future research. The considered objectives of price-setting are the maximization of single-period profits, the net present value of future profits, product-line profits, and the contribution per resource unit. Factors like the customers' value perceptions, their price sensitivity, the existence of distinct market structures, or demand interdependencies with other products influence the selection of an appropriate price strategy. Other external factors, which influence the selection of a set of feasible prices, are cost-related factors, competitive factors, legal and public policy issues, and trade practices. Setting prices appears difficult when regarding the various influencing factors on the determination of a price strategy (Ingenbleek, 2014; Ingenbleek, Debruyne, Frambach, & Verhallen, 2003).

Summary

Table 3 summarizes the main subjects of debate in the theory-practice dialogue. The aspects of discussion comprise the divergent perspectives of disciplines, the challenge of the realism of assumptions, the problem of empirical validation, and the call for descriptive research. Apparently, the theory-practice dialogue is as manifold as the aspects of pricing research that are relevant for the theory-practice gap. And although capable researchers identify the necessary steps for more realism in pricing research, the theory-practice gap in pricing research remains. Understanding this complex and manifold discussion is essential to design future pricing research properly.

Table 3: The theory-practice dialogue

Subject of debate	Relevant researchers	Subject of debate
Realism of assumptions / Information asymmetry	J. Crotty (2013); Einav and Finkelstein (2011); Yan and Pei (2011)	Unrealistic assumptions of pricing models basing on economic theory lead to deficiencies regarding the applicability for managerial decision-making. The assumption of availability of total information to all market participants conflicts with information asymmetry in practice.
Empirical validation	Gupta and Cakanyildirim (2013); Rao (1993)	Problems associated with the empirical validation of pricing models calls for research on the formation of pricing decisions.
Economics vs. marketing	Athanasenas (2015); Kotler (2015, 2016); Kotler and Keller (2016)	The view on price as a decision variable in marketing differs from the economic view where price is considered a given value.
Availability of cost information	Lucas (2003); Lucas and Rafferty (2008); Ryan et al. (2002)	The reality gap reflects the dissent between practice and theory, namely the contrariness between the neoclassical paradigm and the Post Keynesian full-cost price theory.
Call for descriptive research	Monroe (2011); Rao and Kartono (2009)	Descriptive research is important for creating knowledge about the decision process and shall be released from the role as the unwanted stepchild of academic research.
Objectives of price-setting	Ingenbleek (2014); Ingenbleek et al. (2003)	No single pricing model can be expected to address the whole pricing decision problem due to the complexity of the influencing factors and their interrelations. A model classification corresponding to their price-setting objectives can help canalizing future research.

Source: *Proprietary development*

2.1.4 Conclusion

Having illustrated and analysed the quite complex theory-practice gap, the researcher comes to the following conclusions:

- The theory-practice gap in pricing research depicts the discrepancy between the isolated focus of research on the influential variables on pricing decisions and the multi-dimensional reality decision-makers must deal with.
- Fundamental pricing theories cannot explain the decision-making process of pricing managers. This deficiency is the main reason for the theory-practice dialogue.
- The dissent between the neoclassical paradigm and the Post Keynesian full-cost price theory reflects the reality gap between theory and practice.
- Future research needs to be multi-dimensional by analysing the interrelations of the relevant variables.

-
- Pricing research should strive not to explain the state (e.g., demand) but to change it, just as the pricing manager does.
 - Research needs to distinguish between a firm's price strategy (and its pricing objectives) and the price-setting to understand the decision-making variables.
 - Including professional pricing experiences in future research processes is necessary to compensate the researchers' lack of extensive personal experiences.
 - A paradigm change in pricing research, namely the application of descriptive and qualitative research, is necessary for creating knowledge.

Newer quantitative and qualitative research approaches partly pick up this criticism to reduce the theory-practice gap.

2.2 Pricing research trends of the last decade

Schumpeter (2013) characterizes the age of austerity as a sales stagnation era without a reasonable opportunity to cut costs, where price is the only elevating screw. Thereby, an appropriate price strategy is necessary to structure price decisions and facilitate value creation (Lancioni, Schau, & Smith, 2005). According to Hinterhuber and Bertini (2011), deficient price strategies can constrain profitability.

The following section analyses price strategy research of the last decade in the dimensions market offerings and focus, topic, theoretical foundation, and research design, and is geared to the conceptual frameworks of Cressman (2012) and Kienzler and Kowalkowski (2017). In addition, pricing research methods are analysed regarding their relevance for academic knowledge generation (M. Chen & Chen, 2015; Lipovetsky, Magnan, & Zanetti-Polzi, 2011).

2.2.1 Focus, topic, theoretical foundation, research design

Market offerings and focus

In unison, Cressman (2012) and Kienzler and Kowalkowski (2017) demonstrate that pricing research focuses very much on the B2C relation. 71% of journal articles in the last decade (2006-2016) cope with pricing research in B2C markets whereas only 10% focus on B2B markets, and the remaining 18% have no specific scope. Both conclude that a

reversal of the trend towards more B2B-specific pricing research was necessary to advance knowledge in that context.

Regarding the type of offering - in line with conceptualizations of Tuli, Kohli, and Bharadwaj (2007) - research can be classified either as goods or as services, and research that addresses both categories shall be classified according to its focal point. Lee, Choi, and Li (2014) study the influences of consumers' focus on combined and partitioned prices. Ostrom et al. (2010) underline the increasing importance of services and call for increased research on service offerings and their pricing. Likewise, Wirtz, Tuzovic, and Ehret (2015) outline the increasing importance and specialization of services, which reflect in the rapid growth of business services. Kowalkowski and Ulaga (2017) also determine the importance of business services and its transition towards solution selling because of greater customer value and higher margins for service providers. Regarding service pricing, Sharma and Iyer (2011) call for research on effective price strategies regarding successful solution provision. However, Kienzler and Kowalkowski (2017) determine that this suggestion remains unfulfilled, and that research should address service pricing and especially the influences of common service characteristics on price strategies (e.g., non-ownership (also see Lovelock & Gummesson, 2004)).

Topic

Comparable to this research, also Kienzler and Kowalkowski (2017) refer to the price strategy frameworks by Noble and Gruca (1999) and Tellis (1986) in the identification of key topics of pricing research (see 2.3.1.1). In the last decade, the most popular pricing research topics were product-line pricing, differential pricing, competitive pricing, and pricing promotions and discounts in B2C studies. According to Dixit, Whipple, Zinkhan, and Gailey (2008), this might be explained by the provision of richer data through advances in information technology. Psychological aspects of pricing focus on B2C markets. Recent publications coping with behavioural and psychological aspects of B2B markets like e.g., Hinterhuber and Liozu (2015), ask for further research to understand the psychological factors.

Underrepresented themes like managerial price strategy choices (e.g., penetration pricing vs. price skimming) or customer involvement (e.g., participative pricing vs. negotiation)

invite further investigation that goes beyond traditional approaches (Kim, Natter, & Spann, 2009). While Wirtz et al. (2015) determine that research on international and export pricing should focus on business services as they were increasingly relevant for economic growth, Kwak and Kim (2016) consider the differing cost-revenue structures of business services worth investigating (e.g., self-service vs. remote service where local cost might differ). Similarly, the willingness to pay varies greatly between different markets and is considered worth investigating (Gebauer, Wang, Beckenbauer, & Krempl, 2007).

Increased online retailing means that retailers can use multiple channels at the same time. However, Kozlenkova, Hult, Lund, Mena, and Kekec (2015) conclude that pricing research has neglected the multiple channel approach and resulting variations in price and requires further research as well.

A review of recent developments of dynamic pricing research has been conducted by M. Chen and Chen (2015). Dynamic pricing enables companies to increase revenue by matching supply and demand in a better way, achieving customer segmentation, and responding to changing demand patterns. Among the problems that arise with various revenue management applications is the sale of a certain amount of inventory over a limited period without increasing inventory levels. In their study, M. Chen and Chen (2015) review research on three problem classes that have generated an increasing interest in recent years, namely problems with competitors, multiple products, and limited demand information. These problems arise in several practical situations that have not been explored before. However, M. Chen and Chen (2015) consider research concerning behavioural issues, price insurances schemes, and business rules and constraints to be underrepresented in the past decade and ask for increased attention in the future (also see Sato & Sawaki, 2013).

Theoretical foundation

Williams and Plouffe (2007) classify theoretical and atheoretical research. Theoretical research explicitly specifies its theoretical foundation whereas atheoretical foundation does not. Kienzler and Kowalkowski (2017) find out that economics (60%) is the primary theoretical foundation in pricing research followed by psychology and sociology (24%), business management (8%), and marketing (7%). Further exploration reveals that product-line-pricing, differential pricing, competitive pricing, and multiple topics have primarily economic foundation. International and export pricing rather have a business and

management foundation whereas psychological pricing unsurprisingly has a psychological and sociological foundation. Okhuysen and Bonardi (2011) recommend a multiple-lens perspective with different theoretical foundations for further insights into pricing.

However, the dominance of atheoretical and single-lens economic pricing research is persistent and draws criticism. Dholakia (2015) states that e.g., the strong negative reactions to surge pricing cannot simply be explained by microeconomic theory of supply and demand. Additional research with a sociological and psychological foundations could reveal factors that are likely to influence managerial decisions (Forman & Hunt, 2013). According to Okhuysen and Bonardi (2011), research could identify explanatory gaps by demonstrating each theory's scope and boundaries. Woodside and Baxter (2013) underline that pricing research and the understanding of managerial decision-making would benefit from increased uses of blended theories to gain insights and develop new hypotheses.

Research design

Papastathopoulou and Hultink (2012) classify research design along two dimensions: firstly the empirical – conceptual dimension, and secondly the qualitative – quantitative dimension (also see Nakata & Huang, 2005). According to Kienzler and Kowalkowski (2017), empirical – quantitative research designs (experiment, survey) dominate pricing research (45%) followed by conceptual – quantitative research design (meta-analysis, modelling) (43%), empirical – qualitative research design (7%), and conceptual – qualitative research design (5%). Comparing the research designs, it becomes clear that qualitative research is significantly atheoretic. Edmondson and McManus (2007) support this conclusion as qualitative methods were well suited to answer exploratory research questions. Quantitative – empirical research designs are mainly conducted in B2C markets (94%) whereas studies in B2B markets use surveys as the most quantitative – experimental design (88%) (Kienzler & Kowalkowski, 2017). However, field experiments are considered more constructive to help investigate reactions of customers to price strategies as they are practically relevant and also scientifically rigorous (Anderson & Simester, 2011). Kienzler and Kowalkowski (2017) conclude that both, practice and research would benefit from more extensive B2B studies. Nevertheless, quantitative research designs suffer from limitations like self-reporting bias. Davis, Golicic, Boerstler, Choi, and Oh (2013) consider observational approaches more useful in mitigating these

shortcomings, as researchers could deepen their understanding of context-specific consequences of various price strategies.

2.2.2 Pricing research methods

Several approaches of price determination and optimization were developed by research. They include direct and indirect price techniques, and product-/price-mix methods. They are all used in quantitative research for the assessment of optimal prices for different products and services. Lipovetsky et al. (2011) identify the following dominant direct, indirect, and product-/price-mix methods:

Direct price techniques

Direct price techniques are based on the willingness to pay. The simplest approach would be asking the research participant about the highest price he would be willing to pay. According to Lipovetsky et al. (2011), direct price techniques suffer serious disadvantages as participants often overvalue their price sensitivity or have no idea of the reasonable price range. K. M. Miller, Hofstetter, Krohmer, and Zhang (2011) argue that for various technical and psychological reasons, direct and indirect approaches can lead to inaccurate results. More fundamental criticism is raised due to the measurement of the rather hypothetical than actual willingness to pay, which leads to a hypothetical distortion (Harrison & Rutström, 2008).

Gabor-Granger price models (indirect)

In general, indirect methods are considered more accurate in price optimization because the research participants are confronted with more realistic scenarios. Further advantages are the simple administration of indirect models and the provision of additional information on why products or services are not bought (Lipovetsky et al., 2011). The Gabor-Granger analysis is an indirect method that shows a situation, in which the price level is to be reconciled with the requirements of the market. Such consideration will focus on the sensitivity of prices in a product category or market niche. The Gabor-Granger approach uses the interests of study participants to buy a specific product or service at a set price. Such perceptions of the customer are assessed when the rates are randomly changed on repeated questions. Situation critique aggregates price and purchasing propensities across different price levels and respondents to help identify reasonable prices. From Gabor-Granger analyses, an individual can appreciate the role of demand for various

products and services that enable him to establish a function of maximizing sales. The Gabor-Granger approach is suitable for new product developments and determines the highest price an individual is willing to pay using a series of predetermined price points (Benhmad, 2012; Dilek, Kesgingöz, & Isik, 2016; Troster, Shahbaz, & Uddin, 2018).

Van Westendorp price sensitivity models (indirect)

The van Westendorp psychological price modelling is an extension of the previously mentioned approaches. Its intention is finding an acceptable price as a quality indicator and also considers concerns about low prices that might indicate low quality (Lipovetsky et al., 2011). The van Westendorp technique is used when a company has no idea what price to charge for their newly introduced or improved goods and services. It aims to determine limits of price elasticity or thresholds. If such items are too expensive, customers are likely to be discouraged from buying them, resulting in a sharp drop in demand that may never materialize. On the other hand, the pricing of the items sends an impulse to the customers who question the quality (Ceylana, Koseb, & Aydin, 2014; Larson, Viáfara, Parsons, & Elias, 2014).

The van Westendorp method is based on feedback from study participants on four key price indicators:

1. Cheap – the price for the good or service is a significant purchase for the money, where data from the respondents is grouped and plotted with the functions of the cumulative frequency distribution.
2. Too cheap – the price is so low that the respondents will develop the feeling of compromised quality of the product based on their perceptions of high price items.
3. Expensive – the price of the good or service begins to escalate, so respondents develop the idea of buying it before it becomes expensive.
4. Too expensive – implies that if the price of the good is too expensive, the customer will no longer consider buying it.

Product-/price-mix models

Many pricing researchers use conjoint analysis and discrete choice models as techniques of price determination. Conjoint analysis and discrete choice model methods usually include

additional variables considering e.g., demographics, covariates of brands, size. The approach is often based on the realization of trade-offs between the price, function packages, and options in the market. The discrete choice model method is ideal for stimulating immediate response to competitive offerings where decisions are made on few, well-known attributes. Such consideration will determine the appropriate prices in the given market (Arenoe, van der Rest, & Kattuman, 2015; Avitia, Costa-Font, Gil, & Lusk, 2015; Lipovetsky et al., 2011).

Further research methods like e.g., (sequential) monadic price testing, elasticity models, and value maps are also applied for price determination and optimization, but they are considered less relevant for academic pricing research (Lipovetsky et al., 2011).

Qualitative research methods

According to Kienzler and Kowalkowski (2017) studies with a qualitative research design represent 12% of the total pricing research of which the majority is empirical and conducted with an interview method (see 2.2.1). Although some of the previously mentioned research methods like e.g., the conjoint analysis or the discrete choice model method can be applied to qualitative research as well, in practice, these direct methods are preferably subject to quantitative research.

According to Myers (2013) the interview is one data collection method in qualitative research besides participant observation and the use of existing data. Qualitative pricing research predominantly focuses on understanding customers' value perceptions and the willingness to pay in B2B markets, using in-depth interview data. According to Pricingsolutions (2013), conducting qualitative in-depth interviews must be carefully designed to maximize research quality. The in-depth interview process starts with the development of an interview guide containing both, open ended questions and questions that test specific price and value hypotheses. This is followed by the definition of the focus group respectively participant list, the interview itself, and the coding, analysis and its interpretation in the end. The strengths of this method are its usability in complex B2B environments and in new product pricing research applications, the requirement of smaller sample sizes, a greater depth and breadth of customer insight and flexibility in observing and understanding differing needs of buyers, and the generation of data that can provide a deeper understanding of economic value like e.g., productivity, cost savings, revenue

generation etc. Weaknesses of this method are considered its lack of statistical rigor of quantitative research and hence its inefficient forecasting purposes, its time consuming data collection process, its minor structuring, and its dependency on the quality of conducting and interpreting the interview (Pricingsolutions, 2013). These statements confirm and explain the results of Kienzler and Kowalkowski (2017) regarding the predominant focus, topic, theoretical foundation, and research design of pricing research.

2.2.3 Conclusion

Pricing research in the last decade was dominated by empirical and conceptual quantitative research with focus on B2C markets. The most popular pricing research topics were differential pricing, product-line pricing, competitive pricing, and pricing promotions and discounts. The success of dynamic pricing applications has triggered a growing interest in different dynamic pricing issues in research. The primary theoretical foundation of pricing research was economics followed by psychology and sociology. Quantitative pricing research has applied different methodological approaches like e.g., direct, indirect, and product-/price-mix methods to determine and optimize prices. In contrast, qualitative pricing research predominantly focused on understanding customers' value perceptions and willingness to pay in B2B markets. A methodological approach for qualitative in-depth interviews leads to a maximization in research quality.

Analysing the focus, topic, theoretical foundation, and research design of pricing research of the last decade, researchers like Cressman (2012) and Kienzler and Kowalkowski (2017) conclude that future research should focus on B2B-specific pricing research to advance knowledge in this context. Furthermore, Ostrom et al. (2010) underline the increasing importance of pricing research on service offerings. Regarding the research topic, Hinterhuber and Liozu (2015) ask for further research on behavioural and psychological aspects of B2B markets. Okhuysen and Bonardi (2011) and Dholakia (2015) support this demand by recommending a multiple-lens perspective with different theoretical foundations for further insights into pricing. Regarding research design, Davis et al. (2013) consider a qualitative approach more useful in mitigating shortcomings of quantitative research to deepen the understanding of context-specific consequences of various price strategies.

Retrospectively, the initial criticism formulated by Oxenfeldt (1973) and reiterated by e.g., Kotler (2016), Monroe (2011) and Rao and Kartono (2009) that calls for a paradigm change in pricing research towards more qualitative and descriptive research seems to remain unheard. Despite many innovative pieces of pricing research in the last decade, future research should finally consider this criticism to overcome the theory-practice gap.

2.3 Case-related quantitative and qualitative pricing research

The following section focuses on case-related quantitative and qualitative pricing research and is divided into three parts. The first part analyses existing research that deals with the relation between price strategies and price-setting practices (2.3.1) and refers to research objective 2. The second part analyses influential pricing factors including pricing capabilities (2.3.2) and refers to research objectives 3 and 4. The third part considers the case-related focus on pricing IT services (2.3.3) and highlights recent pieces of pricing research with a relation to IT services.

2.3.1 The relation of price strategies and price-setting practices

Researchers, who are part of the newer theory-practice dialogue and identify researchers' missing experiences with practical problems, break new ground. They pick up the proposition of Monroe and Mazumdar (1988) to categorize pricing models as a function of their price-setting objective. As a result, they provide a conceptually new research approach that structurally disentangles the price-setting process from the price strategy to investigate their relation. Approaches in this direction are only a first step and must resist criticism. However, their innovative conceptual orientation provides the basis for the new conceptual framework (2.4).

This section illuminates the conceptual difference between price strategy and price-setting practice (2.3.1.1), presents three pieces of research that particularly contribute to the analysis of the decision-making process by relating price strategies and price-setting practices (2.3.1.2), and exposes their contributions but also their shortcomings and the necessity for further research (2.3.1.3).

2.3.1.1 The conceptual difference between price strategy and price-setting practice (e.g., Kienzler & Kowalkowski, 2017; Liozu, 2017)

Researchers like Tellis (1986), Noble and Gruca (1999), Dolgui and Proth (2010), Ingenbleek and van der Lans (2013), and Kienzler and Kowalkowski (2017) summarize price strategies from the marketing literature to their proposed frameworks to test their feasibility and confirm the combinations of the price strategies' determinants as derived from the normative theory in practice. Their results stimulate the discussions about the precise meaning of price-setting practices and price strategies, and where the line is drawn between internal and external pricing activities.

According to Ingenbleek and van der Lans (2013), pricing literature often does not differentiate between the concepts of price-setting and price strategies. They state that differentiation between the concepts could lead to an advanced theory-practice dialogue. Price-setting practices are part of a non-observable organizational process in a company that comprises collecting, sharing, and interpreting information to come to a price decision. Price strategy instead provides a means that helps with achieving a company's pricing objectives and is observable in the marketplace. Consequently, the ability to implement these concepts is difficult (Hinterhuber, 2018).

Price strategies

Various researchers respond to the calls that uncover the theory-practice gap by reorganizing theoretical pricing research into new frameworks, which are similar (e.g., Basu & Vitharana, 2009). Thereby, the studies of Dolgui and Proth (2010), Ingenbleek and van der Lans (2013), and Kienzler and Kowalkowski (2017) all relate in their segmentations of price strategies to Tellis (1986) and Noble and Gruca (1999), who formulate a taxonomy that connects pricing situations to price strategies. Four pricing situations serve to categorize price strategies, namely the cost-based, new product-, competitive-, and product-line pricing situation. The researcher excludes the cost-based pricing situation as he considers cost-based pricing a price-setting practice. This view is supported by Ingenbleek and van der Lans (2013).

The *new product pricing situation* is associated with the early life of a product and thus can be connected to price strategies that depend on the age of the product being priced.

Price skimming represents a strategy that sets a high initial price that systematically declines over time. *Penetration pricing* in contrast initially sets a low price to accelerate product adoption. Similarly, *experience curve pricing* also starts with a low price to build volume and expects cost reduction from the experience gained.

The *competitive pricing situation* focusses on the relation between prices offered in the market. In a mature market where demand is easy to estimate, associated price strategies are leader pricing, parity pricing, and low-price supplier. *Leader pricing* can be characterized by an initial price change that expects other companies to follow that strategy. *Parity pricing* that is also called neutral or follower pricing matches the product price with the overall market. The *low-price supplier* strategy strives to set a lower price in the market.

The *product line pricing situation* relates the product or service price to other prices from the same company. Other products can be substitutes, complements, or additional items. Associated price strategies are complementary product pricing, price bundling, and customer value pricing. *Complementary product pricing* can be characterized as pricing the product low when complementary items like e.g., supplies, accessories, or spare parts are in return priced relatively high. Known examples for this strategy are the razor-and-blade or printer ink pricing. *Price bundling* strategy describes the lower pricing of several products in a bundle in contrast to the sum of the individual prices. *Customer value pricing* is a strategy that can be applied when several versions of a product exist, where the one with fewer features is priced at more competitive levels than the versions with more features.

Table 4 provides an overview of the previously described correlation between pricing situations and price strategies.

Table 4: Price strategies

Pricing situation	Price strategy	Description	Market visibility
New product pricing situation	Price skimming	High initial price with systematic reduction over time.	Prices relative to previous price levels.
	Penetration pricing	Initial low price for product acceleration.	
	Experience curve pricing	Initial low price to build volume and expect cost reduction.	
Competitive pricing situation	Leader pricing	Initial price change, competitors are expected to follow.	Prices relative to previous and future changes (first mover).
	Parity pricing	Matching price with the overall market or price leader.	Prices relative to the competitors' price level.
	Low-price supplier	Pursuit of lowest price in the market.	
	Premium pricing	Pursuit of highest price in the market.	
Product-line pricing situation	Complementary product pricing	Low pricing of core product; high pricing of complementary items like accessories.	Prices relative to competitors.
	Price bundling	Lower pricing of products in a bundle.	Number of prices relative to number of items.
	Customer value price strategy	Several versions of a product are priced according to their diversity of features.	Prices relative to competitors.

Source: Proprietary development partly following Dolgui and Proth (2010), Ingenbleek and van der Lans (2013), Kienzler and Kowalkowski (2017), and Noble and Gruca (1999)

Price-setting practices

Putting a price that is determined by the individual strategy into practice requires the use of an appropriate information type in the price-setting process. Monroe (2003) sees five essential factors that should be considered when setting prices:

1. Demand considerations of value, respectively the customers' perceptions, set the price ceiling for the offered product or service (maximum price).
2. Costs set the price floor. For existing products, all direct and assignable costs associated with the product are relevant like e.g., development, production, distribution, or marketing costs. A new product shall include all expected future costs in the product life cycle (minimum price).
3. Competitive factors usually reduce the price ceiling.
4. Corporate objectives like e.g., higher margins, the coverage of overhead costs, or financial requirements like the consideration of risk estimates, translate into higher minimum prices.

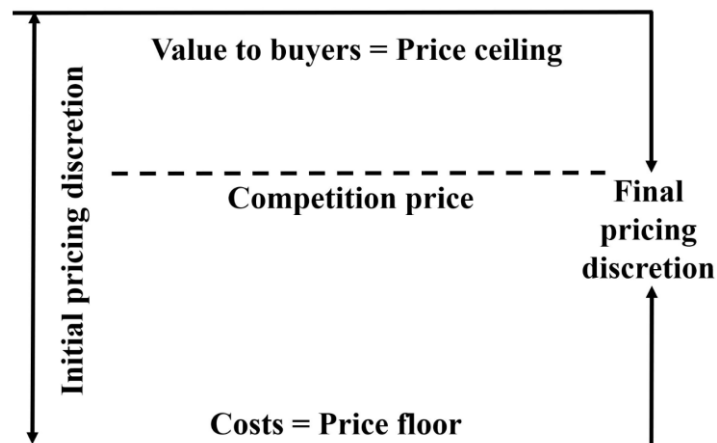
5. Governmental regulatory constraints like pollution controls and safety standards (also data security in the IT sector), or the protection from potential liability suits can also raise the minimum price.

The above-mentioned factors narrow the range of pricing discretion. The pricing discretion can be relatively large or even non-existent depending on the product type, the characteristics of demand, and competition.

Winer (2005) sees the competition price as a reference point. If a product or service does not offer superior features, this reference point can simultaneously be considered as the price ceiling because the customers' value and price perceptions remain identical to the competing product or service.

Ingenbleek and van der Lans (2013) reduce the pricing discretion model established by Monroe (2003) and picked up by Winer (2005) to three quantifiable elements, namely two boundaries and one reference point.

Figure 2: Pricing discretion model



Source: Adapted from Ingenbleek and van der Lans (2013), Monroe (2003), and Winer (2005)

Ingenbleek and van der Lans (2013) and Liozu (2017) distinguish between three price-setting practices that refer to the degree to which decision-makers use information to determine prices: the customer value as the price ceiling, costs as the price floor, and competition prices within this range. These price-setting reference points deal directly with the quantitative fixation of amount. They are also called *pricing methods* and they are

frequently described in the marketing literature by e.g., Avlonitis and Indounas (2005) and Nagle, Hogan, and Zale (2017). Since managers typically use all three types of information, Ingenbleek et al. (2003) refer to them as value-, competition-, and cost-informed pricing instead of -based pricing as the use of information is more a matter of degree than mutually exclusive categories.

Value-informed pricing informs on the customers' product value perception. This is reflected in the monetary amount that the customer is willing to pay for the perceived benefits (Nagle et al., 2017). For a detailed literature review on value-informed pricing, please also consider Ingenbleek (2007), as the body of literature is fragmented and insights are very often not cumulative.

Competition-informed pricing informs on the competitors' charge for a product. The interpretation of a competitor's price in relation to his market position enables a quantitative assessment of the relative position (Ingenbleek et al., 2003). That means that a product offering less benefit than a competition product is expected to have a price below the competition price if that information is available.

Cost-informed pricing assesses prices through variable and fixed cost quantification also considering the costs of development, production, and marketing. According to Monroe (2003) and Nagle et al. (2017), fixed and variable costs determine the final pricing discretion. However, the fixed cost information increases the ambiguity of cost information since an accurate assessment of the expected volume is required.

2.3.1.2 Relating price strategies and price-setting practices (e.g., Ingenbleek & van der Lans, 2013)

Bonoma, Crittenden, and Dolan (1988), Noble and Gruca (1999) and Ingenbleek and van der Lans (2013) see the necessity of relating price strategies and price-setting practices to decrease the theory-practice gap and likewise to provide additional benefits to the generation of theory and its practical applicability. On the one hand, they conceptually differentiate clearly between the use of information as part of an organizational process comprising the collection and interpretation of information to come to a price decision. On the other hand, they differentiate between the means that help with achieving a company's

pricing objectives in the market. These studies form a line in research because they contribute to the analysis of the decision-making process by relating price strategies and price-setting practices.

Bonoma, Crittenden, and Dolan (1988)

Bonoma et al. (1988) criticize normative pricing research as mathematically sophisticated and grounded in microeconomic theory with a claim of internal validity, but lacking pragmatism that is necessary to impact managerial practice. Aiming to narrow the academic-manager gap, respectively the rigour-relevance gap, they detect two relevant research streams investigated by various researchers, namely works on the pricing-determination and the pricing process research. Although the applied diction of Bonoma et al. (1988) is different, price determination describes the influential factors of price-setting. Simultaneously, their denotation of the pricing process can be compared to the previously described price strategy.

Bonoma et al. (1988) aim to complement price-setting factors with price strategies by identifying and classifying problems of managerial importance. Therefore, they choose a set of firms for their qualitative research approach and try to link pricing situations, respectively strategies, with recurrent and regular factors. These price-setting factors, namely the role of the cost structure, the impact of the trade, and product-use situations, are seen as a provocative basis for further research.

Contribution

The outcome of this first approach links price-setting practices and price strategies as follows:

1. *The dominance of cost structure:* Managers consider cost as a primary influential factor on pricing. The significance of the variable cost on the one hand and the precision of the firm's cost estimate on the other hand determine the price-setting. When the variable cost element of a product is high, it is more likely that the price-setter chooses a cost estimate plus margin approach. A low variable cost portion rather leads to increased competition, respectively customer-value oriented price-setting approach. The precision of the firm's cost estimate and the knowledge of competition leads to more stable prices than in situations with a high uncertainty. In

the end, certainty on the costs and competition leads to the possibilities of either adopting a premium pricing strategy or following a parity pricing strategy depending on the individual situation.

2. *The impact of trade:* The research outcome indicates that the power of trade relates to the ability to control the price. Thereby, there are signs that the more powerful trade is, the less influence a manufacturer has on controlling the end-user prices. This approach in considering pricing constraints due to strong channel members is rarely found in literature but brings up the questions, how a manufacturer with a powerful trade can maximize profits and if the control over an end-user price, e.g., in indirect selling, should be an important concern to pricing managers.
3. *Product and use dynamics:* The research outcome indicates that a relation between the nature of the product category as a component or a stand-alone product and the customer's clarity of value perception can be drawn. The more a product can be considered as a stand-alone product, the higher the clarity of value is to the customer. Thus, it can have an impact on the price strategy.

Taking together the price strategy commonalities of cost structure, trade power, and product and use dynamics, Bonoma et al. (1988) reveal the traditional gap between managerial and academic pricing interests. On the one hand, managers are concerned with the interrelationships of costs, distribution channels, competition, and end-user utilizations to set their price (Avlonitis & Indounas, 2005). On the other hand, academics rather focus on the end of the pricing process, namely the consumer's value in use (Hinterhuber, 2008a).

Noble and Gruca (1999)

The research of Noble and Gruca (1999) makes one further step towards understanding the relation between price strategies and price-setting practices. Although price-setting practices are not explicitly mentioned, the price strategy's orientation whether its inward oriented like cost-plus price-setting (keep in mind the clash of structural classification where Noble and Gruca (1999) consider cost-plus pricing a strategy in contrast to this thesis) or outward oriented like customer value-based (see Kienzler, 2018; Snelgrove, 2018) or competition-based (see Carricano, 2014; Hinterhuber & Liozu, 2014), price-setting can give a hint regarding the relation.

Contribution

Their research contributes by relating price strategy application by managers to different pricing situations:

1. In a *competitive pricing situation*, a company with a high cost base is likely to choose parity pricing whereas a company with a low capacity utilization tends to choose a low-price approach.
2. In a *new product pricing situation*, a company chooses a penetration pricing strategy when economies of scale lead to cost advantages. Skim pricing appears more likely when a company has cost disadvantages, or the product differentiation is high.
3. In a *product line pricing situation*, bundling pricing is applied when each product is priced separately whereas complementary product pricing is applied when the supplement sale is high. Customer value pricing in this situation gains importance when price changes are hardly detectable within a narrow market segment.

Noble and Gruca (1999) conclude that further research should clearly focus on the process of setting prices to avoid confusion between different interpretations of the results by academics and practitioners. This conclusion is very important for upcoming research as it points to the major weakness of pricing research, namely the absence of comparative research on price-setting practices (except Bonoma et al., 1988).

Ingenbleek and van der Lans (2013)

Benefitting from previous research approaches, their discussions, and research frameworks, Ingenbleek and van der Lans (2013) rearrange theoretical concepts from different lines of research in economics management and marketing unambiguously. Furthermore, they clearly separate price-setting as “the set of activities ... that lead to a price decision” (p. 290) from price strategy to reduce conceptual confusion. Their findings confirm some relations between price strategies and price-setting practices, but they also determine the existing deficiencies in terms of awareness and conscious application or pricing practices.

Contribution

Ingenbleek and van der Lans (2013) consider the improved understanding of the relationship between price strategies and price-setting practices as beneficial in understanding the differences and similarities between pricing theory and pricing practice. Empirical results suggest that the gap between theory and practice may be smaller than many critics expect:

1. Inferences can be made from the price strategy (deviated from mainstream price theory) that helps with predicting a company's applied price-setting practice.
2. Completely inward-looking companies (when performing their pricing decisions) do not exist. That means that no company relies on cost-informed pricing as a single method of price-setting. This confirms the suggestion of Noble and Gruca (1999) that all companies combine outside-in and inside-out practices to come to a price decision.
3. Price-setting practices link price strategies and price levels in the market. Value-informed and cost-informed pricing practices are an important link for strategy implementation especially when price strategies intend to achieve prices that are higher or lower than the competitors' prices. However, a competition-informed pricing practice does not give the competitor the link between price strategy and relative price. Ingenbleek and van der Lans (2013) see one possible explanation for this result being that matching the competition price is relatively easy, in contrast to assessing the price floor and the price ceiling.

Discussion

Besides the fact that the study shows a relation between several price strategies and price-setting practices, it is worth mentioning that there are still facts that illustrate the gap between pricing theory and practice:

1. Ingenbleek and van der Lans (2013) arrive at the conclusion that 26% of firms do not pursue any price strategies at all. They discuss two possible explanations for the absence of a price strategy in any pricing situation. Companies either fail to fully exploit the price as a marketing tool, or they use price strategies that price theory

does not consider. Deliberate deviations from normative rules may occur because managers find that it may not be worth identifying the ideal price strategy.

2. Some price-setting practices seem to be applied for other reasons than pricing theory predicts. The results in terms of competitive and new product pricing situations are more distinctive than those of product-line situations. Furthermore, there is no clear relationship between cost-informed pricing and price strategy. Ingenbleek and van der Lans (2013) speculate on why especially their hypotheses on low price supplier and customer value price strategies were rejected. They suppose that companies that pursue these strategies follow routinized procedures that no longer match their own alignments appropriate to the pricing environment.
3. Ingenbleek and van der Lans (2013) consider the high level of cost-informed pricing on strategies like premium pricing and price bundling a logical practice. Products with premium pricing are estimated to be produced at a higher cost level than the competition, thus a company wants to evaluate how high a price should be in terms of cost position besides customer value perceptions. Companies offering price bundles must cope with complex cost structures including joint cost and profit implications, therefore cost-informed pricing might occur to reduce decision costs. In comparison, Bonoma et al. (1988) also come to the conclusion that the cost considerations of managers regarding price decision-making play a very important role and shall not be underestimated as a main reason for cost-informed pricing.

2.3.1.3 Contribution, criticism, and the necessity for further research

In this section, the researcher carves out the contribution of differentiation and relation between price strategies and price-setting practices, highlights relevant shortcomings and justifies the resulting need for further research.

Contribution of differentiation

Approaching the theory-practice gap by structurally disentangling price strategies from price-setting practices is a valuable contribution to clearly understand and differentiate the areas where pricing takes place, namely within a company and on the market. As responsibilities in the pricing process in a company are distributed across functions that have their emphasis either internally or externally, this conceptual differentiation reflects the pricing process emphases. This structural contribution enables performing research that can also be adaptable to practice. On the one hand, a clear definition of the potential price

strategies that are based on the product life-cycle, the market condition, or the company approach is made. On the other hand, price-setting practices are clearly defined, and price is set in a certain discretion range. According to Kienzler and Kowalkowski (2017), the main contributors are Noble and Gruca (1999) for their view on price strategies and Monroe (2003) for his pricing discretion model on price-setting.

Contribution of relation

The efforts to find principles by relating price strategies with price-setting practices is structurally a good approach. A separate consideration of the normative pricing theory lacks pragmatism and does not impact on managerial practice. Therefore, relating the different research streams is promising. And indeed, the identification of the dominance of the cost structure, the impact of trade, and the nature of the product contributes by illustrating the multi-dimensionality of the influencing factors (Bonoma et al., 1988). Moreover, the introduction of pricing situations gives a more diversified picture to the relation between the nature of the product, its life-cycle situation, and the competitive situation on the one hand, and the preferable and applicable price strategy on the other hand (Dolgui & Proth, 2010; Kienzler & Kowalkowski, 2017; Noble & Gruca, 1999). Some inferences from price strategy that deviated from mainstream price theory can be made to predict the applied price-setting practices (Ingenbleek & van der Lans, 2013). Another main contribution is the awareness that no company simply relies on cost-informed pricing but also combines competition-informed pricing where matching the competition price is relatively easy in contrast to assessing the price ceiling or the price floor.

Criticism

The allocation of price strategies to pricing situations is not always uncritical. Noble and Gruca (1999) categorize premium pricing as part of a new product pricing situation and assign this strategy to price skimming. In contrast, Tellis (1986) and Ingenbleek and van der Lans (2013) see premium pricing as part of a competitive pricing situation and so does the researcher (see Table 4). The reason for this decision is that premium pricing is not temporary like price skimming and can be maintained longer than the initial phase of a new product when quality, prestige, or both remain a decisive factor.

Moreover, Noble and Gruca (1999) define the cost-based pricing situation with a related cost-plus price strategy as a fourth pricing situation. It considers mainly the company's internal fixed and variable costs as well as the aspired contribution margin. Ingenbleek and van der Lans (2013) neglect this as a strategy with good cause. In the area of conflict between price strategies and price-setting practices, cost-plus pricing is a price-setting practice and not a price strategy. The reason for this classification decision is quite simple. As previously stated, price-setting practices are part of an organizational process that comprises collecting, sharing, and interpreting information to come to a price decision. Therefore, cost-plus pricing describes the process of estimating the product-related direct and indirect costs, which itself is part of the internal organizational process.

Besides this clash of particular structural classification, it shall be stated that many researchers come to the conclusion that besides competition-based pricing, cost-based pricing is by far the most prevalent price-setting practice applied (Hinterhuber, 2008b; Indounas, 2009; Kienzler, 2018; Liozu, 2017).

The researcher considers the structural separation of price strategy and price-setting practice a very valuable contribution for practitioners to understand the complex decision-making process of pricing and for researchers to push future research in the right direction, regardless of the classification deficits.

The contributions of structurally differentiating and subsequently relating price strategies and price-setting practices as previously mentioned is beyond dispute. However, in the end, many known, and probably unknown influential factors are not part of pricing research so far. The questions of which factors are critical and how these factors are related to each other remain open (Ingenbleek, Frambach, & Verhallen, 2013). Practical factors like e.g., multi-product responsibility, information asymmetries, long-run effects, managerial motivations, and a combination of the latter can apparently not be identified and examined only by quantitative research. The identification of non-quantitative measures could add the multi-dimensional reality to research. Not taking these factors into account will lead to a persisting theory-practice gap.

It is a pity that the detailed initial criticism of Oxenfeldt (1973) (see section 2.1.1) could not stimulate pricing research in a way to come to a satisfactory status. Many pricing

objectives and their relation to the price determination were not even part of the research in the neglected area of pricing. What is encouraging is that the selected researchers themselves (see section 2.3.1.2) are aware of this weakening. Their quantitative approaches are good (e.g., Ingenbleek et al., 2013), but suffer from their methodological weaknesses. In a pricing environment that is affected by a bandwidth of influential factors like customer value, competition, timing or geography, quantitative research can only be a subsequent approach. It can either be applied to test hypotheses or it needs to consider more influential variables in interaction. The normative pricing research tradition was and is still questioned due to its isolated focus although it is admitted that pricing objectives that are either qualitative or difficult to measure are difficult to implement and therefore impractical.

Conclusion: Necessity for further research

Demonstrating the deficiencies in the existing pricing research calls for qualitative research designs that focus on the identification of the critical success factors of pricing. The identification of these factors can establish the basis for more complex research settings that e.g., try to test hypotheses by quantitative research approaches. But to be clear on that, qualitative research shall not be understood as just a stepping stone for subsequent quantitative research (see Chapter 3).

Particularly, pricing research focussing on IT services is more than rare (see section 2.3.3). As the researcher with a professional background brings in his own experiences in pricing IT services, he sees the necessity to start building the bridge between pricing theory and practice not only for contributing to general pricing research but also to his own area of practical expertise and its peculiarities. Being reflexive on his own and other pricing managers' intuitive actions might depict the influential factors that impact on the diverse elements in the chain of internal and external pricing actions.

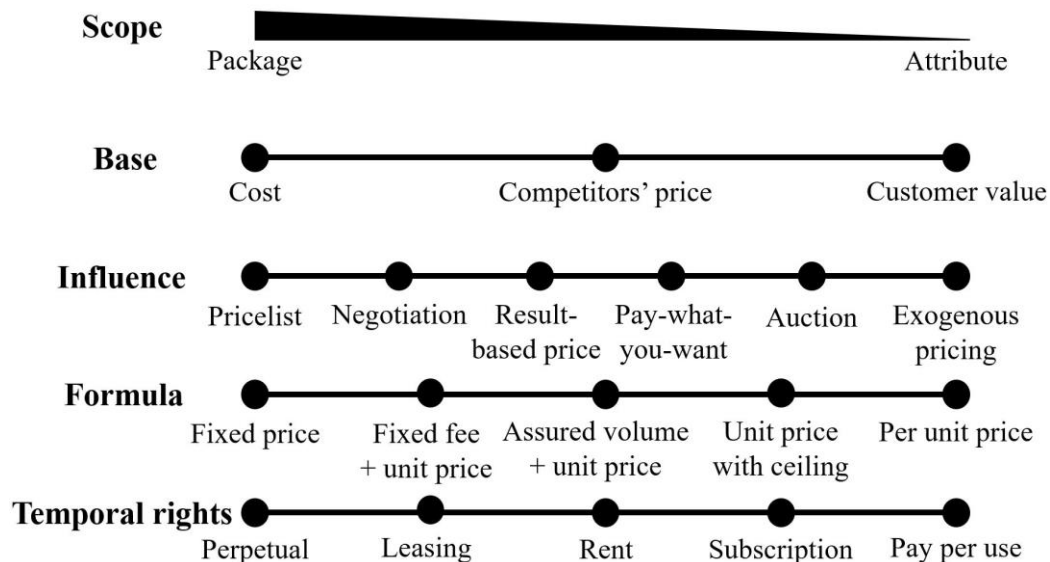
2.3.2 Influential pricing factors

2.3.2.1 A five-dimension pricing model (Iveroth et al., 2013)

Iveroth et al. (2013) who also clearly differentiate between price strategies and price-setting practices, propose a five-dimension model that identifies the influential pricing factors (Figure 3). Thereby, their research defines pricing models as a system of price

elements in an agreement between the customer and the vendor. Any agreement between the customer and the vendor uses a pricing model that can be described through five important dimensions, which are present in any agreement. Depending on the individual agreement, some dimensions may be more dominant than others.

Figure 3: A five-dimension pricing model



Source: Iveroth et al. (2013)

As there is little research that tries to theorize and conceptualize the influential pricing factors, Iveroth et al. (2013) make a valuable contribution with regard to the theory-practice gap. The five dimensions can be described as follows:

Scope refers to the granularity of an offer. The spectrum starts with a *package* that is a bundle of products or services and ends with an *attribute* that represents the lowest level of a unit that is priced.

Base is a dimension that is very similar to the pricing discretion model developed by Monroe (2003). It describes the type of information that dominates the pricing decision. Firstly, *cost* is considered and found reasonable as the price floor by both, sellers and buyers. As basing the price level simply on cost information is suggested as not advisable, Iveroth et al. (2013) set the *competition price* for comparable products as an alternative starting point. Thirdly, the information about the *customer's willingness to pay* assists in the determination of the price ceiling. This customer-value approach tries to find the proper balance between the customers' perceptions of obtaining and sacrificing. While cost

and competition dominate price determination and price negotiation in practice, the customer-value approach is difficult to implement, though theoretically it appears attractive.

Influence is a dimension that is concerned with the extent to which either a seller or a buyer can influence the price. The most extreme situation of this dimension is the seller's ability to set the price depending on their own criteria and communicate this via a *pricelist*. The buyer is not able to influence the process of price generation in this situation. The next step in this dimension is *negotiation* where the power balance between the buyer and seller is more even. In this case, the buyer can challenge the pricelist due to his buying power. One step further is based on an observable outcome of the use of a product or service, namely a *result-based price*. As the price is set according to the result of use, usually the buyer is more in control than the seller. This approach necessitates agreements on result measurement and monitoring. The next step in the influence dimension set in this model is *pay-what-you-want*. Hereby, the pricing decision is delegated to the buyer. This type of pricing gives either the buyer the possibility to accept or decline a price recommendation by the seller or make the decision himself on the offer value. The next step along the influence dimension is the *auction*, where the buyer and the seller relinquish the right to determine the price level. The price is set in relation to the willingness to pay of several buyers, so the single buyer cannot determine the price himself. The last extreme in this dimension is *exogenous pricing*. This means that circumstances beyond the control of the buyer and seller determine the realized price. This pricing is usually applied in long-term contracts of complex products and links prices to e.g., indexes that contain inflation, GDP, wages, stocks, etc.

Formula is the dimension that connects price with volume. The one extreme of this dimension shows a *fixed price regardless of volume*. The other extreme is a fully variable *unit price*. When volume turns out to be low, the buyer has a lower risk when paying a price per unit instead of a fully fixed price regardless of volume. The latter is attractive to the seller as a certain level of income is guaranteed. It also comprises the risk that the seller must deliver higher volumes at an equal price. In between the two extreme positions within this dimension, variations of fixed and variable elements are combined. The next formula defined by Iveroth et al. (2013) is *fixed fee plus unit price* followed by *assured purchase*

volume plus unit price followed by *unit rate with a ceiling*. Fixed fee plus unit price consists of a fixed component regardless of volume and a volume component. Assured purchase volume plus unit price has a similar function and guarantees the seller a minimum contracting volume regardless of quantity and simultaneously defines a unit price in the case of a higher quantity. The unit rate with a ceiling formula means that the buyer pays per unit up to a pre-defined level above which the seller does not charge for additional volumes.

Temporal rights is the last of the five defined dimensions. It focusses on the period the buyer can use the service. The axis of this dimension starts with *perpetual* and represents the classical type for goods you buy and theoretically can use endlessly. The further you move on the axis, the shorter the period of the use is. *Leasing* combines a time-limited and perpetual element. The buyer has the use rights for a specified period followed by the right to buy the good for a pre-determined price. *Rent* represents an offering that signifies the temporary right to use a product or service. This right ends after the rental period.

Subscription as the fourth type of temporal right includes upgrades and enhancements of a product or service during the subscription period. This is a common price strategy for software having the right to receive updates in the future. *Pay per use* is the other extreme of the temporal dimension, limiting the right of use to each occasion, e.g., streaming a film.

Besides their contributions to the theorization and conceptualization the influential factors of pricing, Iveroth et al. (2013) show by their empirical application of the proposed five-dimension model that pricing models are in fact connected to various explicit and implicit features. Thus, they narrow the theory-practice gap by ensuring that researchers and managers can benefit from their model.

2.3.2.2 Pricing capabilities (Dutta et al., 2003; Johansson et al., 2011; Kienzler, 2017; Liozu, 2015)

Normative research and thus neoclassical economics have strongly dominated pricing literature (Ingenbleek, 2014). Under given conditions, normative pricing literature helps to understand price strategies and prices. However, the processes of value creation and value assessment are not examined in this literature (Ingenbleek & van der Lans, 2013).

Dutta, Zbaracki, and Bergen (2003) pay more attention to these processes and identify that pricing is a capability from a resource-based perspective. They argue that pricing as a capability is the ability to set the right prices, and a company needs to invest in resources, routines, and skills to develop this ability. Furthermore, they show in that a company creates a competitive advantage in creating this value. Their criticism focusses on marketing and economics literature, which considers price-setting a costless and simple task. Their research reveals that, in contrast to the predominant view, pricing managers consider price-setting as a surprisingly difficult process. Particularly, pricing managers face two obstacles when responding to competitor prices: Firstly, when handling a huge variety of products and being able to set individual prices for various customers in different competitive situations, pricing managers find it difficult to decide when it is appropriate to match a price or not. Secondly, due to the pricing system that handles a wide variety of products, the pricing manager can usually only offer a single discount level for the entire product selection.

In the end, the ability to change a price depends on the processes set up by the pricing manager. The price-setting process has three major components: the identification of competitor prices, the price-setting strategy, and the commitment to new prices. The identification of competitor prices requires routines like finding comparable products and tracking competition prices and their changes in a database. Simultaneously, the person who performs these routines needs technical and sales skills and tacit knowledge to be able to evaluate reliable competition price information. Moreover, this function also serves to coordinate information flows between the different departments and customers regarding the identification of competitor prices. Setting the price strategy and making the translation to the price also requires routines like e.g., the customer purchase history, know-how about the customer's price sensitivity, financial analysis skills, and coordination knowledge about assumptions that a price might be based upon (Dutta et al., 2003).

Researchers like Ingenbleek et al. (2013), Johansson, Hallberg, Hinterhuber, Zbaracki, and Liozu (2011), Liozu and Hinterhuber (2013), and Liozu and Hinterhuber (2014) also highlight the pricing competence and pay particular attention to the value assessment procedures within this competence. In particular, Johansson et al. (2011) outline the strategic importance of the concept of pricing capabilities for the understanding of

strategical and organizational challenges of pricing, as it focuses on different resource types and their use. Liozu and Hinterhuber (2014) consider pricing capabilities as a set of complex and distinctive activities, processes, and routines that affect business performance. Their empirical mixed-methods research approach develops a pricing capabilities scale (PRICECAP) that consists of ten items that measure amongst others the use of pricing skills, the knowledge of competitor pricing tactics, the quantification of the customer's willingness to pay, the design of tools to support pricing decisions etc. Their construct covers the three critical dimensions in pricing: the customer perspective (price-elasticity, value-in-use, maximum willingness to pay), the competitor perspective (market knowledge), and the company perspective (the development of employee skills in pricing and the availability of pricing tools). They contribute by naming pricing capabilities explicitly and thereby underline their importance in the pricing process (Hinterhuber, 2004).

Kienzler (2017) examines the pricing manager personality's influence on pricing decisions. He explores the relationship between the three basic pricing practices (cost-, competition-, value-informed pricing) and the five-factor model's personality traits (conscientiousness, openness to experience, extraversion, neuroticism, agreeableness). The results indicate that characteristics like the conscientiousness and openness for experience are positively associated with the preference for value-informed pricing. Similarly, the agreeableness of pricing managers positively relates to their preference for competition-informed pricing. Furthermore, agreeableness and openness to experience are positively related to a cost-informed pricing preference. These findings are relevant to managers who need to assign pricing authority within firms, as they raise awareness of the personality's influence on pricing.

Liozu (2015) examines the influence of the five organizational factors (pricing capabilities, incentive and goal systems, delegation of pricing authority, knowledge, negotiation) on the collective confidence in sales and account management teams in his quantitative B2B study. Regarding pricing capabilities, the study supports the resource-based theory of the firm where pricing capabilities significantly impact on the company's performance. In addition, the study concludes that pricing confidence can lead to superior financial outcomes and promote competitive advantages.

In unison, the referred studies recommend economics and marketing research to extend their resource-based view of pricing. This might alter the economists' understanding of model pricing, price rigidity, and price strategy, because pricing requires both, expertise and social interaction.

The researcher makes comparable observations of the importance of resource-based capabilities in his professional role as a pricing manager and therefore supports the previously identified research results. Thus, the conceptual framework (see section 2.4) explicitly involves the resource-based capability aspect as influential on the critical success factors, respectively a critical success factor itself. As this research *inter alia* seeks to identify the critical success factors for internal and external pricing, the pricing managers' evaluation of the importance of the individual price-setting capability needs to be considered as one influential factor as well.

2.3.3 Pricing IT services

Focussing *inter alia* on the identification of the critical success factors of pricing IT services as one research objective, this section shall underline the case-related character of this thesis and illuminate the existing research on pricing IT services. The novelty of this research can particularly be derived from the combination of its IT services case relation and its focus on the practically relevant critical success factors that both are rarely the subject of research.

Both, quantitative and qualitative studies pick up pricing IT services as a central theme. Quantitative studies show a logical experiential examination of social phenomena through mathematical, statistical or computational methods (Hunter & Leahey, 2008). In most qualitative studies, the researchers are often focused on providing more insights in pricing to support the quantitative approaches. Thereby, understanding the context helps to address the complex issues related to pricing research in a common market (Davis et al., 2013). This section highlights recent literature on IT pricing from the perspective of qualitative and quantitative studies.

2.3.3.1 The relationship between ICT services and ICT prices (Byrne & Corrado, 2017b)

Byrne and Corrado (2017b) analyse the relationship between ICT (information and communication technology) prices and ICT services. In their quantitative research, they develop a model that describes the ICT sector's stable contribution (Djellal & Gallouj, 2008) to the US labour productivity and thus to the economy as a whole. This model extends the model of Oulton (2012) to embrace ICT services (e.g., cloud services) and assess the relationship that exists between ICT prices and ICT services. Moreover, Byrne and Corrado (2017b) analyse the prices of ICT assets and conclude that the ICT asset price decline could considerably devalue ICT services.

The two sector model used by Byrne and Corrado (2017b) suggests that the total output price of the ICT sector is taken as a single price. The severity of this assumption may sometimes be ignored but proves to be very useful when analysing a multi-sector context with several relative prices and a total production limit producing several types of consumption and investment for end use. According to their model, the price determinants were considered for two ICT services types in a multi-sector situation. In the first case, the production of ICT services was very capital intensive, as in the past, when the ICT sector produced public cloud services for sectors that did not offer such services. In the second scenario, they considered the design of private cloud services facilities in non-ICT producing companies, such as the migration from traditional ICT data centre asset uses to virtualization services.

Byrne and Corrado (2017b) illustrate how the ICT sector has oversized economic growth through relative productivity growth. A central feature of their two sector model is the comparative pricing of ICT assets, which reflects the relative productivity of the ICT industry (Byrne & Corrado, 2017a). According to the measurements of ICT prices they have made, there is a clear indication that the comparative yield or efficiency of ICT capital has been slowly eroding for about a decade and therefore the current benefit is negligible. Furthermore, Byrne and Corrado (2017b) found out that ICT and software R&D (research and development) have been enjoying fabulous increase (also see Lindberg & Nordin, 2008). A halt in a technical change to the ICT sector would result in a dramatic fall in the return of software R&D. Byrne and Corrado (2017b) believe that this situation is unlikely, given more than ten years of rising investments in cloud services and cloud

technologies that were supposed to facilitate the productivity of ICT services. In addition, their study provided a strong forecast for growth in the use of ICT services and a significant relative increase of ICT design services related to cloud technologies.

As a result, Byrne and Corrado (2017b) indicate that the ICT asset price change is the driver for changes in ICT services pricing. As much as ICT services providers appreciate the scalability and perhaps the strong ability to limit advanced technologies, the price of storage services and cloud computing is beginning to decline by about 30% per year. Likewise, the prices of ICT services, such as cloud computing, are predicted to align with the decline of the device prices required to deliver such ICT services (about 20-25%) (also see Byrne, 2015; Byrne & Corrado, 2015; Byrne, Oliner, & Sichel, 2015; Copeland, 2012; Copeland & Shapiro, 2016).

2.3.3.2 A perspective on IaaS pricing models (Cots Salleras, 2012)

Cots Salleras (2012) investigates the behaviour of companies when procuring IT services such as cloud services. Because of the breadth of cloud services, this study focused primarily on the work of the infrastructure of cloud IT services and its relationship to the *pay-as-you-go* pricing model. According to Cots Salleras (2012), this model was the most preferred due to its uniqueness. Specifically, the study looked at both technical and economic perspectives of cloud computing. As the IT service providers typically think about how to set prices for their services, companies are equally keen to forecast expenditures to incorporate the IT services into their brand (Meehan, Simonetto, Montan, & Goodin, 2012).

There are three major pillars of the cloud market: service level agreement, payment model, and pricing (Proden & Ostermann, 2009). On-demand properties are one of the most important features of cloud services. For this reason, Cots Salleras (2012) claims that service providers tend to charge their customers on the basis of consumption payment methods, also referred to as *pay-as-you-go*. Furthermore, the pricing of IT services is grounded on the transferred or stored data, the activation costs that can be incurred by virtual servers, and the licensing of the software. According to Cots Salleras (2012), a common practice is the charging of cloud services for a subscription fee. He argues that several companies provide IT services in defined and combined quantities for each of the

primary resources such as storage, computing, and memory. This method, called price bundling, enables the marketing of more than one IT service or product to obtain a package with specific prices (Venkatesh & Mahajan, 2009).

From the perspective of price strategy, it is the mixed bundling that is generally preferred by most companies (Lehmann & Buxmann, 2009). However, the market tends to incorporate both bundled and unbundled schemes (Wu, Hitt, Chen, & Anadalingam, 2008). In addition, the bundled storage capacity, memory, and CPU, as well as the unique price per unit of data transferred, help service providers to develop a good price strategy. Furthermore, the provision of complementary services, load-balancing software, or public IP addresses are some of the sources that service providers will consider while providing IT services in the marketplace (Cots Salleras, 2012).

2.3.3.3 Pricing models for IT services (Maurer et al., 2008)

Research on pricing models picking out IT services as a central theme is rare. Maurer, Scardino, Doering, and Ridder (2008) as an exception identify the eight most commonly used pricing models for IT services and outsourcing contracts, their advantages, disadvantages, and risks. Their key findings provide a valuable benefit regarding the influential factors on external pricing, namely the price strategy for IT services.

According to Maurer et al. (2008), companies that buy IT services must consider both, the cost of services and the business and contractual risks of the sourcing relationship. Especially in competitive bid situations, the customers need to define the pricing model they want to use to make a comparative analysis in their evaluation. Therefore, it is necessary to understand the risks and benefits associated with the different pricing models for both sides, the customer and the service provider. Thereby, the interests of the contractual partners naturally differ. The service provider tends to select a pricing model that comprises the least amount of financial risk. This selection might not be the appropriate pricing model meeting the requirements of the customer. Simultaneously, the customer needs to allocate the IT costs within his organization and thus requires a pricing model that is flexible for changes in the customer's business as well as transparent regarding resource use (also see Dolgui & Proth, 2010).

Moreover, risk is an important factor in the context of external pricing. Maurer et al. (2008) see different risks for the customers that are tied to the budget as well as changes in business, meaning volume changes in consumption. The ability to manage these risks depends on e.g., the customer's level of experience with external sourcing, demand management maturity, willingness to fix requirements, or the degree of predictability and flexibility sought in the pricing model. For the service provider, the main risk is reflected in his profitability and financial performance. Providers' financial risk factors include e.g., contractual penalties or decreases in consumption at a high level of fixed costs.

Maurer et al. (2008) identify the eight most common pricing models used in IT services, analyse their risks for the customer and the provider, and rate additional factors like flexibility, transparency, and predictability that need to be considered when making a strategy decision.

Time and Material (T&M)

The customer pays for the supplied labour at negotiated labour rates, which reflect the skill levels. It is used best when a customer cannot accurately estimate the work effort or expects scope changes. Short-term T&M contracts are usually premium priced as project work rarely commits to an ongoing, long-term relationship. The financial risk for the customer is considered high as the costs may escalate, but the financial risk for the provider however is considered low.

Fixed price

The customer pays the provider periodically a fixed amount for a fixed scope of work (SOW). Fixed price contracts often contain performance-based penalties that help with driving provider performance towards successful project completion on time or the achievement of quality and service levels. This pricing model is used best when the customer needs to reduce costs and obtain predictable service pricing at agreed SOWs with measurable service and quality levels. Cost predictability and individual SOWs are traded for a certain flexibility regarding market-based pricing. The financial risk for the customer is considered low to medium, but the financial risk for the provider is considered medium to high as the budget is fixed and must cover unexpected problems.

Cost-plus

The customer pays the actual cost level plus an additional agreed profit margin. Thus, the provider has no motivation to reduce the costs. Maurer et al. (2008) recommend complementing this pricing model by incentive-based terms and apply it only for short-term contracts. This pricing model is best used when the work effort cannot be clearly defined in a baseline. It is necessary that the customer and the provider agree on allowable costs during the contract period. Therefore, the financial risk for the customer is considered high, but the financial risk for the provider is considered low.

Open book

The customer pays the actual cost of delivery plus an agreed profit margin. The difference between the open book pricing model and cost-plus pricing model is the provider's obligation to fully disclose the financials of the engagement. Here again, the provider is not motivated to reduce the costs. So, the recommendation of complementing this pricing model by incentive-based terms applies as well. According to Maurer et al. (2008), this type of pricing model is used in government contracts and for companies that seek to spin-off their IT department as a separate entity. Therefore, the best use for open book pricing is when a customer needs to find out about the true IT costs. Furthermore, this model provides the necessary information to be flexible to convert to another pricing model once the customer obtains the true costs. The financial risk for the customer is considered high, but the financial risk for the provider is considered low.

Unit-based/Use-based

The customer pays for each consumption or output that is based on a specified service unit. Unit-based/use-based pricing is usually specified by the user number, workload volumes, device counts, capacity, and the number of incidents or transactions. Additionally, a base fee covering the defined bands of consumption is often agreed as well. An increase or decrease in units or use can lead to pre-negotiated changes in prices when the deviation is bigger than the agreed bandwidth. As it is rare that every SOW can be expressed as a unit or be linked to use, the pricing model is combined with other pricing models. The best use for unit-based/use-based pricing is the existence of an accurate baseline of consumption as well as a stable and well-defined outlook of service requirements with measurable service levels. Maurer et al. (2008) see an effective process for an accurately and timely counting of the units/use serving as the basis for invoice billing as the key success factor for this

model. The financial risk for the customer is considered low due to high flexibility whereas the financial risk for the provider is considered medium to high due to the potential of not coverable fixed costs at decreasing volumes.

Incentive-based

The customer pays the provider a service base fee. Additionally, the provider receives a potential bonus if he achieves the performance goals tied to a business value like reduced service costs or early completion of a project. The business value must be measurable to apply this pricing model. As previously mentioned, this pricing model can be used in combination with T&M or cost-plus pricing when an incentive is paid in addition to the contracted price. Incentive-based pricing is ideally used with engagements that are tied to high-priority business objectives. Simultaneously, it is essential for the pricing model to be able to clearly define relevant, measurable, and auditable requirements and success criteria. The financial risk for the customer is considered low as the incentive is only paid when the performance goal is achieved. In contrast, the financial risk for the provider is considered high as the bonus is under risk.

Shared risk/Shared reward

The customer and the provider share the costs of service or solution development. The revenue generated subsequently from this investment is then shared by both parties. It is necessary that both parties celebrate a culture of partnering and are willing to share the upside or downside potential of the relationship. The shared risk/shared reward pricing model is a good choice when the customer must innovate with low upfront costs but is at the same time also able to make a valuable contribution to the project. The generation of a strong business case that makes the project also attractive for the provider is a pre-condition. The financial risk for the customer as well as for the provider is considered high.

Gain sharing/Business benefits-based

The customer pays the provider in proportion to the generated business value. This proportion can be e.g., a percentage of increased profits or reduced operating expenses. This pricing model requires accurate baselines with well-defined and measurable service levels and performance goals. Maurer et al. (2008) determine that this pricing model is effective when the customer only wants to pay for bottom-line results and can fulfil its

commitments to pay for the business benefits generated. Like incentive-based pricing, this pricing model can also be combined with T&M or cost-plus pricing when a bonus for generated gains is paid in addition to a contracted base fee. The financial risk for the customer is considered low, but the financial risk for the provider is considered high.

Decision-making factors

Maurer et al. (2008) identify three major factors that affect the pricing model decision-making process, namely flexibility, transparency, and predictability.

Flexibility describes the pricing model's ability to adapt to changing prices in the market during the life of a contract. Some of the previously described pricing models are more flexible than others.

Transparency describes the customer's ability to understand the costs, the elements of price, the relationship between service levels and pricing, and the impact of an increase or decrease of use. Transparency in this case means the understanding of the pricing mechanism and the relationship of various terms to the price. It does not mean that the customer obtains access to the provider's proprietary information. Some previously described pricing models are more transparent than others.

Predictability describes the customer's need to have precise budget planning for the fiscal year or beyond. Some organizations have a strict planning process where predictability is more important than other attributes. The previously mentioned pricing models provide different grades of predictability. The customer needs to determine how much predictability is necessary.

Table 5 summarizes the rating of IT pricing models as defined by Maurer et al. (2008) with regard to their flexibility, transparency, and predictability. The previously mentioned risk rating from the customer and provider perspectives is shown in relation with these three key factors.

Table 5: Ratings for key factors in IT pricing-model decision-making

Pricing Model	Flexibility	Transparency	Predictability	Customer risk	Provider risk
T&M	High	High	Low	High	Low
Fixed price	Low	Medium	High	Low to medium	Medium to high
Cost-plus	High	High	Low	High	Low
Open book	High	High	Low	High	Low
Unit-based/Use-based	High	Medium	High	Low	Medium to high
Incentive-based	Low	Medium	Medium	Low	High
Shared risk/Shared reward	Medium	High	Low	High	High
Gain sharing/Business benefits-based	Low	Low	Low	Low	High

Source: Adapted from Maurer et al. (2008)

2.3.3.4 Pricing internal IT services (Rau & Willmott, 2012)

Rau and Willmott (2012) focus on pricing internal IT services and identify the shared ownership of IT services, the customization of IT services that have no equivalent market product, and the incalculable lifetime expenses of IT services as the three main factors that make IT costing difficult. The assignment of benefits is likewise difficult as the quantification of e.g., compliance and risk mitigation, process efficiency, or other soft factors like e.g., flexibility appears impossible.

Rau and Willmott (2012) distinguish between four different economic models of funding IT services that can guide the interaction between the internal customer and the internal IT department depending on the desired behaviour:

- *corporate-funded* where individual departments do not pay for IT,
- *cost-allocated businesses* where departments pay *pro rata*,
- *consumption-driven businesses* where prices are set by the IT department, and
- *market-based businesses* where prices are set by the market.

In the corporate-funded economic model, IT represents a cost centre. Individual businesses and departments do not see any charges in their cost report. This economic model can result in a competition for free resources to maximize the individual consumption and

profit until the capacity is exhausted. These motivations dispute with attempts to increase the effectiveness of departments or lead to overstatements of project values.

The cost-allocated economic model assigns each department or entity a portion of the total IT expenses. Thereby, IT costs become visible and the cost allocation for projects can be made fair. In this case, departments might tend to consume more than they admit and complain about a high cost allocation afterwards. Ultimately, this economic model raises awareness of IT costs.

The consumption-driven economic model, which is also termed as *pay-as-you-go* pricing model, splits the total costs into price per unit and motivates departments to constrain demand. The department can change costs by changing the number of units consumed. The consumer is motivated to ask for a lower price per unit, thus the IT department must seek to optimize efficiency as unit prices can be compared year over year.

The market-based economic model focusses on standardized so-called *commoditized* IT services from external vendors. In this case, the market sets the price for the IT service according to the consumption. This model motivates the buyer to control use and ask for competitive offers from more than one vendor. This might lead to a higher efficiency and cost decrease in comparison to the other economic models.

Rau and Willmott (2012) predict that due to technological changes, the future pricing of IT services will change. As an example, cloud services offer the possibility to obtain computing services externally (also compare the research on the chargeback for cloud services by Baars et al. (2014)). As a result, external IT service providers are expected to be stronger in facilitating standardized IT services for a competitive price whereas internal IT organizations are expected to have their strength in facilitating IT services that differentiate from competition and provide a better service value.

Rau and Willmott (2012) predict a differential system in the future that combines a market-based model for standardized IT services and a cost-allocated model for more individualized IT services.

2.3.3.5 Critical success factors of IT outsourcing (Correira dos Santos & Mira da Silva, 2015)

The concept of the identification and application of critical success factors (CSFs) to business problems is not new. Bullen and Rockart (1981) focused on developing an approach that helps executives identify and define their information needs to effectively prevent information overload. Management can identify key information for critical decisions by using success factors as a filter. Decisions made in this way are likely to be more efficient as they are based on data related to the organization's success factors. Bullen and Rockart (1981) defined an approach that reflects the principles of success factors to identify relevant information systematically. The CSF method is still used today in many technology planning methods and formalized information systems (Khodaveysi, Mobarakabadi, & Slambolch, 2016; Wiener, 2006).

Correira dos Santos and Mira da Silva (2015) also focus their research on IT outsourcing and emphasize the importance of pricing as a critical success factor in their innovative and qualitative research on the provider's perspective (also see section 3.2.1.3). In their priority analysis, the implementation of contract pricing management takes a central position and is identified as a critical success factor impacting on many other aspects of IT outsourcing. Their research also supports the importance of flexibility as a factor that affects decision-making, highlights the advantages of pricing flexibility when coping with demand variations, and criticizes that most IT outsourcing contracts are inflexible because they are only based on fixed prices. Thus, the previously discussed pricing models for IT services by Maurer et al. (2008) represent alternatives to overcome this deficiency in practice.

2.3.3.6 Pricing software-as-a-service (SaaS) (Feng et al., 2018)

According to Feng, Jiang, and Liu (2018), the new SaaS licensing model is gaining huge popularity. The researchers investigate the competition between an incumbent and a new entrant in a SaaS market. They aim to identify the optimal market entry strategy for the new entrant. Feng et al. (2018) recommend an instant-release strategy when the product quality of the new entrant is significantly lower (i.e., product release at the start of the planning horizon). A late-release strategy is recommended, if the quality gap of the products is relatively small (i.e., delay the new product release until its quality exceeds the

quality of the existing product). Feng et al. (2018) conclude that instant-release is a low-quality/low-price strategy whereas late-release is a high-quality/high-price strategy.

In addition, Feng et al. (2018) investigate the effect of asymmetric incompatibility on the market strategies in equilibrium in a scenario with two partially compatible competing products. They conclude that the new entrant's zero-profit region positively correlates with the incompatibility level between the two competing products. In contrast, profit negatively correlates with the level of incompatibility, if the new entrant applies the instant-release strategy. In case the level of incompatibility is high enough, the instant-release strategy is unlikely to be suitable for the new entrant. However, if the new entrant adopts the late-release strategy, its profit is expected to increase with the degree of incompatibility of its product (also see Harmon, Raffo, & Faulk, 2004).

2.3.3.7 Value-driven strategies in pricing IT solutions (Reen et al., 2017)

Value-based strategies in IT services pricing are promoted by switching from product- to service-centric business models (SaaS, IaaS, PaaS). The inclusion of maintenance and technical support in the value proposition makes it difficult to distinguish between product and service revenues. Reen, Hellström, Wikström, and Perminova-Harikoski (2017) determine that pricing mechanisms of comparable industrial service organizations rather base on cost- and competition-informed pricing than on a differentiated understanding of the value the customer attributes to the service (also see Töytäri & Rajala, 2015; Zeithaml, Bitner, & Gremler, 2017). Liozu, Hinterhuber, Boland, and Perelli (2012) have observed that managers do not understand value-based pricing because they do not distinguish between value-based pricing and other concepts like competitive advantage, cost-plus, low price, and total cost of ownership.

Reen et al. (2017) discuss the opportunities and challenges of pricing industrial IT solutions and suggest practical advice for implementing value-based pricing. Their findings illustrate new price strategies by defining work packages that are translated into a value-based approach. Furthermore, their findings show that value-based pricing is tied to the organization's ability to create value for its clients and imply serious changes in the company's business model. Reen et al. (2017) consider a cultural change from the price-calculation formulas to the pricing decision factors necessary for a successful value-based price strategy implementation. The implementation is considered a difficult and expensive

task that includes the development of pricing tools and relevant capabilities (also see 2.3.2.2).

2.3.3.8 Pricing data services (Y.-J. Chen & Huang, 2016)

Y.-J. Chen and Huang (2016) investigate the selection of pricing variables and associated pricing models. In their constructed model, a seller of monopoly data services faces heterogeneous consumers whose utilities depend on connection speed and use. Y.-J. Chen and Huang (2016) examine three options in which the seller can make indirect price discrimination: minutes, gigabytes, and megabytes per second. They show that self-selection behaviour significantly impacts on the seller's profitability. This leads to a first-order influence on the selection of the pricing model. Y.-J. Chen and Huang (2016) conclude that pricing by gigabyte or megabyte per second can be optimal. Prices by gigabytes can dominate prices by megabytes per second even if the customer's utility is more sensitive in changes to the connection speed. Furthermore, they find out that pricing by megabytes per second becomes more attractive when considering bandwidth or congestion costs, as it allows direct control over the congestion effect.

2.3.3.9 Further IT-related studies

There are several pieces of research that examine the pricing and the economies of IT services. The researcher considers the following to be particularly relevant to this research:

A comparison of the cloud solution regarding the desktop grid system (an interconnection of several computers via internet) and Amazon EC2 services has been made by Kondo, Javadi, Malecot, Cappello, and Anderson (2009). They focus mainly on the way in which different educational institutions, especially universities, use scientific computation. In addition, the researchers compare the performance of both IT solutions to assess the benefits (Schindler, 2012) employing benchmarking techniques.

Mihoob, Molina-Jimenez, and Shrivastava (2011) also present a theoretical review of techniques of customer-centred resource accounting from the perspective of IT services, especially EC2 cloud services. The billing models of two widespread cloud services and possible causes for discrepancies between the data collected by the provider and the

consumer are investigated. The investigation results from the fact that cloud service providers are taking their own measurements to collect use data. Their research highlights some of the cost-benefit analysis of various platforms of IT services, such as volunteer applications against cloud computing, and small versus large projects.

Harmon, Demirkan, Hefley, and Auseklis (2009) examine literature on value-based pricing IT services. They compare cost-based pricing with value-based pricing regarding the customer's value drivers such as performance value, economic value, supplier value, buying situation, and buyer motivation. The most common cost-based price strategies are use-based, user-based, performance-based, tiered, and flat pricing, and are mainly driven by economic and performance values. The most common value-based price strategies are price skimming, penetration pricing, and hybrid price strategies, and are related to all identified drivers. Harmon et al. (2009) conclude that cost-based pricing models ignoring customer-value requirements can no longer provide a favourable return due to increasingly competitive markets and services-based revenue models. They suggest that IT organizations should develop pricing capabilities that place the marketing organization at the heart of value-based pricing decisions to reflect the customers' willingness to pay.

Strebel and Stage (2010) develop an optimal model to minimize IT costs for concurrent deployment of in-house systems and cloud services. Their work focuses on transferring workloads to the cloud server to drive the overhang of their own data system. The work uses regression as a statistical analysis tool to evaluate variables in the model, indicating that there was a very strong relationship. Their study also focuses on the deployment of the application, which seems to be a unique scenario among the possibilities of cloud computing.

Jia, Liao, and Feng (2018) analyse the profitability of a sales and lease model by considering software upgrades as well as various price discrimination strategies in a two-period model framework. Considering intertemporal, behavioural, and hybrid price discrimination strategies, they conclude that the supplier-chosen price discrimination strategy in connection with intertemporal consumer buying behaviour makes the sales model more profitable than the leasing model. If the monopolist uses information about consumers' past buying behaviour for price discrimination, the sales model is more profitable. In addition, they note that should a sales model be introduced, the monopolist

should prefer the behavioural price discrimination strategy with a reward for loyal consumers. However, when a leasing model is introduced, the monopolist should choose the intertemporal price discrimination strategy with an increasing price. Furthermore, Jia et al. (2018) extend the model to a duopoly market and conclude that the sales model dominates the leasing model under hybrid strategy, but both models are equally profitable within the intertemporal strategy. Their findings give new insights into sales and leasing models.

Rai, Puvvala, and Jha (2016) present a systemic and relational approach to pricing services. In contrast to most of the price strategies popular in the services sector that are simply extensions of the transactional pricing approaches used in the goods sector, a service paradigm is relational in its approach where the interaction with the customer is transactional. Rai et al. (2016) propose and test a framework for determining optimal pricing models for B2B services on two cases namely IT production services and IaaS. The key aspects of the framework are adopting a systemic approach considering all determinants of pricing decisions, contextual variables, constantly changing interactions between pricing units, structural variations in service engagements, and a service dominant logic. Finally, they demonstrate that a systemic view of an engagement can enable a better understanding of the underlying dynamics of pricing determinants to improve price strategies.

2.3.4 Conclusion

Having illustrated and analysed case-related quantitative and qualitative pricing research with focus on the relation of price strategies and price-setting practices (2.3.1), influential pricing factors (2.3.2), and pricing IT services (2.3.3), the researcher comes to the following main conclusions:

- The differentiation between price strategies and price-setting practices is a structural contribution to understand the companies' internal and external pricing process emphases in practice.
- The relation of price strategies and price-setting practices illustrates the multi-dimensionality of the influencing factors on pricing like e.g., the cost structure, the

product life-cycle, and the impact of trade. Moreover, inferences from price strategy that deviated from mainstream price theory can be made to predict the price-setting.

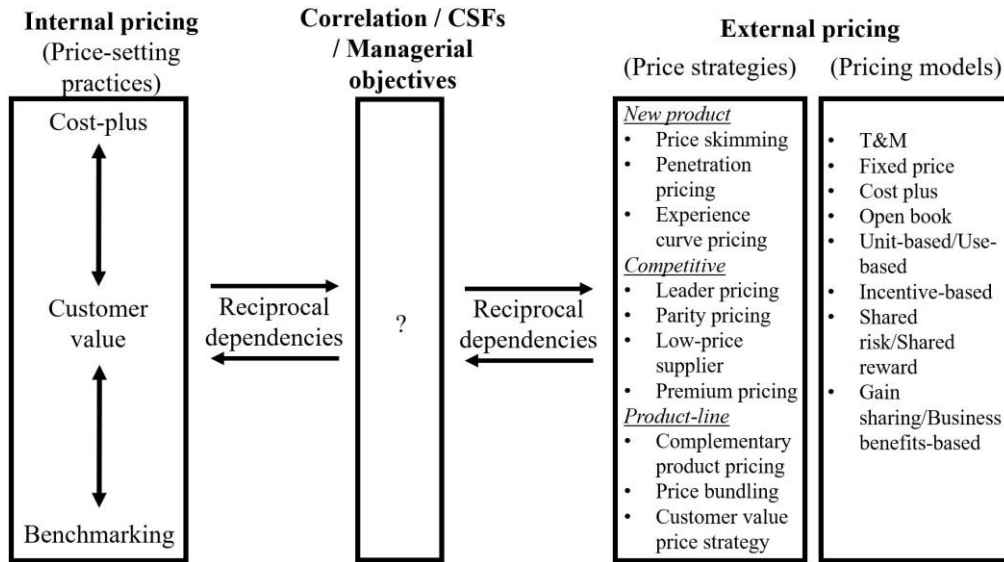
- Besides competition-based pricing, cost-based pricing is by far the most prevalent price-setting practice.
- Many influential factors on the pricing process and their relation amongst each other are not part of pricing research so far. These deficiencies call for a paradigm change towards qualitative research designs that focus on the identification of the critical success factors to establish the basis for more complex research settings.
- Identifying non-quantitative measures could add multi-dimensional reality to research and help narrow the theory-practice gap.
- A conceptualization of pricing models identifies the scope, base, influence, formula, and temporal rights as influential pricing factors.
- Studies investigating the importance of resource-based capabilities in the pricing process recommend economics and marketing research to extend their resource-based view of pricing. Understanding model pricing, price rigidity, and price strategy requires both, expertise and social interaction.
- Recognizing the importance of the concept of pricing capabilities is important for the understanding of strategical and organizational challenges of pricing, as it focuses on different resource types and their deployment.
- Pricing research picks up IT services as a central theme with different topics: the relationship between IT services and IT asset prices, IaaS and SaaS pricing, different economic models of funding IT services, CSFs for IT outsourcing, value-driven IT solution pricing, and pricing data and cloud services.
- Further research on the relation of price strategy and price-setting practice is necessary to increase the understanding of the pricing process. Likewise, IT-related pricing research requires more academic attention.
- The research objectives and questions formulated in section 1.3 are scientifically relevant and indicate open aspects of pricing research.

2.4 Conceptual framework: A new construction

The conceptual framework of this research is a new construction that comprises theoretical elements of existing general and IT-specific pricing research. Figure 4 visualizes the key conceptual elements of pricing, the structural relations among each other, and the resulting

key research questions. The conceptual framework is a constructed system that combines research that differentiates and relates price-setting and price strategy (2.3.1), influential pricing factors (2.3.2), and research related to pricing IT services (2.3.3).

Figure 4: Conceptual framework



Source: Proprietary construction of various theoretical and practical pricing elements

Explanation

The conceptual framework consists of two main areas that represent internal and external pricing. This classification is made in the style of Noble and Gruca (1999) and Ingenbleek and van der Lans (2013) who conceptually differentiate between price-setting practices and price strategies (see section 2.3.1.1). The advantage of this conceptual structure and the reason for its implementation is the clear differentiation between the process of price-setting as an internal operation in a company that takes place behind closed doors, and the process of the implementation of price strategies as an external price communication visible in the market. It should be clearly stated that these processes do not necessarily represent different temporal phases. They can also take place simultaneously. The classification of internal and external pricing is important to structurally disentangle the complex process and identify the critical success factors that might be characteristic and influential either to the price-setting or the application of a price strategy. Seeking to overcome the theory-practice gap also requires a comprehensive, transparent, and catchy conceptual framework that explains the microcosm of pricing in its relevant granularity

and the research objectives to the research participants so that they can capture the focus accordingly.

The area of internal pricing reflects the pricing discretion model developed by Monroe (2003), illustrated in Figure 2, and also used as the “base” dimension in the five-dimension pricing model by Iveroth et al. (2013). This research seeks to discover whether the range of possible prices is also applicable to the pricing of IT services and if there are dependencies to external price strategies that are assigned to a pricing situation (see Table 4). External pricing as shown in Figure 4 comprises price strategies structured according to a particular pricing situation following Ingenbleek and van der Lans (2013), Noble and Gruca (1999), and Tellis (1986). These pricing situations can be determined by various factors like e.g., product lifecycle, product characteristics, or competitive situations.

In addition, IT-specific pricing models as illustrated by Maurer et al. (2008) and Cots Salleras (2012) represent the second column of external pricing within the conceptual framework. The researcher considers IT-specific pricing models as another decisive factor within the price strategy that previous researchers have neglected in terms of the strategic element. It is not only the amount of the price that determines the success or failure of an offer, it is also the flexibility of the price and possible incentives that make one pricing model preferable to another one. Pricing models as a strategic means within external pricing offer another selling argument that provides the possibility to reduce the price in the case of volume reduction or an inducement to increase consumption through a unit price reduction. Expanding the term of external pricing also to pricing models provides the possibility to identify the relations to price strategies as well as the reciprocal dependencies with internal pricing. Simultaneously, the identification of pricing models preferably utilized in practice might help to conclude on the influential pricing factors, their dimensions, and their applicability (see 2.3.2).

Figure 4 also visualizes the key research questions that relate to internal and external pricing. On the one hand, the identification of the critical success factors is one main research objective that might help to improve pricing routines and necessary pricing capabilities in practice. On the other hand, the identification of monetary and non-monetary managerial objectives might help to analyse the motivations behind pricing decisions. Both elements are expected to increase the pricing problem awareness of the

participants and readers of this research. Moreover, both elements, the identification of the critical success factors and the managerial motivation, shall lead to a theoretical contribution of hypotheses formulation that can push pricing research a step further to close the theory-practice gap, no matter which epistemological orientation a research approach might have.

Additional function

The illustration of the conceptual framework (Figure 4) also serves to help research participants capture the whole picture of the research project easily and understand the relation and the aim of the research questions. Drawing a comprehensive picture of the conceptual framework shall stimulate the research participants to be able to fill this construct with their own experiences, set core areas, and develop a conclusive argumentation.

2.5 Summary

The first part of the literature review (2.1) carves out the elementary criticism formulated by the theory-practice gap in pricing research, the ways various researchers cope with this conflict, and the diverse emphases that researchers put on healing this conflict.

The theory-practice gap in pricing research describes the discrepancy between the isolated focus of the research on influential variables on pricing decisions and the multi-dimensional reality of everyday management decisions. This discrepancy is traced back to the decision-making deficiencies of fundamental pricing theories that *inter alia* result from oversimplification in a complex decision environment, decision-making under conditions of certainty, one-way causal consideration, and the negligence of manager preferences.

This elementary criticism of the pricing theory-practice gap questions the normative research tradition explicitly and stimulates a vital theory-practice dialogue in pricing research that reveals several aspects of discussion. And although capable researchers identify the necessary steps for more realism in pricing research, the theory-practice gap in pricing research remains.

The researcher comes to the following conclusions: Fundamental pricing theories cannot explain the decision-making process; The dissent between the neoclassical paradigm and the Post Keynesian price theory reflects the reality gap; Future research needs to analyse the interrelations between influential variables; Research needs to distinguish between price-setting and price strategy to understand the decision-making variables; Research should include professional pricing experience; A paradigm change towards qualitative and descriptive pricing research is necessary to close the persisting theory-practice gap.

The second part of the literature review (2.2) examines pricing research trends of the last decade putting emphasis on the dimensions market offerings and focus, topic, theoretical foundation, and research design and methods. Empirical and conceptual quantitative pricing research focused on B2C markets. The most popular pricing research topics were competitive pricing, product-line pricing, differential pricing, and pricing promotions and discounts. The primary theoretical foundation of pricing research was economics followed by psychology and sociology. Quantitative pricing research has applied different methodological approaches like e.g., direct, indirect, and product-/price-mix methods to determine and optimize prices whereas qualitative pricing research predominantly focused on understanding customers' value perceptions and willingness to pay in B2B markets. The researcher concludes that calls for a paradigm change in pricing research towards more qualitative and descriptive research remained unheard.

The third part of the literature review (2.3) analyses case-related quantitative and qualitative pricing research with focus on the relation of price strategies and price-setting practices (2.3.1), influential pricing factors (2.3.2), and pricing IT services (2.3.3).

Different pieces of research pick up the theory-practice gap criticism and start distinguishing between a firm's price strategy and the process of price-setting to understand the decision-making variables and their interrelations (2.3.1). This division is considered valuable because the structural disentanglement enables to differentiate between the critical success factors that have their seeds either in the company or arise from externalities. Furthermore, relating price strategies to price-setting practices demonstrates that dependencies between internal and external pricing under certain conditions exist. One main contribution is the awareness that completely inward-looking

companies do not exist, and that cost-informed pricing is often combined with competition-informed or value-informed pricing.

Although the researcher acknowledges the contributions of differentiation and relation, criticism is inevitable. Besides the clash of some structural classifications, the researcher determines the shortcomings resulting from the one-dimensionality of quantitative research. Many influential factors are not part of general pricing research so far. Their criticality and interrelations remain unexplored. Yet, quantitative research is not able to identify and examine practical factors like e.g., multi-product responsibility, information asymmetries, long-run effects, or managerial motivations. The researcher considers the identification of non-quantitative measures as a key factor to add the multi-dimensional reality to pricing research.

The analysis of literature on influential pricing factors (2.3.2) identifies research that defines pricing models as a system of price elements in the agreement between the customer and the vendor. Any agreement uses a pricing model that can be described through five important dimensions (scope, base, influence, formula, and temporal rights). Resource-based pricing capabilities are considered another underestimated influential factor in the pricing process. Studies investigating the importance of capabilities in the pricing process recommend marketing and economics research to extend their resource-based view of pricing, because understanding model pricing, price rigidity, and price strategy requires both, expertise and social interaction.

Recent literature picks up pricing IT services (2.3.3) as a central theme with different topics: the relationship between IT services and IT asset prices, IaaS and SaaS pricing, funding IT services, pricing models for IT services, CSFs for IT outsourcing, value-driven IT solution pricing, and pricing data and cloud services.

In the end, the researcher concludes that the research objectives and questions formulated in section 1.3 are scientifically relevant. Further research on the relation of price strategy and price-setting practice and IT-related pricing research is necessary to increase the understanding of the pricing process.

The conceptual framework (2.4) summarizes key conceptual elements of case-related pricing research and their structural relations (2.3). It is a constructed system that intends to draw a comprehensive picture of the complex pricing topic and enable research participants to fill this construct with their own experiences, set core areas, and develop a conclusive argumentation. Ultimately, it should make significant contributions to reducing the theory-practice gap.

The conclusions drawn in sections 2.1.4 and 2.2.3, based on the theory-practice gap analysis and the research trends of the last decade, recommend a fundamental paradigm change in research. Although new research approaches contribute to a better understanding of the complex decision-making process of pricing, calls for a paradigm change remain unheard. In the light of this criticism and the shortcomings of previous pricing research, the following methodological discussion is of special significance.

3 Methodology

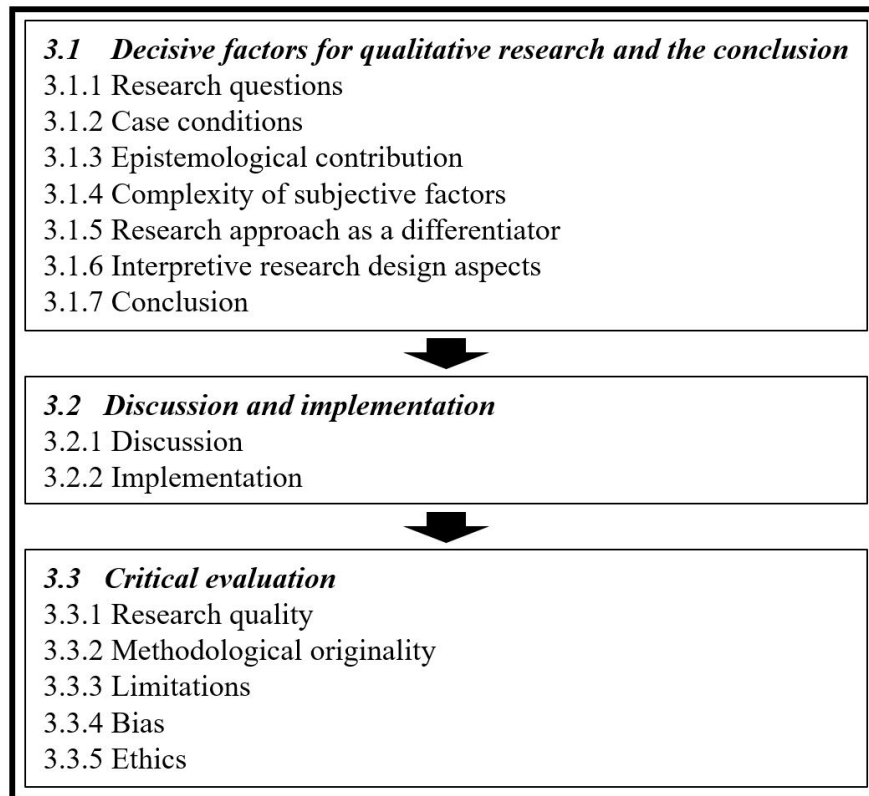
The methodology chapter is divided into three sections: a decision section, a discussion and implementation section, and finally a critical evaluation section.

The decision section (3.1) addresses relevant decisive factors which favour the use of qualitative research to properly answer the research questions on the pricing of IT services. These factors, namely the nature of the research questions, case conditions, the epistemological contribution, the complexity of subjective factors, the research approach as a differentiator, and interpretive research design, are discussed against the background of previous research approaches, actual research questions, and research feasibility to provide a comprehensible decision on the research methodology.

The discussion and implementation section (3.2) discusses the research design, strategy, and method, and illustrates their implementation details. Particularly, the cognitive mapping process is depicted, and the details of implementation and analysis are specified.

In the final evaluation section (3.3), the researcher debates on the research quality, methodological originality, limitations, bias, and ethics. The procedural approach reported (see Figure 5) is designed to demonstrate a methodological rigour allowing reflection on the implementation of trustworthiness, systematicity, reflexivity, and transparency. Furthermore, the researcher discusses the distinctive features and the originality of the selected methodological approach to illustrate its contribution in comparison to the established methodological approaches in the wider area of pricing research.

Due to ambiguous and inconsistent terminology used by different scholars to explain fundamental research philosophies, the researcher refers to a recapitulation on the philosophical debate between different epistemological research approaches to clearly explain the terminology used in this thesis (Appendix A). Especially those pricing researchers, who maintain the tradition of quantitative research, might be stimulated to reflect on the different purposes and benefits of a qualitative research methodology.

Figure 5: Development of the methodological approach

Source: Proprietary development

3.1 Decisive factors for qualitative research and the conclusion

Various researchers explicitly call for a paradigm change towards qualitative and descriptive research to close the persisting theory-practice gap in pricing research:

1. Oxenfeldt's (1973) initial criticism attributes the failing of pricing research regarding the applicability of theoretical research contributions in practice to the employment of quantitative techniques, which cannot identify non-quantitative measures that go beyond these.
2. Monroe and Mazumdar (1988) and Kotler (2016) criticize the reliance on a single research paradigm to develop generally accepted pricing knowledge as not being successful.
3. Diamantopoulos (1991) concludes that building the bridge between pricing theory and practice requires a differentiated approach, placing emphasis on the identification of factors that are responsible for variations in pricing behaviour.
4. Monroe (2011) and Rao and Kartono (2009) call for more descriptive research on pricing as the philosophy-of-science debate makes it acceptable for knowledge

development. Furthermore, descriptive research is considered important for creating knowledge about the decision process and heuristics.

Taking these positions into account, the researcher reflects on different crucial factors for the decision on research methodology. The following discussion of the decisive factors like research questions, case conditions, methodological contribution, and the demarcation from previous research argues the final decision on the research methodology.

3.1.1 Research questions

Schwartz-Shea and Yanow (2012) assume that interpretive researchers and the research world are entwined. Thereby, evidence is “being brought into existence through the framing of a research question and those actions in the research setting that act on that framing” (p. 79). That means that the view on the research is partial and the conceptual and perpetual act is selective. The research questions formulate the focus and determine relevant data and their likely sources.

It shall be stated that the expectations formulated through the research questions (see section 1.3) can only be partially explained precisely prior to data generation due to the dynamism of the social world. The formulation of the research questions marks a point in time where some prior knowledge exists, and other knowledge does not (hermeneutic circle). Thus, the research questions are provisional as knowledge grows but also precise at the time of formulation.

Thus, despite the dynamism of the social world, the formulated research questions can indicate which approach serves best to answer these questions and reach the specified objectives. The research formulates four research objectives and the corresponding research questions (see section 1.3) to achieve the following goals:

1. critical illustration and analysis of the theory-practice gap of pricing research regarding fundamental pricing theories and the shortcomings of the existing research;

2. investigation and critical analysis of the potential reciprocal dependencies between price strategies and setting-practices of IT services as well as the critical success factors;
3. investigation and interpretation of IT pricing managers' personal experiences focussing on price-setting, price strategies, managerial objectives, and critical success factors; and
4. recommendation of new and original practical pricing process improvements.

The first goal reflects the analyses of the literature review that serve to uncover the deficiencies of the research to date that either result from the methodological or topical shortcomings. It is important to state that, although the researcher already has the research questions in mind when deciding in favour of doing research, the previously mentioned framing changes according to the results of the literature review. So, by generating a new perspective on the theory-practice gap of pricing research with a focus on the decision-making deficiencies in the literature review, the researcher generates new knowledge that changes his framing of the research questions.

Thereby, some of the decisive factors in the following sections 3.1.2 – 3.1.5 emerge from the new knowledge generated through different perspective of the literature review, the epistemological contribution of interpretivism, the complexity of subjective factors, and the research approach as a differentiator.

However, the research questions themselves indicate the appropriateness of a research methodology also prior to any new insights gained by the literature review and its analyses. In fact, the investigation of the potential reciprocal dependencies between price strategies and setting-practices, and the investigation and interpretation of practitioners' experiences very much underline the explorative character of the research questions and the researcher's claim to interpret experiences against his own professional background. So, even without prior knowledge on pricing research, the research questions indicate a methodological tendency towards a qualitative research design and its ontological orientation towards subjectivism as experiences are considered the basis for the generation of new knowledge and practical recommendations.

3.1.2 Case conditions

In the global IT services market, the number of dominant market actors, who can be considered as main players, is quite small. Snowden and Fersht (2016) analyse the top twenty-five global IT service providers based on revenue covering 49.3% of the market share with a revenue of 262.3 billion US dollars. The top ten companies have a market share of 33.9%. From his own experience, the researcher expects one to two people in every company, knowing about the internal and external pricing process, to take exclusive responsibility for pricing in a structured way. In companies with lower annual service revenue, contacts with an exclusive focus on pricing are expected to be rare. Consequently, the limited number of contact persons who can overlook the pricing process, make qualified statements, share experiences, and make recommendations for pricing process improvements affects the possible research approaches as well as the methodologies behind those approaches.

3.1.3 Epistemological contribution

The axiology of interpretivism considers the researcher's appraisal for being part of the research setting. Performing pricing research in the IT services sector provides a practical contribution by uncovering the critical success factors in the pricing process and analysing the reciprocal dependencies between price strategies and setting practices. Beyond that, the epistemological choice of interpretivism as a research approach is an additional value. An interpretivist's research is value bound as the researcher cannot be separated from what is being researched, thus it is subjective. This subjectivism is valuable especially within the dialogue between the researcher and the interviewee as both will have an expertise in pricing IT services and can discuss the understanding of the research questions in-depth. Moreover, the researcher can control his understanding of the interviewee's statements during the dialogue and after keeping records by member-checking (see section 3.3.1.1). The researcher's ability to be reflexive and critical on the interviewee's statements and his own interpretation in the context of the research circumstances allows relating the findings to his knowledge claims that arise from the research.

3.1.4 Complexity of subjective factors

Pricing IT services takes place in an environment where few pricing managers act as the interface between the customer and the provider and evaluate and influence the formation of prices. Understanding those key players – their experience of how the current pricing is influenced, their view on competition, their interpretation of different pricing models, their ideas for new approaches and improvement – can provide insight into their reality and the possibility to investigate unexpected factors.

Existing research does not provide a detailed examination of the subjective factors (see section 2.2). Investigating the soft side could bring a further connotation to the research. However, subjective factors cannot be concluded from quantitative measures like prices. Thus, their investigation requires an exploratory research approach to gain a deep understanding and ensure subject clarification.

3.1.5 Research approach as a differentiator

Referring to the research approaches previously applied in pricing research (see section 2.2), the researcher reflects on a qualitative research methodology based on an interpretive epistemology as a differentiator:

1. Previous pricing research in the last decade was mainly performed in a quantitative manner (2.2.1). The quantitative approach is seeking for explanations of relationships in underlying structures with a design that is characterized by the collection and analysis of quantitative data. Regarding the theory-practice gap, the researcher considers an exploratory approach more appropriate to gain insight into the IT-specific critical success factors of internal and external pricing. A qualitative approach emphasizes the observation of the ways that people interpret their social world. Thereby, social reality is considered a constantly shifting creation of individuals that is made mainly through language and speech. The previously performed quantitative approaches cannot provide any exploratory results unless a mixed-methods approach is applied.
2. As qualitative research is a research design that emphasizes words more than numbers when collecting and analysing data, the research method of a semi-

structured or in-depth interview as a dialogue can prevent misunderstandings and misinterpretations that can occur in a questionnaire.

3. Pricing managers are people who decide on price-setting practices and the choice of price strategies. Therefore, it is necessary to grasp the meaning, the influencing factors, and the motivations of their decisions. They are experts in their domain, thus focussing on these interviewees can lead to a more mature outcome with explorative impulses that a quantitative approach is not able to deliver due to the absence of a critical mass of experts and the individual dialogue.
4. Previous research on pricing topics mainly performs a deductive research approach epistemologically based on positivism or realism seeking to test the validity of the generated hypotheses (e.g., 2.3.1.2). The explanation of causality as one aim shall lead to absolute fundamental laws of human behaviour. But a few quantitative variables cannot capture the complexity of several influential factors a pricing manager deals with when making decisions on price-setting or price strategy. Getting over the theory-practice gap in pricing research requires a different research approach. The one-dimensional analysis of pricing problems in the normative research tradition, considering only small and isolated parts, has not been able to overcome this gap yet. In contrast to a quantitative approach, the qualitative approach appreciates every single opinion, practical experience, and idea, even the underrepresented ones, thus can give new impulses for further research and a manifold picture that can even stimulate the practitioner's reflection on his own and others' experiences.

3.1.6 Interpretive research design aspects

According to Schwartz-Shea and Yanow (2012), interpretive researchers focus on situated and contextualized meaning-making, and emphasize the following in their research:

- “bottom-up, in situ concept development;
- constitutive understandings of causality;
- the relevance of researcher identity in accessing sites and archives;
- the need to improvise in response to field conditions; and

-
- data co-generated in field relationships” (p. 99).

The researcher considers this situated and contextualized meaning-making approach philosophically appropriate to answer the relevant research questions for the following reasons:

- The bottom-up concept development as a characteristic for the interpretive research approach reflects the explorative tendency and supports the overcoming of the obstacle of limited information on pricing IT services.
- The understanding of causality between price strategies, price-setting practices, and critical success factors only grows step-by-step through conversation due to versatile influential factors.
- The researcher’s identity is relevant to the availability and extraction of information and opinions as pricing is a sensitive topic and the personal dialogue determines the outcome.
- As the personal dialogue in a semi-structured or in-depth interview is unpredictable, the researcher can improvise in response to the upcoming *coup de theatre* within a dialogue.
- Data co-generated in the interview phase can flow into the research method’s documentation, e.g., a cognitive map (see section 3.2.1.3), or it can be taken separately as a researcher’s note reflecting his overall impression. Both shall be considered in the interpretation process.

It is a moot question whether philosophy drives the researcher’s approach or can be derived from his approach. The researcher considers this a hand-in-hand process, where the researcher’s attitude and experience let him formulate the research questions, decide on the research approach, and philosophically argue his point of view. In the end, the application of a certain methodology is a deduction from the researcher’s epistemological attitude on how to approach the research topic.

It shall be noted that even though the research process is expected to be flexible and dynamic, the rigorous procedural planning of the design (see section 3.2.1.1) also determines the way the interpretive research is evaluated.

3.1.7 Conclusion

The researcher concludes a qualitative research approach based on an interpretive epistemology appropriate to contribute to knowledge significantly. The following six factors and arguments are relevant for this decision:

1. Research questions can *a priori* indicate an appropriate methodology. The explorative character of the research questions and the researcher's claim to interpret experiences against his own professional background suggest a methodological tendency towards a qualitative research design and its ontological orientation towards subjectivism. Experiences are considered the basis for the generation of new knowledge and practical recommendations.
2. Qualitative research is a differentiator to the existing pricing research; a few quantitative variables cannot capture the complexity of the several influential factors that a pricing manager deals with. These deficiencies of the existing research and the call for a paradigm change to close the theory-practice gap (2.1.4) support the decision for a qualitative approach.
3. The identification of the influential factors for a better understanding of the decision-making process of pricing IT services can only be implemented by an inductive research approach.
4. The researcher considers an interpretive research approach appropriate as pricing IT services is a complex and sensitive topic that requires a personal dialogue to gain empathy and ensure subject clarification that the existing quantitative research cannot provide.
5. Subjectivism of the interpretive research approach is considered a methodological contribution. The researcher and the interviewees are both experts on pricing IT services and can discuss the understanding of the research questions in-depth (co-generated data). The researcher's ability to be reflexive and critical on statements and interpretations allows relating the findings to existing knowledge.
6. The limited number of experts on pricing IT services determines the reasonable research approaches.

3.2 Discussion and implementation

This section discusses the appropriate methodology and explains the different steps of the implementation.

3.2.1 Discussion

In this section, the methodology is constructed and discussed through an incremental consideration of the research design, strategy, and method. This procedural approach is performed to demonstrate the methodological rigour.

3.2.1.1 Research design

The decisive factors for a qualitative research approach have been discussed in section 3.1. The possibility of performing either a qualitative mono-method approach or a multiple-/mixed-methods approach depends on various factors. Although a multiple-/mixed-methods design might increase data diversity, the researcher sees the following issues:

Firstly, the researcher considers it difficult to find a sufficient number of appropriate interviewees for a mixed-methods research design as they are expected to be rare anyway. Moreover, gaining access to them with the permission to discuss the pricing topic in detail is also considered difficult as competition in the IT services business is hard and information on pricing is often crucial for a successful bid.

Secondly, from an epistemological point of view, the researcher is uncomfortable with the fundamental critique of performing a mixed-methods design that combines different paradigms with different underlying assumptions.

The researcher prefers conducting the mono-method approach with a claim of a sophisticated and mature research quality. Moreover, performing a mono-method research design in a sequential manner might increase the research quality as the researcher can modify the applied method according to the outcome of the previous sequence.

3.2.1.2 Research strategy

This section characterizes the existing research strategies, individually discusses their compatibility to the interpretive research approach and the research questions.

Every research strategy is associated with either a more positivist or a more interpretivist epistemological background. Strategies that would not fit to the epistemological background of this research are e.g., an experimental strategy, a survey strategy, or even action research.

Experimental strategy

The experimental strategy has its roots in the natural and medical sciences but is rare in business and management research. Its epistemological background of objectivism determines a high precision regarding the design of conditions. The classic experimental strategy involves random assignment to an experimental group and a control group. The manipulation of one condition (variable) in one group to make a comparison to the control group with unchanged conditions shall then lead to insights.

Survey strategy

The survey research gives a quantitative and numeric description regarding the trends, attitudes, or opinions of a population. It comprises a cross-sectional strategy, which means that data is collected on more than one case at a single point in time. It shall be noted that a cross-sectional strategy does not necessarily determine a quantitative research design. When a researcher is epistemologically orientated towards interpretivism, a cross-sectional strategy can also be combined with a qualitative design, whose typical form could be an in-depth or semi-structured interview. In the end, a cross-sectional design entails the collection of quantifiable data with two or more variables to detect patterns of association.

Action research

Action research assumes continually changing social phenomena, thus the researcher needs to be part of the changing process. One objective of the action researcher is the transformation of the organization to improve and learn about it. The underlying epistemology of some forms of action research is located between positivism and realism.

The previously mentioned research strategies do not suit either the epistemological background of this research project or the mono-method research design mainly due to their quantitative elements and their claim of generalizability. Particularly, action research

does not apply as the research questions do not refer to a changing process but explore the unknown aspects of the pricing process.

Strategies that rather fit to the interpretive epistemological background of this research are e.g., archival research, interpretive phenomenology, grounded theory, or a case study design.

Archival research

Archival research uses the existing actual or historical data like e.g., administrative records, government reports, or annual reports from companies. As archival research makes use of secondary data collected for other purposes, answering the research questions might be constrained by not containing the precise information or being censored due to confidentiality. Therefore, it is necessary to consider the available data quality before determining the research strategy. Archival research tends towards interpretivism when the words are in focus of the existing data.

As the focus of this research project is on the individual experiences of pricing managers and their views on the critical success factors in the internal and external pricing process, the researcher does not consider archival research appropriate to reach a satisfactory and exploratory rich outcome. Motivational aspects are neither part of decision documentation nor can they be concluded from the price strategy and the prices decided.

Phenomenological research

Phenomenological research strategy means that the researcher identifies the essence of human experiences about a phenomenon and tries to understand those lived experiences deeply (Creswell & Creswell, 2018). Ensuring a clear understanding, the researcher needs to take a detached position when studying a smaller number of subjects. Although certain biases like assumptions or preconceptions appear inevitable, the researcher needs to at least explain those biases and integrate them into the research findings.

The researcher does not consider the phenomenological research approach appropriate for this research project as the researcher's detached position would not give him personal access to the pricing manager's individual experience, and that is what makes the difference. As epistemologically justified in section 3.1, the researcher's identity is

relevant to gain access and gather information on the influencing factors and the pricing managers' motivations as the personal dialogue determines the outcome.

Grounded theory

Grounded theory as a methodological strategy describes the process of creating a theory that was derived from data, which is systematically gathered and analysed. Thus, theory and data analysis stand in close relationship to each other (Bryman & Bell, 2015). Glaser and Strauss (1967) first formulated grounded theory as a development of theory through a precisely articulated comparative method by examining an event or process in different settings and situations. Subsequently, different versions of grounded theory were developed by each of them, which are based on different ontological and epistemological perspectives. In comparison to Glaser (1992), who supports a rather positivist epistemology, and Corbin and Strauss (2008), who epistemologically tend towards a weak positivist position, especially Charmaz (2005) takes the most interpretive stance. Her epistemological perspective emphasizes the interaction between the researcher and the subject rather than the researcher and the data; she criticizes that other epistemological stances of grounded theory neglect individual experiences during analysis by systematically splitting them into fragments, thus not representing the whole experience of the subjects.

What makes grounded theory inappropriate for this research project is its purpose to develop theory by a comparative method. This controverts the additional value of determining the way that people interpret their social world by leading a dialogue and gain access to exclusive information. Practically, the implementation of a grounded theory strategy conducted by a comparative method seems difficult regarding the research quality as the quantitative character of this approach lacks a sufficient number of pricing managers in the IT services sector being able to share their experiences.

Case study

A case study explores the research topic in one or more real-life contexts. The advantage of a case study is that the boundaries of the research phenomenon and its context are not necessarily congruent. Epistemologically, this absence of limitations in a case study is considered an additional benefit, being able to enlarge the horizon of study beyond the

context. In contrast, e.g., an experimental or a survey strategy, which consider a high number of variables as a threat to the validity of the results, limit the ability to understand the context to the number of variables (Yin, 2018).

Yin (2018) distinguishes between two discrete dimensions of strategies: firstly, single case versus multiple case, and secondly, holistic case versus embedded case.

A single case study is used when a case is critical or considered as unique and typical, e.g., the study of an organization. A multiple case study is performed to replicate the findings across cases, a so-called *literal replication*. Epistemologically, a single case study orientates rather towards interpretivism whereas a multiple case study tends towards positivism. A more intermediate position between positivism and interpretivism is taken by Eisenhardt and Graebner (2007), who recommend using established case study strategies, collecting data through mixed-methods, and finally conducting analysis through both, single case and multiple case studies.

The second dimension distinguishes between holistic case and embedded case, which refers to the unit of analysis. That means that e.g., an organization can either be treated as a whole or as a composition of sub-units like departments (Saunders, Lewis, & Thornhill, 2015). Within a case study, the case is an object of interest with its own claim of which the researcher aims to provide an in-depth insight. What distinguishes the case study from a cross-sectional strategy (e.g., survey) is the claim to lighten the unique features of the case (idiographic approach) in contrast to generating statements that apply regardless of time and place (nomothetic approach) (Bryman & Bell, 2015).

What makes the case study strategy appropriate and interesting for this research is its epistemological orientation towards interpretivism when focussing on a single case, namely the IT services sector. Exploring a real-life context and being able to enlarge the horizon of study beyond the context due to the absence of limitations to a fixed number of research variables emphasizes the explorative character of the research questions and the aim of highlighting the unique features of the case. The second discrete dimension is preferred to be considered an embedded case. This should be understood in the way that every pricing manager shall be considered as a separate unit of its own regarding the analysis. As previously stated (see section 3.1), the interpretive approach appreciates every

single opinion, practical experience, and especially underrepresented ideas, and shall provide an individual in-depth insight. The aim is rather to get a manifold picture and stimulate the practitioner's reflection than to draw conclusions that refer to an organizational structure.

3.2.1.3 Research method

This section discusses the interview as the preferred research method in combination with cognitive mapping.

The interview

The preferred method of data collection is the interview. In the previous discussions on the epistemological background of this research and the choice of an appropriate methodology, the interview as the method of choice often shines through. The reason for this is the nature of the interview and it matches the motives of the applied interpretive research approach.

Secondary data like e.g., documentary or a survey might be difficult to find or if found, inappropriate as it will have been collected for a purpose that most probably differs from the research questions in this research. Moreover, and this is the crucial point for not working with secondary data, is the fact that an interpretive researcher focusses on situated and contextualized meaning-making. Gaining a constitutive understanding of correlations, also through improvising in response to the field conditions, emphasizes the relevance of the researcher's identity as this can lead to the extraction of hidden information. The aspired explorative character of this research cannot be implemented by the analysis of secondary data, especially when trying to uncover the motives of price strategies and the pricing manager's personal appraisal of the critical success factors that influence the whole pricing process.

The collection of primary data in interpretive research can be performed by observations, questionnaires, or interviews. Observations and questionnaires do not come into consideration because these methods are outside of a dialogue in which the researcher can improvise and adapt to the individual explorative process by which an essential understanding might be gained. Particularly when trying to illuminate pricing IT services as a rarely explored area, the researcher considers it very important to be able to check the

understanding of a statement and even go deeper into an unforeseeable topic to uncover unknown influential factors.

The interview as the preferred research method can be structured, semi-structured, or even unstructured (in-depth interviews). Again, too much of a pre-definition of questions and areas of interest might narrow the discussion the way that it loses its explorative character. Moreover, the precious interview time is limited as pricing managers are overloaded and have a chronic lack of time. On the other hand, performing an unstructured thus unguided interview might lead to too unspecific conclusions and a one-sided illumination of the topic within a limited time frame. This is especially true for the pricing topic as a complex and diffuse area of the research that consists of high-quality and rigorous pieces that are dispersed across disciplines like accounting, economics, and marketing. Therefore, interpretive research in pricing needs a guide that explains the conceptual framework to involve the participants and ensure their correct understanding. A semi-structured interview ensures that the focus is on the relevant research questions within a framework that considers the basic elements of pricing but simultaneously provides the necessary tolerance for an explorative research approach.

The conceptual framework illustrated and explained in section 2.4 serves as a basis that shows a differentiation between price-setting practices (internal pricing) and price strategies (external pricing), provides the possibility to draw connections between both, and leaves space to reflect on influential factors that might lead to a successful pricing process. The semi-structured interview is based on the conceptual framework to ensure the goal-oriented progress of the dialogue but also explicitly asks for the participants' individual experiences and ideas regarding relations, critical factors, and improvements.

As a researcher gains a deeper understanding and can reflect on complex problems when visually looking at a structure, the researcher decided to combine the semi-structured interview with a cognitive mapping process. For instance, Correira dos Santos and Mira da Silva (2015) apply this method in their qualitative analysis of the critical success factors for IT outsourcing. What makes this approach interesting and complements the semi-structured interview is the interactivity that, in contrast to a survey approach, allows richer data to be obtained. During the interview, the researcher and the interviewee draw the map and position the interviewee's statements within the conceptual framework. This

documentation process enables the researcher to check the correct understanding and enables the interviewee to indicate misunderstandings. Moreover, the risk that the discussion slows down and concentrates just on single points is reduced because both, the interviewee and the researcher, continue to approach the topic once they have documented and placed the relevant point on the map.

In contrast to Correira dos Santos and Mira da Silva (2015), a consolidation of different maps resulting from different interviewees is rejected because according to the interpretive research approach, single opinions, practical experiences, and especially underrepresented ideas are appreciated to gain an individual in-depth insight. Thus, every map of a pricing manager is discrete and not consolidated to one map to keep up a manifold picture that might stimulate further reflection (also see section 3.2.1.2).

Cognitive mapping

Montazemi and Conrath (1986) consider the cognitive map as a representation of existing relationships that influence the state or movement of concepts, elements, statements, and factors in a defined environment. Cognitive mapping is a research method that is open to identifying and analysing features that cannot be reliably identified without the map. The map also acts as a structure that can establish a mutual understanding of the topic (Bryson, Ackermann, Eden, & Finn, 2004).

The cognitive mapping technique is based on the theory of personal constructs formulated by Kelly (1991). It suggests that people give meaning to the world to predict the future under the same conditions. People decide then how to intervene in order to achieve their preference. Ackermann, Eden, and Cropper (1992) call this “a predict and control view of problem solving” (p. 1). Cognitive mapping deals with subjective rather than objective reality. It illustrates relationships between statements. These relationships describe the perception of behaviour resulting from personal observations, experiences, and education. Bryson et al. (2004) attribute the mapping’s success to its simplicity that makes it possible to articulate many ideas and their interconnections. The technique of cognitive mapping helps with making sense of complex problems and communicating possible solutions. According to Eden (2004), “maps are not just a graphical description of what is said; rather they are interpretations of what is meant by the interviewee” (p. 675). Therefore, the

quality of an interpretive research approach utilizing cognitive mapping depends on the quality of the researcher as a listener and an interpreter.

The construction of a cognitive map requires a well-defined purpose to direct the search for the critical success factors and the understanding of relationships. The main purpose of the critical success factors is the clarification of business needs and the identification of priorities.

Ward and Griffiths (1996) see the critical success factors within a top-down flow where high-level business strategies determine the objectives of lower level business units. Most organizations link the strategies and objectives by this approach although there are also researchers like Laudon and Laudon (1991) who follow a contrary approach, namely a bottom-up approach that aggregates the individual critical success factors to a set of critical success factors that are relevant in the entire organization.

This research setting does not specify one of the previously mentioned procedures but explicitly leaves room for the interviewee for a holistic reflection without any pre-classification of importance. In the end, it is the researcher who interprets the cognitive map and its construction.

3.2.2 Implementation

This section specifies the research participant criteria and explains the steps of implementation including the sequential interviews and the cognitive mapping process. Table 6 illustrates the implementation process as follows:

Table 6: Implementation process

No.	Activity	Description	Involved	Section
1.	Preparation	Initial interview questions	Researcher	Table 8
2.	Preparation	Research participant selection and contact	Researcher	3.2.2.1
3.	Interview	Pre-interview	Participant and researcher	3.2.2.2
4.	Interview	Main interview and cognitive mapping	Participant and researcher	3.2.2.4; 3.2.2.3
5.	Analysis	Cognitive map analysis	Researcher	3.2.2.5
6.	Verification	Member-checking	Participant and researcher	3.2.2.6
7.	Interpretation	Interpretation and conclusion	Researcher	4.1-4.6
8.	Preparation	Revised interview questions	Researcher	3.2.2.7
9.	Interview	Verification interview	Participant and researcher	3.2.2.7
10.	Verification	Conclusion revision	Researcher	4.7

Source: Proprietary development

3.2.2.1 Research participant criteria

Research participants

The case study strategy will be implemented by focussing on individuals who are either currently in the role of a pricing manager in the IT services sector or have been in the past. The role description of the person who is responsible for pricing is not always uniform but may also be called commercial manager, financial architect, financial manager, etc. If a pricing offer is made for a bid, it is also possible that one person who is responsible for the bid offer takes multiple roles. Especially in bids with an expected smaller contract value, the researcher experienced that the bid manager himself takes the role of the pricing manager as well as the role of e.g., the risk manager. Therefore, the researcher focusses on the one hand on people who can be personally rated regarding their professional role in the present or their experience from the past because of working together in a company or on projects. On the other hand, the researcher also considers people that he does not know personally but who are currently in the role of pricing managers in companies offering IT services.

Companies

As previously mentioned, there is no focus on a single company or companies that offer national services for different reasons.

Firstly, companies that limit their service offerings nationally are normally too small for a role that exclusively deals with pricing. Identifying people who hold a multiple role as previously described is very difficult especially as an external researcher. The researcher has been working only in multi-national companies until now and does not have any personal contacts to pricing responsible people in local companies. Therefore, he excludes pricing responsible people, only focussing on national business as they are anyway hard to identify especially in an industry that is dominated by global companies.

Secondly, IT services is nowadays a global business. Success in the IT business is, amongst others, characterized by a big market share that enables companies to realize economies of scale. The increasing tendency of unification in the infrastructure environment of IT systems leads to a development that starts with the standardization of end user devices followed by the process optimization and digitalization in the IT department. A global company that offers IT services in a highly competitive market needs to integrate remote services from nearshore or offshore locations to remain competitive from the cost perspective. This standardization of infrastructure components and IT processes leads to an increasing replaceability of IT service providers, thus the individual competitor is also depending on the realization of economies of scope. From a pricing perspective, the global service provider remains competitive when offering alternative pricing models that ensure a high flexibility in changes of demand that occur with increasingly scalable services. As bigger organizations globally standardize their processes, the researcher considers it essential to focus the research on more than one global company to incorporate the diversity of views and pricing approaches, and to find the appropriate contact person.

IT services definition

There are several definitions of IT services. According to the IT Service Management Forum (itSMF), IT services are services which are provided by an IT service provider for one or several customers. IT services are based on the application of information technology and support the customer's commercial processes and combine people, processes, and technologies. Their scope can be defined in an SLA (service level agreement). According to the service idea, an IT service is offered as a concluded unity like a product.

The market of IT services can be divided into two segments. On the one hand, IT consulting, individual software development, and system integration rather emphasize the consulting activity. On the other hand, IT services, like outsourcing, application services, datacentre services, and IT maintenance, focus on the concrete realization of building up an IT infrastructure and actively providing applications on these systems. For the following reasons, the research focus in this research lies on the latter segment, namely building up and operating IT infrastructure as well as providing applications that run on these systems:

- Pricing IT consulting is primarily implemented by invoicing the relevant number of hours spent for consultancy activities. The price for consultancy depends on the consultant's grade of experience. The researcher does not expect any added value to overcome the theory-practice gap and gain new insights by examining the one-dimensional price-setting practice based only on margins. The T&M pricing approach might be interesting to explore in combination with an IT outsourcing deal where expected additional business generated by consultancy activities is considered as an influencing factor on the overall margin of the deal, and therefore influences the price strategy of the IT outsourcing deal itself. For this reason, an isolated research approach on IT consultancy services does not contribute to an additional understanding of neither the pricing process nor the influential factors of internal and external pricing.
- T&M activities especially in the consultancy area are usually not connected to any project success that is measured and in the case of failure penalized or in the case of success rewarded. Therefore, risk factors that influence the price strategy as well as the price-setting practice drop out as, besides margin, influencing factors are rare.
- The most important factor that makes the researcher focus on IT services like outsourcing, application services, datacentre services, and IT maintenance is the fact that the emphasis of his own experience lies in this segment. Conducting an interpretive approach assumes that the researcher understands correlations especially in the complex IT environment including a mixture of technological and commercial motivations. Additionally, the researcher needs to be able to step into the topic deep enough to extract the pricing approaches and motivations. Furthermore, his limited access as a researcher to the area of IT consulting is

another factor that motivates to focus narrow enough to provide a qualitatively high interpretive approach.

Finding research participants

The researcher contacted personally known managers who are or were involved in the pricing process directly by telephone or e-mail, explained the purpose and details of the research project, and asked them about their willingness to participate. Five of them agreed to participate.

Parallely, the researcher contacted six global IT service providers by e-mail, to which the researcher had no personal contact. Contact persons were identified through two business-oriented social network services, namely LinkedIn and Xing, by their professional role, their responsibility, and their employer. Thereby, people with global responsibilities and expertise were preferred as their network in the pricing field was expected to be more extensive. Finally, four contact persons were cooperative. Each of them arranged a contact with an experienced pricing manager who agreed to participate.

All participants are currently involved in the pricing process in their companies. The participants are either employees or freelancers working at different IT companies. They have in common that they are experienced in pricing so-called *big deals* for IT services in Europe, North America, and Asia that have an expected minimum volume of 50 million US dollars.

Table 7 shows an anonymized overview of the research participants, the interview sequence, their current role, their experience in pricing relevant IT services, whether they have or had activities in price-setting and the determination of the price strategy. Table 7 also distinguishes between known participants who are direct professional contacts of the researcher and unknown participants who were contacted indirectly through social network services. Apart from the researcher, the assignment to the interview sequence was made according to the order of the participation acceptance. Thereby, participant 1-5 are scheduled for the main interview, participant 6-10 are scheduled for the verification interview.

Table 7: Research participants

Participant	Sequence	Current role	IT services pricing experience (years)	Price-setting activities	Price strategy activities	Contact
1	Main interview	Senior Commercial Manager	9	Yes	Yes	Researcher himself
2	Main interview	Senior Bid Manager	10+	No	Yes	Professional (direct)
3	Main interview	Financial Architect (Freelancer)	7	Yes	Yes	Professional (direct)
4	Main interview	Senior Commercial Manager	10+	Yes	Yes	Social network (indirect)
5	Main interview	Director Commercial Management	10+	Yes	Yes	Social network (indirect)
6	Verification interview	Pricing Manager	5	Yes	Yes	Social network (indirect)
7	Verification interview	Vice President Enablement	10+	Yes	Yes	Professional (direct)
8	Verification interview	Sales Director	10+	No	Yes	Professional (direct)
9	Verification interview	Senior Pricing Manager	7	Yes	No	Social network (indirect)
10	Verification interview	Pricing Specialist	8	Yes	Yes	Professional (direct)

Source: Proprietary development

Table 7 is the final list of the research participants. In this context, section 3.3.1.2 discusses the aspects of trustworthiness in a situated and contextualized meaning-making research approach in detail. Choosing research participants that offer a broad spectrum of individual experiences and professional backgrounds from different companies as shown in Table 7 enables to implement the consistency of evidence from different resources.

Moreover, the researcher acts as an interviewee himself. This approach seeks to overcome possible bias, clearly distinguish between the researcher's and the interviewees' orientations, and contribute to the research quality. Section 3.3.4 discusses bias and this special approach in detail.

3.2.2.2 Pre-interview

The interview process starts with a pre-interview session via telephone that is mainly conducted to explain the background of the research, discuss ethical aspects (see section 3.3.5), explain the cognitive mapping process, present the main research questions, and ask the pricing managers to reflect on their experiences to use the interview time efficiently. The conceptual framework figure (see Figure 4) is explained to the interviewee and shall visually support the explanation of the understanding of internal and external pricing. Thereby, the participants shall get an idea of the division of the pricing process to understand the research objectives and their explorative character in a better way. This telephone call also serves to agree on a date and time for the main interview.

Table 8 shows the list of interview questions provided to the interviewee during the pre-interview session and their reference to the research objectives (1.3) and relevant literature (2.1-2.3).

Table 8: Interview questions

No.	Question	Refers to research objective	Refers to literature review
1.	Which price-setting practices do you know, and which are applied in practice?	2	2.3.1.1
2.	Which entrepreneurial or managerial objectives influence price-setting?	2	2.1
3.	Which price strategies do you know, and which are applied in practice?	2	2.3.1.1
4.	Which pricing models do you know, and which are applied in practice?	2	2.3.2.1; 2.3.3.2; 2.3.3.3; 2.3.3.4; 2.3.3.6; 2.3.3.7; 2.3.3.8; 2.3.3.9
5.	Which entrepreneurial or managerial objectives influence the price strategy?	2	2.1
6.	Which reciprocal dependencies do you see between price-setting and price strategy?	2	2.3.1.2
7.	What are the critical success factors of price-setting and price strategy?	3	2.3.2; 2.3.3.5
8.	Which monetary and non-monetary objectives influence the identified critical success factors?	3	2.1; 2.3.3.1
9.	Which resource-based pricing capabilities influence pricing and its critical success factors?	3	2.3.2.2
10.	What are the implications of the critical success factors for practical improvement?	4	-
11.	Which changes might be implemented efficiently?	4	-
12.	How will the pricing process develop in the future?	4	2.1.3; 2.3.3.4

Source: Proprietary development

The list of open interview questions based on the initial research questions (see section 1.3) shall guide through the interview for a holistic mediation of the research topic. Moreover,

the *ex-ante* provision of interview questions shall ensure the possibility to prepare for the interview.

3.2.2.3 Main interview

The main interview takes place either in a face-to-face meeting or via an audio-visual internet connection (e.g., Skype), and is scheduled for about one to one and a half hours. It is desirable that the main interview takes place not later than one to two weeks after the pre-interview session. On the one hand, the pricing managers shall have enough time to reflect on the research questions. On the other hand, the awareness of their recapitulated experiences, their new ideas, and reflections within the dimensions of the constructed conceptual framework shall remain fresh.

During the interview, the researcher only acts as a facilitator by asking the questions (see Table 8) and drawing the cognitive map via a software tool. He also takes notes, which can support the interpretation of the cognitive map (see Appendix C). The researcher aims to avoid influencing the interview using specific terminology or emphasizing concepts. However, as an important characteristic of the interpretive research approach, the researcher acts as a conversational partner who discusses the interviewee's ideas and experiences in a dialogue while drawing the map and implementing feedback on the visual materialization.

3.2.2.4 Cognitive mapping

General approach

The cognitive maps are visualized through an appropriate automated software tool, namely XMind in version 3.6.1 from XMind Ltd. Hong Kong. This software is an open source brainstorming and mind mapping tool that helps with capturing, structuring, and visualizing complex information to clarify thinking. This software tool is similar in its main functions to the well-known Decision Explorer from Branxia Software, which is one of the first mind mapping tools of its kind. Therefore, the instructions from Brightman (2002) serve as the main reference regarding symbolism. She explains the graphical materialization by describing how to implement the generated ideas and critical success factors into nodes, so-called *concepts*, link them to each other, and visually classify them

regarding their meaning and importance. Key elements of the utilized symbolism are as follows:

- A concept or a node is a statement consisting of either a keyword or a phrase that can be linked to other concepts by relationship.
- Relationships are shown as links between the concepts and imply that one concept leads to another concept.
- Concepts can be linked to form a hierarchy of factors and objectives.
- Relationships can be temporal links showing that one concept follows the other concept in time.
- Relationships can be connotative and therefore bidirectional.
- Concepts can be either positively or negatively related. Bryson et al. (2004) distinguishes between options and constraints.
- Arrows out of concepts represent a consequence whereas arrows into concepts represent an explanation or cause. The thickness of the arrows indicates the strength of relations.
- Concepts with no out-arrows are heads and represent goal type statements that express desired or not-desired outcomes.
- Concepts with no in-arrows are tails and represent causes.
- Concepts are consecutively numbered to provide the possibility of clear referencing.

Bryson et al. (2004) and Eden (2004) serve as the main reference of work for the structural map development. Bryson et al. (2004) categorize the concepts as assertions, actions, options, issues, strategies, goals, and negative goals. The linking of the concepts forms a hierarchy of action and result. Therefore, it is helpful to categorize the concepts to locate their position in the hierarchy. As a result, the researcher can explore his intended activities or strategies regarding the aspired goal.

Mapping process

According to Bryson et al. (2004), the mapping process implies three important trade-offs to be overcome: accuracy, generality, and simplicity. A cognitive map describes a hierarchy that is set by the map shape. Its meaning can be understood by each concept and the embedded relationships between several concepts. Some concepts are goals, some

represent causes, and others are actions. The more relationships a concept has, the more significant it can be and vice versa. Key concepts are those nodes with a complex ramification and many connections to other concepts. When a cognitive map is in the form of connected clusters of nodes, each cluster might represent a separate part of the issue that might be addressed separately.

Reasons for modification

Although categorization provides transparency and facilitates subsequent analysis, the researcher modifies this approach for the following reasons:

- Categorization is understood as an act of interpretation that is made after the cognitive map construction by the researcher.
- Concepts can represent different categories at the same time, e.g., a concept can simultaneously be a critical success factor and a goal.
- A hierarchy that can be deduced from a categorization contradicts the research objective of analysing reciprocal dependencies; moreover, the illustration of this hierarchy would unnecessarily stress the aspired clarity of the cognitive map.
- In contrast to Correira dos Santos and Mira da Silva (2015), who analyse the cognitive map *inter alia* by the means of counting connections, the researcher believes that the complexity of the ramification does not necessarily increase the importance of a concept and advances it to a key concept.

Modification

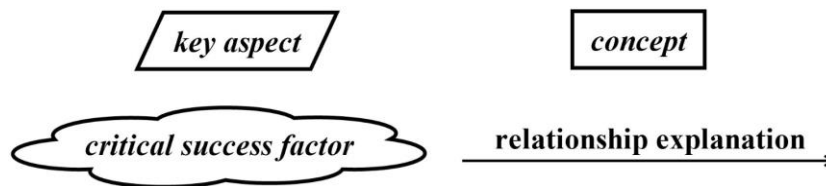
As the conceptual framework (see section 2.4) sketches the key aspects of the research topic – price-settings, price strategies, managerial objectives, and practical improvement – it makes sense to cluster these main areas in the cognitive map the same way and make them explicitly visible and collocate the main areas. Providing this structure upfront may be considered a limitation that constrains the explorative character of the research.

However, the researcher considers holistic research covering all research questions as a priority to provide an overall impression. This approach does not prevent research from being accentuated and at the same time holistic.

Therefore, the interviewee is given the possibility to accentuate and thereby partly categorize the concepts by graphically marking them as the key aspects or critical success factors according to the symbolism illustrated in Figure 6. The key aspects reflect the focus of the main research objectives, namely price-setting practice, price strategy, managerial objectives, and practical improvement. On the one hand, this approach limits upfront categorization and its undesired consequences. On the other hand, it facilitates a holistic reflection on the topic by considering all relevant research objectives. Furthermore, it enables understanding the interviewee and his understanding of the significance of the concepts and critical success factors.

The simplified coding of the map is conducted according to the symbolism shown in Figure 6.

Figure 6: Cognitive map symbols



Source: Conceptually adapted from Correia dos Santos and Mira da Silva (2015)

Additional coding extending the interviewee's categorizations according to the previously described approach is not conducted by the researcher. Further fragmentation of data would result in a loss of the narrative flow and a loss of the identified relationships between the concepts that provide additional value for the understanding of complex interrelations (supported by Riessman (2002)). Furthermore, coding would rip concepts out of a cognitive maps' context and lead to misinterpretations. The researcher believes that cognitive mapping conducted in this way during the semi-structured interview can provide a reliable approach that brings out the relevant influencing factors as considered by the interviewee and documents complex interrelations in an integrated way.

3.2.2.5 Cognitive map analysis

The analysis of a cognitive map can either be a careful review by reading the map or alternatively a sophisticated analysis which is possible with computer support. For instance, Correia dos Santos and Mira da Silva (2015) make a domain analysis by

counting the number of links around a single concept in order to identify the most elaborated concepts that have a higher density of relationships. The decisive factor whether to review a map either by reading or structural analysis is the cognitive map's complexity. Bryson et al. (2004) define the relative map complexity when more than 70 links and 40-50 nodes are present. Redrawing the map for an easy-to-read purpose becomes necessary to reveal the emerging characteristics. The simplified map then contains linked nodes that are near to each other, less crossing links, and heads at the top to support the hierarchical view with the formation of clusters.

The conceptual framework provided in section 2.4 pre-defines the rough structure of the cognitive maps, thus supports *per se* a clear structure and definition of the research focus, and thus prevents complexity and facilitates a clear view.

The ability to “collapse” a map by focusing only on those emerging characteristics discussed above is in its own right a powerful analysis. (Bryson et al., 2004, p. 327)

The clarification of the cognitive map's structure as one part of the analysis can be conducted in different ways. It can be conducted either during the interview with the collaboration of the experienced pricing managers who know how to abstract and structure without degeneration due to their conceptual work experience or by the researcher himself who performs the restructuring before presenting the cognitive map to the pricing manager for examination.

Besides conducting a first step analysis for the sake of clarity, the researcher considers the careful review by reading and interpreting the map more efficiently and constructively than a sophisticated computer analysis because in the end, a map represents a person's thinking and is build up with the researcher's support who interprets the thinking.

Life is short, and while not everything has to serve a goal, it is helpful to recognize when we are not acting in our interests. ... Clearly, discussion and dialogue are the most important ways of making use of these types of analyses; in other words, only through discussion and dialogue can you figure out what the analyses might be telling you. (Bryson et al., 2004, p. 265)

At least in the context of illuminating the internal and external pricing processes, motivations, and critical success factors in an explorative way, the quantitative elements of analysis should be irrelevant. Therefore, it is more important to let the interviewee examine his personal cognitive map to see what it is saying and check that it accurately reflects his thinking (also see section 3.3.1).

For quality purposes, the final cognitive maps (chapter 4) and their raw version before clarification activities and member-checking (Appendix B) are both illustrated.

3.2.2.6 Member-checking

After the interview, the researcher reworks the cognitive map regarding the formatting and arrangement of the subject areas (cluster) to ensure clarity. Moreover, the wording is simplified by reducing statements from a whole sentence to a keyword if possible. In addition, in the style of Bryson et al. (2004), Eden (2004), and Correira dos Santos and Mira da Silva (2015), several pre-analyses are performed to seek consistency for the obtained results. The analyses include:

- statement analysis that shall identify and remove isolated statements, duplicated statements, and accumulations of statements without considering the desired hierarchy;
- links and relationships analysis that shall detect loops in argumentation; and
- simplification of the map to offer clarity.

After reworking the cognitive map, the researcher sends it to the interviewee via e-mail to ensure the correct understanding of all the elements generated during the interview session and prevent a corruption that might occur during the rearrangement and rewording of the elements. Thereby, the interviewee is given the possibility to review and correct any misunderstanding and add and discuss other ideas that strike the interviewee when reflecting on the interview (also see section 3.3.1.1).

3.2.2.7 Verification interview

Comparable to the main interview, the verification interview also takes place either in a face-to-face meeting or via an audio-visual internet connection (e.g., Skype), and is

scheduled for 30 minutes. The interviewees (participants 6-10) are different from those in the main interviews (see Table 7). Thus, from a temporal perspective, the verification interviews are conducted after the main interview sequence since the questions of the verification interview (Table 15) result from the conclusions (section 4.6) of the main interviews and the cognitive mapping. The verification interview serves to verify these conclusions. During the interview, the researcher asks the questions, makes non-evaluative explanations, and notes the answers and comments. As well as in the main interview, the researcher acts as a conversational partner who discusses the interviewee's answers in a dialogue.

3.3 Critical evaluation

This section evaluates the research quality of the selected approach, emphasizes its methodological originality but it also discusses its limitations, bias, and ethics to prove methodological rigour.

3.3.1 Research quality

This section discusses the evaluation of the research quality when performing an interpretive approach and it demonstrates how to implement trustworthiness, systematicity, reflexivity, and transparency.

3.3.1.1 Interpretive research quality evaluation

Commonly accepted positivist criteria for assessing research are limited in their applicability when it comes to interpretive research. These criteria are most appropriate, and their logic is clear for natural scientific research. Nevertheless, there are researchers like e.g., Yin (2018) who continue to use the classical concepts of reliability, (external) validity, and generalizability (internal validity) also for qualitative research that are in general seen as only applicable to positivist, quantitative research. The validity and reliability of e.g., a survey strategy depend on the number and selection of credible samples (representativeness) as well as on providing a good approximation to the variables of interest (precision). Participants need to be identified regarding the precise criteria (sample selection). These criteria should characterize the participants in terms of e.g., their professional background and experience, or the sector and companies they are working for.

Researchers like Lincoln and Guba (1985) formulate new names for versions of the previously stated criteria in order to recognize the nature of qualitative research. Dependability replaces reliability, credibility replaces generalizability, and transferability replaces external validity. A third group of researchers has moved further away from the original criteria towards new concepts in order to ensure and judge qualitative research's quality. Guba and Lincoln (2005) develop a range of authenticity criteria replacing validity.

Validity is not like objectivity. There are fairly strong theoretical, philosophical, and pragmatic rationales for examining the concept of objectivity and finding it wanting. Even within positivist frameworks it is viewed as conceptually flawed. But validity is a more irritating construct, ... it points to a question that has to be answered the one way or another: Are these findings sufficiently authentic (isomorphic to some reality, trustworthy, related to the way others construct their social worlds) that I may trust myself in acting on their implications? (Guba & Lincoln, 2005, p. 206)

Those authenticity criteria – so called because we believed them to be hallmarks of authentic, trustworthy, rigorous, or “valid” constructivist or phenomenological inquiry – were fairness, ontological authenticity, educative authenticity, catalytic authenticity, and tactical authenticity. (Guba & Lincoln, 2005, p. 208)

Picking up the idea of different quality criteria for interpretive research, Schwartz-Shea and Yanow (2012) carve out the limitations of positivist standards for interpretive research and formulate the criteria for designing *trustworthiness*. As stated in the decision on the research approach (see section 3.1), situated and contextualized meaning-making interpretive researchers focus on a bottom-up concept development, constitutive understandings of causality, the relevance of the researcher's identity, and the need for improvisation considering the data co-generated in field relationships. Even though the research process is expected to be flexible, procedural detail planning is necessary. Its discussion is important for evaluating the quality of interpretive research.

Systematicity

Schwartz-Shea and Yanow (2012) identify procedural details such as the relation of researcher identity to the selection and access to research participants, the researcher's role and degree of participation, the mapping of research conditions for intertextuality, and the anticipation of evidence forms and the analysis of their relationship to the research questions as quality evaluation criteria.

Reflexivity

Schwartz-Shea and Yanow (2012) emphasize especially the presence or absence of the following criteria for evaluation:

- reflexivity as the most important criterion acting as a counterpoint to positivistic objectivity,
- data analysis strategies, and
- member-checking.

All three criteria are practices in which researchers participate as controls of their own sense-making, and they can be considered as standard criteria for evaluating interpretive research.

Reflexivity refers to the different ways a researcher deals with his own sense-making and influential circumstances in different phases of the research. Thereby, reflexivity takes the researcher's own characteristics, his scholarly community, and his social setting into consideration. Reflexivity varies at different stages of the research. At the beginning of a research project (design stage), reflexivity means a systematic consideration of the research setting's characteristics and how this might impact the researcher-participant interactions. Although reflexivity cannot be predictive, an interpretive research construction depending on the researcher's identity is dynamic and interactive. Thinking ahead of time about possible identity issues can help when these issues materialize in one way or another.

Being reflexive continues while performing research. This includes the questions on how the researcher's presence and characteristics consciously or unconsciously influence the

participants and the outcome. Furthermore, the adequacy of the initial research setting including the conceptual framework and possible revisions in the research design during the field phase are also part of the reflective process.

Reflexivity continues after collecting information and impressions from the research implementation phase. Especially gaining impressions and keeping them in notes (so-called *field notes*) helps with conserving the impressions of conversations, settings, events, or interactions with participants to embed and thus consider these impressions for the overall picture and its interpretation.

In all cases, reflective notes need to be self-consciously tagged as researcher sense-making (as opposed to description, even as interpretive presuppositions mean that “description” is never a mirror but itself a theoretically-informed interpretive act). ... What makes reflexivity interpretive – some call this critical reflexivity – is the link to the epistemological matters. This includes the self-monitoring of the researcher’s own “seeing” and “hearing” in relation to knowledge claims This seeing, hearing and feeling produces researcher understandings. (Schwartz-Shea & Yanow, 2012, p. 101)

Methodologically, reflexivity is important for two reasons. Firstly, the researcher can analyse how his own position affects the research presentation and the knowledge he claims to have. Secondly, critical reflexivity leads the researcher to think deeply about how his own historical background and social-cultural context shape the formulation of the research questions and the conceptual framework generated. In these processes, reflexivity is a methodological value that underlines interpretive criteria like sense-making during data generation and analysis, and transparency of knowledge generation. Making reasoning transparent invites to evaluate to what extent the choices of research might have affected the researcher’s knowledge claims.

As the researcher himself is the major instrument for conducting interpretive research (Schwartz-Shea & Yanow, 2012), it is questionable whether he does cherry-picking or not. To disprove this guess, various strategies and techniques were developed to check the sense-making process during data generation and analysis. What these various strategies have in common and what is crucial in the end is the general idea that the researcher

consciously searches for evidence that forces a continuous, self-challenging re-examination of the initial impressions, theories, and favoured explanations. Moreover, these strategies share the continuous test and revision of initial expectations, and the identification of inconsistencies. Demonstrating awareness of these strategies marks the awareness of the general issue of concern of sense-making during the data generation and data analysis phases.

Because interpretive researchers do not seek to mirror the world, their primary concern in checking their own meaning-making is not focused on “getting the facts right,” as if there were only one version of social reality. Rather, they are looking to articulate various experiences or viewpoints on the topic under investigation, in order to be able to understand the nuances more fully. (Schwartz-Shea & Yanow, 2012, p. 105)

Member-checking

The third criterion for the quality evaluation of interpretive research is *member-checking*. Member-checking refers to the presentation of written material to the research participants to let them check if the researcher captured their perspective the right way. The sense of member-checking in interpretive research is more than checking whether the researcher captured the facts right, which would imply that there is a single social reality, at least the individual social reality of the participant. Member-checking is rather used in the context of complex research settings that might lead to complex sense-making involving tacit knowledge or situated meanings. Against this background, the researcher may check the accuracy of his situational understanding of the participants' shared experiences.

Trustworthiness

Interpretive research seeking for sense-making must also deal with a central concern, its trustworthiness. From a methodological perspective, dealing with this concern is implemented differently depending on the epistemological perspective. Positivism makes use of falsifiability as a powerful design concept. However, the purpose of interpretive research is not model testing and erasing ambiguities, but also understanding ambiguous human meaning-making in a context. Schwartz-Shea and Yanow (2012) denote the interpretive perspective as an approach that “seeks to inquire into the logic and explanatory

coherence of the analysis, rather than the “goodness” of the model”(p. 108). In order to address the explanatory coherence, which means the adequacy of an explanation or analysis, according to Schwartz-Shea and Yanow (2012), the researcher needs to focus on three points: the consistency of evidence that is from different resources, the way conflicting interpretations are engaged, the logic with which an argument is developed.

Methodological practices of positivism consider the researcher’s presence and his judgement as problematic, because they might impact on the objectivity of the results. Therefore, these methodological practices include controls that seek to avoid a researcher’s contamination and bias. In contrast, interpretive research methodologies consider the researcher the central instrument of data generation and sense-making. Positivist controls cannot be applied to interpretive research because they contradict each other epistemologically. But that does not mean that interpretive researchers are limited to their perceptions. Being conscious about partial knowledge and multiple perspectives enables the interpretive researcher to analyse these fragments. Moreover, a reflexive researcher can also think about what is not said – the silence in interviews – and try to investigate its meanings. This makes the difference of interpretive research.

No one can be fully transparent to herself ..., and all research endeavors proceed based on some set of presuppositions. The interpretive commitment is to increase understanding of the ways in which the characteristics of individual researchers and their academic communities affect the production of knowledge in the human sciences. Research design that discusses the role of reflexivity in the project communicate this commitment to reviewers and other readers. (Schwartz-Shea & Yanow, 2012, p. 112)

3.3.1.2 Implementation of trustworthiness, systematicity, reflexivity, and transparency

The implementation of the quality aspects of the interpretive research on internal and external pricing of IT services must be measured against the criteria discussed in section 3.3.1.1.

Aspects of *trustworthiness* in a situated and contextualized meaning-making research approach like bottom-up concept development, a constitutive understanding of causality,

the relevance of the researcher's identity, as well as the need to improvise in response to field conditions were presented in detail in the justification on the research topic-oriented decision for the interpretive research approach in section 3.1. In a nutshell, research on pricing IT services requires a bottom-up concept development to reflect the necessary explorative tendency and overcome the obstacle of limited information in this area. The understanding of the causality of price-strategies, price-setting practices, and critical success factors can grow up step-by-step through individual conversations in interviews. Applying cognitive mapping during the interview dialogue depends on the researcher's identity very much, namely his access to the right interviewees in the pricing community as well as his ability to speak the same language when it comes to the pricing topics. The semi-structured interview style gives on the one hand the possibility to catch every aspect and cover all research questions. On the other hand, improvisation remains an option in the case of an unexpected dialogue course that in the end is appreciated to provide additional value for explorative findings.

It might appear that it does not make sense to *a priori* discuss a process that seeks to be evaluated as high-quality that is part of the analysis in this thesis. But by reflecting on the evaluation criteria of the research quality consciously, quality issues and philosophical objections might be identified at an early stage. Designing the research setting in the light of the criteria that support a high research quality does not necessarily mean that the research analysis satisfies the requirements, particularly when the act of quality evaluation belongs to the reader. Nevertheless, independent from the outcome of the research, during the research process up to the analysis and interpretation phase, the researcher needs to put attention on three points:

Firstly, consistency of *evidence from different resources* must exist. This is implemented by consciously choosing research participants either working for other companies than the researcher or working as freelancers for several companies independently. This choice shall offer a broad spectrum of individual experiences and professional backgrounds as different companies perform different pricing processes.

The researcher also acts as one interviewee himself in one interview. This approach seeks to overcome possible bias and clearly distinguish between the researcher's and the

interviewees' orientations and ways of putting emphases on the topic. Performing the interview with himself prior to the other main interviews prevents the researcher from both, making others' good ideas his own assuming these are his own ideas, and mixing them up during the analysis and interpretation phase. Moreover, once expressing himself and having said what he – through his own experience – would answer to these questions, prevents the researcher from pushing the following interviews in a certain direction. As everyone wants to make their voices heard, once having documented his own thoughts shall ensure minimizing his influence on the participants' statements.

Secondly, *coping with conflicting interpretations* shall be made in the sense of the research's philosophical orientation. This means that interpretations need to be made thoughtfully against the background of the individuality of the research participants, appreciating every single opinion. Thereby, the order of the interviews should not play any role when the researcher perceives a contradictory statement to a previous interview as he should seek to avoid any influence that could harm the research quality.

Thirdly, the researcher needs to pay attention to *the logic with which an argument is developed*. This point can hardly be considered in the construction of the research method but at least during the interview and the interpretation. The researcher can scrutinize the logic of an interviewee's argumentation regarding its coherence. In the case of a contradictory or illogical argumentation, the researcher needs to intervene and clarify whether the argumentation is defective, or the researcher just misunderstands the interviewee's arguments. In the end, this approach can also serve the interviewee as a possibility to challenge and structure his own thoughts regarding their plausibility.

Besides the aspects of trustworthiness and reflexivity, *member-checking* discussed in section 3.3.1.1 is a quality evaluation criterion closely linked to systematicity and transparency. This important process needs to be considered already in the design phase of the applied method and executed after the semi-structured interview combined with the cognitive mapping process. Member-checking seeks to check whether the researcher captured the facts right and check the accuracy of his situational understanding of the participants' shared experiences.

After collaboratively building the cognitive map during the interview, the researcher will start analysing the cognitive map as presented in section 3.2.2.5 for simplification reasons. The aim is the structural clarification of the cognitive map without changing the major structures that helps the interviewee recognize his own thoughts and without omitting any ideas. The researcher can change unclear sentences or inaccurate expressions. These elements could be replaced by more precise keywords that put ideas in a nutshell. This procedure is justifiable because after the simplification exercise, the interviewee will be asked to examine the cognitive map regarding its structural integrity, its comprehensibility, as well as its unsophistication to prevent any degeneration.

Additionally, the interviewee can complement the new elements to the cognitive map as he might continue reflecting on the pricing topic after the proper interview. In a closing meeting, the interviewee can present and discuss his request for revisions and can explain the additional elements to be added to the cognitive map (also see section 3.2.1.3).

In the end, cognitive mapping itself contributes to a higher research quality as illustrated by Bryson et al. (2004). Besides contributing to the systematicity and transparency of the interview process and its documentation, the visual presentation of the research topic starting in the conceptual framework and resulting in individual cognitive maps helps with reducing complexity. Both, the research participants' understanding of the research focus and the researcher's possibility to prevent misunderstandings and ensure accurate and founded sense-making by having a clear overview, not neglecting important details, is supported through the cognitive mapping method. The contribution of this structured method following a strict process is, besides the required researcher's reflexivity and trustworthiness, the main foundation for providing a piece of research with a quality claim.

3.3.2 Methodological originality

Besides the uniqueness of the research topic itself (see section 1.1), the research approach from a methodological perspective is different from previous research in the wider area of pricing. Although the choice of methodology for this research approach was previously discussed in detail, the advantages of this research approach and especially its originality shall be accentuated in a consolidated manner as follows:

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- An interactive and constructive technique leaves space for the practitioners' subjective participation and helps prevent misinterpretations.
 - An empathetic stance combined with an explorative approach can be gained through a personal dialogue with the participants.
 - Richer data can be generated through allowing unexpected topics to be uncovered by an innovative research approach.
 - Separately analysing the individual participants' cognitive maps enables to flexibly explore and illuminate underemphasized elements.

In contrast to researchers like Ingenbleek and van der Lans (2013) and other pricing researchers who focus on a quantitative research design (also see section 2.2) and thereby prevent explorative findings that might extend the existing view, the researcher's approach concentrates on openness and flexibility. Within a conceptual framework that allows embedding an innovative research outcome into the well-known dimensions of pricing, the theory-practice gap might be diminished, and reciprocally perceived incompatibility might be resolved. However, dealing with the peculiarities of pricing IT services requires this innovative and interpretive approach to establish a basis of discussion that goes beyond the classical parameters of pricing but simultaneously preserves its compatibility with these parameters.

3.3.3 Limitations

Some limitations arise through the applied research methodology. Those discussed methodological advantages and disadvantages call for each other. For example, focussing on the critical success factors of pricing IT services is beneficial for getting insight into the pricing processes, dependencies, and peculiarities in the IT service industry. This focus can be disadvantageous when seeking for the identification of factors in pricing that can be applied irrespective of the sector.

Of course, the case study strategy was well-considered when deciding on the appropriate methodology knowing that case-related findings are not necessarily transferable. So, on the one hand, those limitations resulting from the research focus and the research questions can be criticized as inappropriate and too narrow to catch the whole picture of pricing to formulate generalizable statements. On the other hand, claiming a detailed focus that aims to explore IT services' peculiarities by making use of the researcher's professional

background to gain access to a coterie should rather be considered a benefit. Both, the illumination of pricing issues in a sector with increasing economic significance and the theoretical provision of an innovative research approach for pricing research accompanied by a new conceptual framework that helps on the way to closing the theory-practice gap in pricing are beneficial. This rather philosophical debate cannot be solved without questioning the research questions and the motivations behind it.

Nevertheless, there are other limitations that either arise from the researcher's limited access to different companies or personal capacity limitations. Furthermore, there are limitations that follow from the cognitive mapping process. These limitations of implementation are discussed in the following (3.3.3.1 – 3.3.3.4).

3.3.3.1 Number of research participants

The research setting is limited to ten research participants each from a different company. As people working in the same company are probably used to having similar project experiences and implementing price strategies that depend on product types and geographical peculiarities the same way, this research approach is advantageous regarding the diversity of experiences. Claiming to present a preferably huge variety of different perspectives to prevent the explorative character of this research, the researcher has decided to focus on professionals who work outside the company he is currently working for. These pricing managers are either working for another company or are freelancers working on projects for several companies. As the researcher complements the interview series by interviewing himself as well, he tries to achieve a colourful picture of opinions and experiences that are not bound to a single company and the unified processes of pricing that usually need to be implemented.

Regarding the case conditions, ten IT service providers dominate the global IT services market with a market share of 33.9% (see section 3.1.2). The involvement of ten research participants each with extensive pricing responsibilities and experience in global companies reflects a representative and appropriate variety of experiences in the context of this research.

3.3.3.2 Researcher capacity

Another factor of limitation is the researcher's capacity of describing potential research participants who might not be found easily as they might work for smaller companies with a lower market visibility. The researcher considers the presentation of a variety of experiences a valuable factor. Therefore, he tries to overcome this limitation by integrating a freelancer who works with mostly smaller companies that offer local IT services. As the researcher expects IT services and their price strategies to be rather dependent on the product types than on geographical peculiarities, he considers it important to integrate a pricing manager who also has the experience of pricing smaller projects. As all interviewees have international professional experiences with pricing bigger IT services projects, the integration of a freelancer is intended to explicitly represent a different perspective that covers smaller IT companies and projects, thus overcoming the researcher's capacity limitation.

3.3.3.3 Temporal retrospection

The temporal retrospection is limited to the individual pricing manager's experiences. Someone with more experience might describe the changes in dealing with pricing IT services in time differently and might trace them back to other reasons than less experienced pricing managers. Results depend on the individual experience and interviews are difficult to replicate as the individual experiences change in time. The researcher considers the advantage of generating richer data higher than this limitation.

3.3.3.4 Cognitive mapping complexity

The application of the method of cognitive mapping can lead to a limitation itself. In fact, it takes time to learn and practice the principles of cognitive mapping especially considering the conceptual framework when building the map collaboratively. The researcher considers this obstacle a minor limitation as he builds the map during the interview and the interviewee can follow the process and does not have to build the map himself. The researcher rather sees the problem that the interviewees need to be reasonable in the sense of logical and sensible to clarify and separate their own motivations and emotions from others'. That means that the interviewees start thinking and reflecting on the pricing and influential factors during the interview. This process with the possible new outcomes continues after the interview as the researcher cannot catch all ideas during the

interview. The researcher tries to overcome this limitation by conducting a pre-interview session, presenting the research questions and the conceptual framework to prepare for the interview and to activate the interviewee's reflexive process. After the interview, member-checking is conducted to prevent misunderstandings and especially give the interviewee the possibility to add ideas that come up after the interview. However, one needs to realize that cognitive maps are not fixed but, as Bryson et al. (2004) states, "are "transitional objects" between here and there, where here and there are changing much of the time" (p. 305).

3.3.4 Bias

There are three types of potential bias that need to be considered: interviewer bias, interviewee bias, and participation bias (Saunders et al., 2015).

The *interviewer bias* and how to overcome it is discussed in sections 3.3.1.1 and 3.3.1.2 in detail. In a nutshell, in contrast to positivism where bias is considered a contamination that affects the research quality in a negative way, interpretivism considers the researcher as the sense-making instrument that can reflect on his own perceptions. The researcher interviews himself before interviewing the other pricing managers to prevent bias that might affect the sense-making process. This approach is implemented to reach a consistency of evidence from different resources. Thereby, the researcher tries to clearly distinguish between his own and the interviewees orientations and ways of putting emphases on the topic. As a result, neither the pricing managers' statements influence the researcher's opinion with possibly good ideas that the researcher would have made on his own when analysing and interpreting, nor does the researcher feel the need to communicate his ideas through the pricing managers' individual cognitive maps once satisfying his own need for an attentive ear that materializes in his own cognitive map.

Interviewee bias as the second type of bias is also called *response bias* (Saunders et al., 2015). This type of bias can be caused during the interview as the way and the intensity of asking questions might be perceived as intrusive by the interviewee. Especially in semi-structured or in-depth interviews that try to explore personal experiences, this impression can cause irritation and may lead the interviewee not to reveal and discuss certain aspects of the topic. Thus, the interviewee might only provide a partial picture of his perspective.

The researcher does not expect any interviewee bias to occur in this research as he knows some participants personally through professional collaboration in the past and he is known to keep the discussion on a factual level. For those participants who do not know him personally, the researcher seeks to convey a professional and factual impression by explaining his research motivation and its ethical standards in a trustful way.

The third type of bias is called *participation bias*. It describes the reduction of the willingness to attend an interview as it is considered a time-consuming requirement that keeps the interviewee from working. Conducting pre-talks about the research project and the motivation to reduce the theory-practice gap in pricing with a focus on IT services shall arouse interest in the pricing managers' community. Especially the originality of the interactive and constructive technique for the pricing managers' participation, offering the possibility to flexibly explore and illuminate the underemphasized elements of pricing, shall motivate the participants. It is expected that the methodological rigour signalizes a promising research approach that contributes to knowledge.

3.3.5 Ethics

Ethical issues can occur at different stages of the research process. In the role of researcher and pricing manager at the same time, the researcher is a responsible person who needs to separate company confidential information from research relevant information and ensure preserving the ethical standards and anonymity at any stage throughout the whole process. However, the researcher does not expect any overlaps or conflicts of interest between his professional role and his role as a researcher. Experience shows that the pricing managers are professional enough to separate company confidential information from research relevant information quite clearly and hold back this confidential information *a priori*.

Nevertheless, before the start of the interview process, the participants or relevant organizations are informed about the aim of the research, the research setting and procedure, and the way the obtained data would be analysed. The participants are asked to obtain approval for their participation from their management. During the pre-interview sessions, the researcher offers to the research participants that they would have the possibility to review the research results related to their interview (also see section 3.2.2.6). Furthermore, the researcher explains that the whole research process would be conducted

according to the handbook of research ethics by the University of Gloucestershire (2008). A digital copy of the handbook is offered to all research participants.

During the interview, the interviewee can watch the process of building his individual cognitive map either on his computer via Skype or in case of being in the same room on the researcher's computer directly. At this stage, the interviewee can correct elements of the cognitive map that might contain confidential information.

After the interview session and the map clarification process described in section 3.2.2.5, the individual map is provided to the interviewee for approval before analysis. Thereby, member-checking simultaneously serves as the possibility to review and ensure the right understanding of all elements generated during the interview as well as to provide the interviewee the possibility to assure himself of ethical correctness, the absence of confidential information, or information that would allow drawing conclusions about the company. The member-checking is initiated by sending an encrypted e-mail to the participant. Practically, the participant receives the e-mail with the attached cognitive map file encrypted with an open source software named 7-Zip that contains strong AES-256 encryption. The password for file decryption is provided personally via telephone. The file containing the clarified cognitive map will have a different password for every interviewee. The interviewees are not expected to know each other personally. However, they are asked not to exchange results from their individual mapping sessions with other pricing managers. The feedback session on the member-checking of the clarified cognitive map is conducted via telephone and if necessary accompanied by another visual Skype connection so that the interviewee can follow and check the implementation of the changes based on his new comments.

The researcher does not expect any confidential information to be part of a research project that focusses on pricing processes and the critical success factors of the latter.

Nevertheless, all data is anonymized in a way that no personal or where applicable corporate conclusions can be drawn. Moreover, data is stored in an encrypted file on the researcher's personal computer as well. Full compliance to the research ethics underlines that all data arising from the interviews and protocols are destroyed after the approval of the thesis (see University of Gloucestershire, 2008).

3.4 Summary

Analysing decisive factors for the methodological approach of this research like case conditions, epistemological contribution, and the complexity of subjective factors, the researcher concludes that an interpretive research approach fits best. Moreover, the methodological choice of interpretivism is considered an additional value itself as the subjectivism through participation enables the researcher with expertise to be reflexive and critical on the participants' statements and his own sense-making.

Discussing the various alternatives of the research design and its strategy, the researcher concludes that a qualitative mono method design with a case study strategy is appropriate to approach the defined research objectives. Decisive for the choice of a mono method design is the fundamental critique of a mixed-methods design combining different paradigms and their underlying assumptions. What makes the case study strategy appropriate is its epistemological orientation towards interpretivism when focussing on a single case in a real-life context that enables enlarging the horizon of study beyond the context. Considering an embedded case leads to the appreciation of every single opinion, practical experience, and underrepresented idea to explore and gain an in-depth insight.

The research method of choice is the semi-structured interview accompanied by a cognitive mapping process. The light structuring of the interview is made as the pricing topic is a complex and diffuse area of research that needs explanation and guidance through the presentation of the conceptual framework. The semi-structured interview also explicitly leaves space for explorative findings. Combining the main interview with an interactive cognitive mapping process allows structuring the statements, checking for the correct understanding, and thereby obtaining richer data, especially when the interview is made via audio-visual internet connection. Verifying the conclusions from the main interview sequence by a verification interview sequence without cognitive mapping but adapted research questions shall increase the quality of research.

The research participants are contacted and selected in accordance to their professional backgrounds in international IT services companies focussing on outsourcing, datacentre services, and IT maintenance. The analysis of the cognitive maps is made by the review of every single map. For quality reasons, member-checking is performed after the main interview.

The critical evaluation of the research quality of the interpretive research approach discusses trustworthiness, systematicity, reflexivity, and transparency. These quality aspects are implemented on the one hand through the methodology design by generating an environment for situated and contextualized meaning-making interpretation with a bottom-up concept development. On the other hand, dealing with conflicting interpretations and the logic of argument development, accompanied by a systematic and transparent cognitive mapping process, ensures high research quality as well.

Limited personal access and capacity to find research participants in bigger and smaller companies and the limited temporal retrospection bound to the individual pricing manager's experience are considered limitations.

The researcher tries to overcome interviewer bias in this interpretivist research by integrating the researcher as an interviewee himself to reach a consistency of evidence from different resources where the researcher is the sense-making instrument himself. Furthermore, response bias shall be avoided by conveying a professional and factual impression during the interview. Participation bias shall be avoided by structuring the interview process and motivating the participants to contribute to knowledge and provide new ideas through interactive participation.

The research is conducted according to the ethical principles and procedures as defined by the University of Gloucestershire (2008).

4 Findings

The findings chapter separately illustrates and describes five cognitive maps that result from the performed main interview sessions as the interpretive research approach appreciates every single opinion, individual practical experience, and new idea. Likewise, the researcher's interpretation refers to the individual cognitive map and is neither compared nor rated in relation to the other interview sessions. Every cognitive map is discrete and not consolidated into one map to keep up a manifold picture that is intended to stimulate further reflection, create new ideas, and preserve the explorative character of this research approach. The raw version of each cognitive map that represents its state before clarification activities and member-checking is documented for quality reasons in Appendix B. Likewise, additional notes taken by the researcher during the main interviews are documented in Appendix C.

The composition of the analysis of every cognitive map is consistently divided into four parts:

1. The first part illustrates the individual cognitive map and describes the main statements and connections regarding internal pricing, external pricing, critical success factors, and recommendations of improvement for future pricing.
2. The second part analyses the respondent's ability to grasp the complex context of the conceptual framework, put emphases on single aspects, and answer the research questions in their entirety.
3. The third part provides an interpretation of the overall picture, abstraction of the most important contributions, and conclusions regarding the research objectives (1.3); this part distinguishes between internal and external pricing, and the critical success factors and recommendations.
4. The fourth part provides an overview that summarizes the related conclusions, illustrates their correlation with the existing research, and infers their implication for the proposed conceptual framework; thereby, even positive correlations can propose changes to the conceptual framework and make recommendations to the pricing practice.

It shall be emphasized that the conclusions and their correlations with concrete pieces of research shall indicate their academic relevance but also outline the explorative character

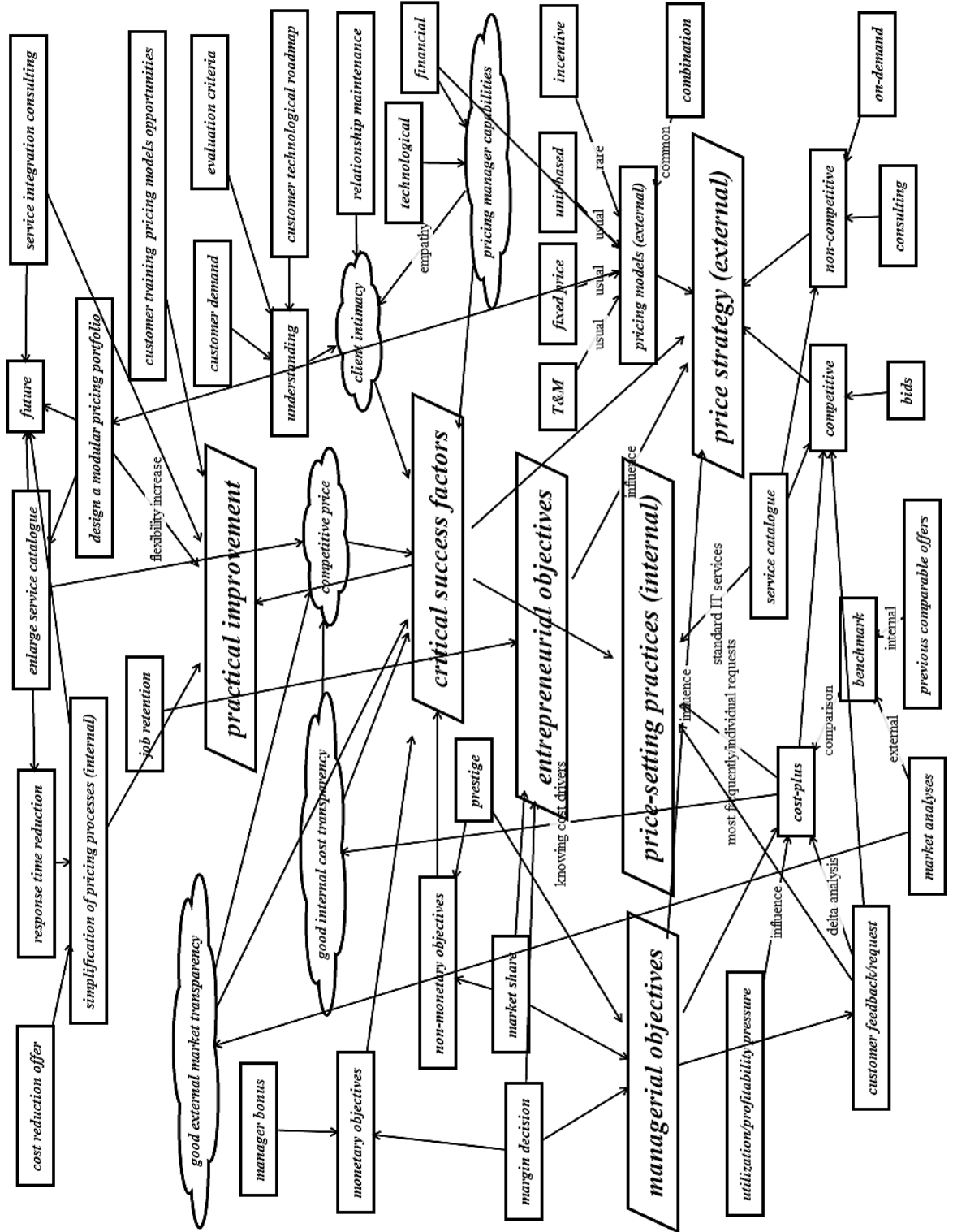
that is reflected in non-correlating conclusions. Thereby, reference to supporting evidence prepares for the subsequent discussion and the final conclusions in Chapter 5.

Following the interpretation and conclusions of the main interviews combined with the cognitive mapping process, the researcher adds a second sequence of five interviews to verify the conclusions of the first interview sequence made in section 4.6. These verification interviews with participants 6-10 (see Table 7) are conducted with revised interview questions (section 4.7.1) that reflect the conclusions reached. The researcher discusses the results of the verification interviews in section 4.7.2 and indicates the resulting adjustments. Notes made by the researcher during the verification interviews 6-10 are documented in Appendix D.

4.1 Interviewee 1 (researcher)

4.1.1 Cognitive map and main statements

Figure 7: Cognitive map 1



Source: Result of interview 1

1. Internal pricing

The interviewee considers cost-plus as the most frequently applied price-setting practice since most bids contain a large portion of individual requests that cannot be covered by elements of a service catalogue containing standardized elements. However, standard service catalogue elements are involved whenever possible due to cost savings. Performing cost-plus price-setting leads to the necessity of examining the competitiveness by performing either an external or an internal benchmarking that consists of market analyses or is based on previous bid offers. In a multi-stage bid process, the selection of permitted bidders is gradually reduced, and the customer gives feedback on the price competitiveness.

The internal pressure on showing a high staff utilization and profitability might influence the price-setting process and lead to a higher cost estimation. As competition determines the price, in a multi-stage bid process, relatively high cost estimations are normally corrected during the offer process or even before the benchmarking process. Managerial objectives influencing internal pricing should not be underestimated. Gaining market share or reaching a certain margin level might be connected to targets that impact on management compensation and therefore on managerial behaviour. It often occurs that management puts pressure on cost estimators to be able to offer a competitive price and keep up high margin expectations at the same time. This behaviour often leads upfront to a higher cost estimation as the IT specialists, who perform the costing, know about the process of being put under pressure for a lower costing. At the same time, they are responsible for competitive estimations but also for the future profitability of their department.

2. External pricing

Determining the price strategy depends on whether a price is offered in a competitive or a non-competitive environment. Bids are normally made under competition whereas consulting or on-demand IT services for existing customers usually take place in a non-competitive environment. Likewise, higher margins can be realized in a non-competitive environment for partial projects or IT consulting services. Pricing models that are closely connected to external pricing reflect the different objectives of the contracting parties. On the one hand, the IT service provider seeks high and stable margins, risk minimization, and

projectable staff utilization. Pricing models like T&M and especially fixed price comply with these objectives. On the other hand, customers seek a high level of transparency and flexibility to compensate for the demand variation and optimize their IT environment when ordering IT services. Pricing models that comply with these objectives are unit-based pricing models. An additional element of pricing models that shall not be considered as a stand-alone element is the incentive-based pricing model. The interviewee considers the incentive element applicable for the IT service provider as well as for the customer. The IT service provider can be rewarded for e.g., providing a continuous high level of service quality whereas the customer can be rewarded for e.g., reaching a certain level of revenue. This pricing model contains elements of shared risk/shared reward or gain sharing pricing models but is based on less complex reference points.

3. Critical success factors

Identified critical success factors are:

- *internal cost transparency* for cost driver identification,
- *external market transparency* to verify competitiveness,
- *the understanding of technological requirements* to give hints regarding deviations between internal and external price estimations or divergent interpretations of the requested IT scope,
- *the understanding of customers' financial motivations and expectations* to indicate the demands on pricing model flexibility and billing categories,
- *the understanding of customer demand* to lead to a better appreciation of evaluation criteria,
- *empathy* to improve customer intimacy, and
- *the understanding of internal monetary and non-monetary objectives* against the background of external competition to justify price strategy.

4. Future recommendations

The interviewee sees practical improvement potential in different areas of the pricing process. Internally, a simplification of the pricing process containing costing and benchmarking might lead to cost reductions for the individual offer and to a reduction in the response time. Observing an increasing demand for flexibility calls for the design of a modular pricing portfolio that can cover most of the demanded IT services in a granular

way and enable combining IT services in a versatile way. Enlarging a service catalogue that comes along with a higher grade of standardization facilitates the ambition of designing flexible pricing solutions with a multitude of combination possibilities. Advising and explaining to customers regarding the diverse possibilities and effects of designing individual pricing models might lead to a scenario of an adaptable IT environment that is reflected in flexible pricing, even as a part of service integration where the IT service provider controls the IT service volumes.

4.1.2 Impression

The interviewee clearly distinguishes between price-setting practice and price strategy. He can determine indirect relations between internal and external pricing by making connections to the competitive pricing situation. He is also able to identify the critical success factors that are relevant in practice due to his practical experience. Indeed, coping with the pricing topic in-depth through research as a researcher provides the possibility to structurally approach the topic and answer the research questions.

The researcher appreciates the importance of knowing about pricing theories, pricing research and its contribution, as well as about the practical transferability of the deficiencies to give new and relevant impulses to pricing research. Therefore, he, as an interviewee, focusses on the practical improvement of pricing processes considering the necessary adaptations for pricing models, the demand for transparency of the latter, and the need to educate people who get in touch with complex pricing constructs.

Modularity is considered a key to make pricing models flexible but at the same time comprehensible. The interviewee is conscious about the fact that being reflexive on the pricing topic and, at the same time, evaluate the grade and quality of reflexivity from the researcher's point of view is a challenge. However, even in the theoretical case of not being innovative in providing new ideas, the researcher is able to separate thoughts and ideas from the other interviewees, appreciate their contributions, and preserve his researcher perspective, thus increase the research quality. Nevertheless, increasing pricing modularity is considered an additional value that serves to decrease the cost of internal pricing and provide external transparency and comprehensibility. Thus, modularity shall be understood as an idea rather than an interpretation.

4.1.3 Interpretation

1. Internal and external pricing

The interviewee provides a reflexive inner dialogue trying to clearly separate the interviewee and the researcher from each other. This is done by a step-by-step process where firstly, the interviewee tries to answer all the research questions in the best way, and secondly, interpret the reasons and motivations for the provided answers from a researcher perspective.

The previous description of the experienced price-setting practices and the desirable hand-in-hand process of performing internal costing and external benchmarking in parallel shall be understood as follows:

- Both, cost-plus and benchmarking each have a value of its own, but the real strength of this approach lies in the combination of both approaches.
- The more individual (that means less standardized) a customer request for IT services is, the less comparable it is with the available market figures from a benchmark or the experiences from previous offers.
- The increasing individuality of a customer request for IT services presupposes detailed customer feedback and a good customer intimacy.

The link between price-setting practice and price strategy is interpreted as being subject to the level of standardization of the customer request and thereby the grade of competition. A request of a very standardized IT service can also be not part of a competitive market when other factors besides the technological ones limit the number of competitors. These factors can be e.g., geographical requirements in a country where most global IT service providers are not present due to low market activity or taxation issues. The dependency on the existence or absence of competition is interpreted as the decisive and, simultaneously, the connecting factor regarding the choice of price-setting practice and price strategy. The choice of a pricing model is rather dependent on the type of IT service, its level of standardization, and the customer's wish for flexibility than on the grade of competition, although increasing competition might also be connected to the grade of IT services standardization. Thus, an indirect connection could be derived.

2. Critical success factors and recommendations

The critical success factors identified by the interviewee can be summarized to the following arguments:

- Internal cost transparency and external market transparency are necessary to make a good winning price estimation.
- A good understanding of the customer request might require a good customer intimacy.
- Pricing manager capabilities, besides technological and financial understanding, enable balancing the contradictory objectives of the provider and the customer.

Although these critical success factors might be taken for granted, practical experience shows that the perfect market for IT services does not exist (most of the pricing theories neglect information asymmetry regarding product characteristics, service configuration, or the customer's decision criteria besides price). Thus, transparency, understanding, and empathy appear as the decisive factors in a competitive market where competitors can be expected to be proficient in designing pricing models and doing financial engineering, determining a competitive price, and providing a good service quality. Putting an emphasis on these critical success factors seems comprehensible when aiming to diminish the theory-practice gap in pricing. What separates theory from practice is the imperfection and complexity of reality on the one hand, and the aim of simplification, respectively the inability to theorize a complex state with versatile influential factors, and diverse motivations on the other hand. However, these critical success factors from practice might help to improve theory by questioning the underlying conditions.

The considered points of practical improvement internally aim at process unification and simplification that result in a cost and response time reduction. These aims are well-intentioned and can probably be found in many management guidebooks but lack concrete implementation approaches. However, considering those in the cognitive map completes the view, but needs further explanation, thus it remains without practical contribution yet.

In contrast, the idea of modularity in the pricing portfolio practically contributes to the flexibility and transparency by combining elements of pricing models. Referring to the

identified pricing models with fixed, unit-based, incentive, and on-demand elements, the call for modularity becomes realizable the way that these elements might be combined as modules that meet the individualized IT service demand. Modularization of IT services serves multiple purposes like e.g., increasing flexibility, transparency, personalization, and standardization of IT services. Thereby, modularization might contribute to knowledge and diminish the theory-practice gap as modules suit well for theorization, simplification, and overcoming the considered practical problems.

4.1.4 Conclusion, correlation with the research, and implication

The conclusions drawn from the interview and its interpretation are intended to answer the research questions and put the existing research into perspective. The following table categorizes the related conclusions, illustrates their correlation with the existing research, and infers their implication for the proposed conceptual framework as follows:

Table 9: Conclusion, correlation with the research, and implication 1

No.	Category	Conclusion	Correlation with the research	Implication
1.	Managerial objective	Defence and growth of the market share while maintaining margin and productivity is aspired.	Positive correlation with <ul style="list-style-type: none"> pricing objectives specified by Oxenfeldt (1973) (2.1.1); and objectives of managerial theories (2.1.2), especially sales revenue and growth maximization (Weinstein, 2012). 	No changes.
2.	Managerial objective	Manager compensation is connected to target achievements.	Positive correlation between manager control through performance-related compensation and the divergence of motives (between the entrepreneur and the manager) reflected in managerial theories (2.1.2) (K. D. Miller & Tsang, 2010).	No changes.
3.	Price strategy	Price strategy correlates with the grade of competition.	Positive correlation with the connection of the price strategy and the competitive pricing situation (2.3.1.2) (Noble & Gruca, 1999).	Correlation between the price strategy and the grade of competition needs explicit illustration.
4.	Price-setting practice	Cost-plus combined with internal and external benchmarking is identified as the most common price-setting practice of pricing IT services.	Positive correlation with: <ul style="list-style-type: none"> the pricing discretion model's conclusions (2.3.1.1) by Monroe (2003), and the dominance of the cost structure (2.3.1.2) determined by Bonoma et al. (1988). 	Neglect of value-based price-setting but no explicit contradiction to Monroe (2003), thus no changes.

No.	Category	Conclusion	Correlation with the research	Implication
5.	Price-setting practice/ Recommendation	Unification and simplification of the price-setting process requires a split of IT services to the smallest possible unit (standard service catalogue with combinable units) leads to decreasing cost estimation efforts and a shorter response time.	Positive correlation with: <ul style="list-style-type: none"> the scope dimension in the five-dimension pricing model (2.3.2.1) proposed by Iveroth et al. (2013), and the enhancement and practical implementation of unit-based/ use-based pricing models for IT services (2.3.3.3) illustrated by Maurer et al. (2008). 	Emphasis of the unit-based/ use-based pricing model for IT services.
6.	Pricing model	Pricing model categories are fixed, unit-based (variable), incentive, and T&M pricing models.	Partial consistency with the most commonly applied pricing models (2.3.3.3) identified by Maurer et al. (2008) (cost-plus, open book, shared risk/shared reward, and gain sharing rated as irrelevant).	Elimination of irrelevant pricing models.
7.	Critical success factor	External market transparency and internal cost transparency are both relevant to determine a competitive price.	External market transparency reflected in competition-informed price-setting, internal cost transparency reflected in cost-informed price-setting (2.3.1.1) (Ingenbleek & van der Lans, 2013; Nagle et al., 2017).	Explicit consideration of transparency.
8.	Critical success factor	Pricing manager capabilities (technological and financial understanding, good empathy regarding customer demand and evaluation criteria).	The result corresponds to the appreciation of the importance of the pricing capabilities of Dutta et al. (2003) (2.3.2.2).	No changes.
9.	Recommendation	Simplification of the internal pricing process and the design of a modular pricing portfolio (to combine service catalogue elements according to customer requirements).	This idea reflects the enhancement and practical implementation of unit-based pricing models (2.3.3.3) considered by Maurer et al. (2008).	Consideration of the idea of the standardization of IT services.
10.	Recommendation	Customer sensitization regarding the flexibility of pricing models by pricing manager.	The result corresponds to the appreciation of the importance of the pricing capabilities of Dutta et al. (2003) and emphasizes the external activities described in section 2.3.2.2.	No changes.

Source: Proprietary development

1. *Internal pricing*

Interviewee 2 considers cost-plus the most typical price-setting practice applied to determine the price for IT services. In the case of heavy competition, the interviewee also experienced *political pricing* below cost level to win a bid for other reasons than margin, e.g., reputation or market share. The other identified price-setting practices are value-shared and volume-based pricing. What becomes apparent at this point is that the progressive distinction made between price-setting practice and price strategy (see section 2.3.1.1) is not that clear. As researchers like Noble and Gruca (1999) also differentiate imprecisely, the researcher corrects this classification as an element of external pricing and discusses this during member-checking. The value-shared pricing model is applied infrequently and mostly for temporary projects where success is measurable. Volume-based pricing models are applied to recurring IT services based on a long-term contractual relationship. It is beneficial for the customer to cover the risk for a low volume consumption especially for new businesses where volumes are hard to predict. As businesses are growing and develop towards a mature phase, higher volumes become advantageous for the IT service provider and can be absorbed by decreasing unit prices.

Practical improvement is seen in a fundamental paradigm change that re-aligns internal pricing towards the *DevOps* culture. DevOps is a practice that emphasizes the collaboration of IT operation experts and software developers while building, testing, and releasing software. Transferring this process to pricing IT services means that the provider needs to test the price-value combination of the offered services by challenging their own prices and the market prices until a bid is successful. Of course, this approach requires budget and management rear cover as failures are expected. However, a paradigm change towards *market makes price, not cost* is considered inevitable.

The main goal of internal pricing is the standardization of IT services that shall provide internal transparency to provide a scalability that enables offering a standard service catalogue with small units of services within the company. Interviewee 2 notes that yet no grade of standardization has been achieved to provide a service catalogue out of which every technological and service requirement can be configured easily. Thereby, internal and external benchmarking is made difficult. The assessment of their own price when offering a bid is likewise difficult and it requires other sources of information.

2. *External pricing*

The main goal of external pricing is at the same time the described weakness of internal pricing, namely its non-transparency. This goal of non-transparency towards the customer serves to make the comparability of the value-price-relation difficult to other competitive offers. Companies offering IT services seek to offer the lowest possible value for the winning price level. Being non-transparent but simulating a quasi-transparency shall give the impression that the offer corresponds to the requested services in the bid but simultaneously enables the IT service provider to lower the expected costs and increase margin. In the end, the aim to increase margin by performance or quality reduction in a non-standardized IT service environment leads to critical price-value discussions between the customer and the provider.

The price strategy is influenced by various groups within a company. In the case of non-standardized offers, the sales team and the bid team consisting of technical, contractual, and financial specialists can decide autonomously on the price level. Apart from that, when business risks are expected, the management needs to make decisions motivated by the aims of growth or increasing market share.

3. *Critical success factors*

Identified critical success factors are:

- the provision of *external transparency* through a pricing intelligence institution that collects price hints, information about market conditions, and customer preferences;
- the development of a *future product portfolio* that preserves *profitability and industry maturity*;
- the *standardization* through the development of a standard service catalogue;
- small units of service to ensure *internal transparency*;
- the *importance of the pricing manager* role as the main contributor and central point of contact; and
- *psychological aspects* of price levels and pricing schemes.

4. Future recommendations

The interviewee considers a role change in the future necessary to successfully lead the critical price-value discussion. Thereby, the role of the pricing manager develops towards the role of a so-called *value manager* who can evaluate the customer value and understand the customer's emphasis. Although, for an outsider, IT services appear standardized and easy to replace, in practice, the fewest IT environments and the related processes are yet standardized. Understanding the individual emphasis and thereby the individual assessment of value is considered a major critical success factor in the future.

A second aspect that is connected to internal and external pricing that is not part of the conceptual framework is the *penalty* price element. The interviewee identifies this as an additional price element which shall be considered separately. The penalty leads to a rebate on the agreed prices in the case of non-compliance in services due to quality issues or temporal delay in delivery. This mechanism psychologically conveys a certain safety that can compensate for the previously mentioned non-transparency, respectively quasi-transparency, that exists in individually designed IT services.

4.2.2 Impression

The interviewee provides a reflexive inner dialogue during the interview that tries to cover all aspects of this research, relate experiences to the critical success factors, and analyse different motivation perspectives to recommend future actions.

The interviewee clearly distinguishes between internal price-setting and external price strategy and can identify complex interrelations. He determines no direct one-sided or reciprocal dependencies between internal and external pricing, although when analysing the cognitive map (Figure 8), the connection becomes apparent via detour (see section 4.2.3).

During conversation, the interviewee appears as a structured and reflective person who analyses the motivations on the provider side and the customer side and incorporates the consequences of the future projection that determines the necessity to establish a pricing intelligence institution, standardized and small units of service, and a critical price-value discussion for transparency reasons. Simultaneously, the interviewee is a critical person

who reveals the penalty and rebate element as a new element of pricing. The interviewee reflects beyond the given conceptual framework and is more analytic than merely being descriptive of the identification of the critical success factors. In the end, the call for a pricing intelligence institution within the company reflects the existing heterogeneous pricing processes that require standardization and a perspective change towards a customer's value appraisal. The act of member-checking confirms these impressions.

4.2.3 Interpretation

1. Internal and external pricing

Regarding internal pricing, the identification of cost-plus as the standard price-setting practice correlates with the dominance of the cost structure (2.3.1.2) determined by Bonoma et al. (1988) (also see Table 10 No. 3). Although the additional statement was not unexpected that under special competitive circumstances pricing can be below cost level, a subsequently presented concrete case surprised and showed that market entry motivations from e.g., Indian competitors to western markets are more aggressive than expected. The researcher, however, suspects that these nuances are pronounced depending on the interviewee's experience.

What is eye-catching is the adventurous suggestion that a company should provide an annual budget to test the price-value combination when being in a bid. The critique that market makes the price and not the evaluation of cost shows that the interviewee critically reflects on the existing processes and possible solutions. In fact, this proposition for practical improvement shows that in the end, the customer decides on the compatibility of the offered price for the expected value of service level and risk hedging. But as this trial and error method is time consuming and price development is a continuous and fast-moving process especially in the sector of IT services, this suggestion shall rather be interpreted as follows:

- The provider shall continuously be aware of the market situation, thus rather be oriented externally than only towards his own cost assumptions.
- The provider needs to have a dialogue with the customer to understand his emphases and evaluation.
- The provider needs to prepare for lower margins.

These interpretations are supported by the interviewee's call for a critical price-value dialogue. This dialogue would not make sense when conducting it just internally. The interviewee's call for a formal authority within the company described as value manager reveals the perceived deficiency of being too much internally focussed. So, it is not just the competitor and its prices, which should be important for the company's transparency but preferably the understanding of the customer perspective, its motivation and evaluation.

Moreover, the researcher interprets this critical price-value dialogue as a possible indication for the existence of reciprocal dependencies between price-setting and price strategy. Indeed, a competitive pricing situation and the connected price strategy suggest a price-setting that orientates at the competition price level. However, irrespective of an existing pricing situation and applied price strategy, the evaluation of the customer is recommended to be considered for price-setting. The conclusions are made as follows:

- Competition price sets the price level in case it is lower than the expected customer value, which means the competitive price strategy determines the price-setting.
- In the case that the competition price is higher than the value attributed by the customer, the price-value dialogue and its outcome determine the price level, which means that price-setting activities determine the price strategy.

The connecting factor between price-setting and price strategy appears to be the relation of the customer-value and the competition price. At least, at this point it can be stated that the consideration of a one-way relationship of price strategy predicting price-setting by Ingenbleek and van der Lans (2013) needs to be extended to a reciprocal view where other factors are determinant.

2. Critical success factors and recommendations

Seeking not only for external transparency towards the market and the customer but also for internal transparency by standardizing smaller units of services can be interpreted by the following motivations:

- A modular system of small service units that can assemble most of the commercially available IT services leads to a shorter response time for bids.

-
- Costs for bid responses might decrease because only requested non-standard services need to be evaluated and calculated.
 - The probability of successful responses to customer requests might rise as different offers and their modules can be made comparable.
 - Simultaneously, the internal processes of setting up a new costing for every offer and for the management discussions and approvals could be made leaner.
 - Offering smaller units of service provides transparency and sizing flexibility to customer requests.

Providing flexibility contradicts the provider's motivation for having planning dependability. But in the end, in a competitive market with seemingly homogenous product and service portfolios, the customer will decide on preventing the risk of not being flexible. The interviewee describes this phenomenon as purely psychological because despite providing flexibility, usually customers maintain with their initial setting of IT services. So, the expected risk of losing business through a flexible offer can be considered low, at least in the IT services sector. Providing transparency through a granular split of IT services is increasingly necessary to stay competitive and demonstrate openness towards the customer. The stated goal of not being transparent is obsolete in times of flexibility and homogenous IT services. This goal is the result of a time, where IT environments were developed individually and required individual solutions. The researcher admits that there are still a lot of potential first-generation IT outsourcing customers with very individual requirements. Not being transparent might work for this target group. In the long term, standardization and flexibility remain the critical success factors.

The interviewee's previously described idea to introduce a separate penalty-rebate-element for pricing models is very interesting regarding customer psychology. Although paying penalties for non-compliant IT service delivery or providing rebates for ordering additional volumes of an IT service is not new, it is an effective means in pricing versatile products also beyond IT services. What is special about this call is that transforming this proven means into a separate pricing model and likewise offer this explicitly to the customer is new and might have the following advantages:

- The financial risk of minor service quality can be limited.
- The service quality needs to be measured more transparently to calculate penalties.

- A proactive offer of the penalty pricing model psychologically conveys a self-confident impression to the customer and the belief in the appropriate service quality.
- Rebate pricing models give a signal and incentive of long-term collaboration.

Embedding these pricing elements and continuously adapting these to the future product portfolio might ensure and increase profitability. Offering the penalty-rebate pricing model can psychologically generate trust for the long-term collaboration between the customer and the provider and is therefore considered a critical success factor.

4.2.4 Conclusion, correlation with the research, and implication

The conclusions drawn from the interview and its interpretation are intended to answer the research questions and put the existing research into perspective. The following table categorizes the related conclusions, illustrates their correlation with the existing research, and infers their implication for the proposed conceptual framework as follows:

Table 10: Conclusion, correlation with the research, and implication 2

No.	Category	Conclusion	Correlation with the research	Implication
1.	Managerial objective	Revenue growth and increasing market share to gain a critical mass that ensures competitiveness and economies of scale.	Positive correlation with: <ul style="list-style-type: none"> • pricing objectives specified by Oxenfeldt (1973) (2.1.1); and • objectives of managerial theories (2.1.2), especially sales revenue maximization in combination with economies of scale and growth maximization (Weinstein, 2012). 	No changes.
2.	Price strategy	Competitive price strategies are applied in the competitive IT services market.	Positive correlation between price strategies and the competitive pricing situation (2.3.1.1) (Noble & Gruca, 1999).	Illustration of the correlation between the competitive pricing situation and the competitive price strategy.

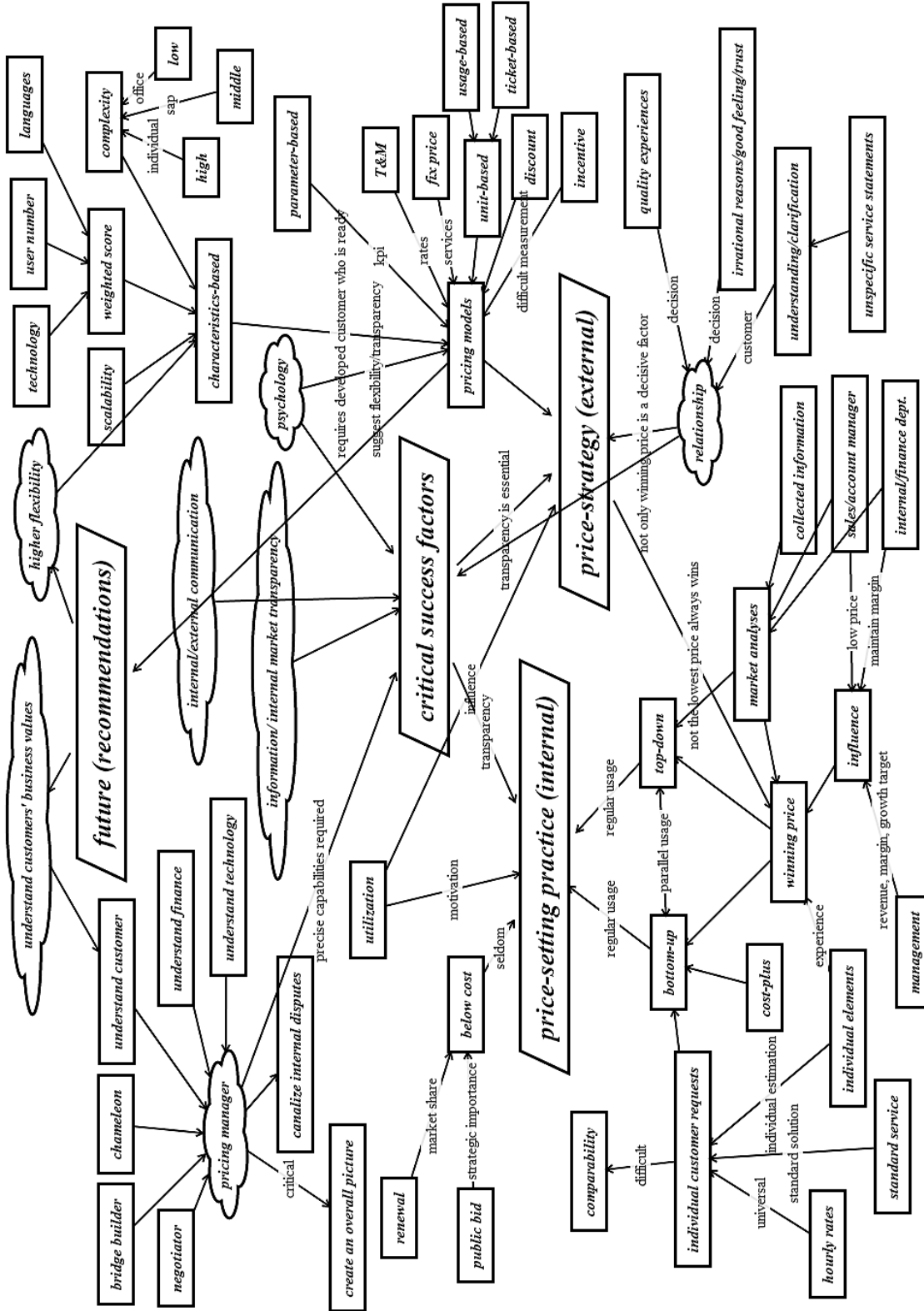
No.	Category	Conclusion	Correlation with the research	Implication
3.	Price-setting practice	Cost-plus dominates internal pricing of IT services.	Positive correlation with: <ul style="list-style-type: none"> the pricing discretion model's conclusions (2.3.1.1) by Monroe (2003), the dominance of the cost structure (2.3.1.2) determined by Bonoma et al. (1988), and the dominance of full-cost pricing behaviour (2.1.3) demonstrated by Lucas (2003). 	Value-based (see no. 6) and competition-based price-setting are neglected here, but no explicit contradiction to Monroe (2003), thus no changes.
4.	Pricing model	Rebate and penalty elements are required to limit customers' financial risk, measure service quality transparently, and stimulate consumption.	Rebate and penalty elements in pricing models resemble the incentive-based pricing model (2.3.3.3) identified by Maurer et al. (2008) in case the penalty element is interpreted as a negative incentive.	Extension of pricing models by rebate and penalty elements.
5.	Critical success factor	External market transparency and internal cost transparency are both relevant to determine a competitive price.	External market transparency is reflected in competition-informed price-setting, and internal cost transparency is reflected in cost-informed price-setting (2.3.1.1) (Ingenbleek & van der Lans, 2013; Nagle et al., 2017).	Explicit consideration of transparency.
6.	Critical success factor	Understanding of customer perception and evaluation.	The understanding of customer perception and evaluation is reflected in value-based price-setting (2.3.1.1) (Ingenbleek & van der Lans, 2013; Nagle et al., 2017).	Consideration of customer perception and evaluation (value-based price-setting).
7.	Pricing model/ Recommendation	The provision of a standard service catalogue leads to decreasing cost estimation efforts and benchmark cost, and to a shorter response time.	Positive correlation with: <ul style="list-style-type: none"> the scope dimension in the five-dimension pricing model (2.3.2.1) proposed by Iveroth et al. (2013), and the enhancement and practical implementation of unit-based/ use-based pricing models for IT services (2.3.3.3) illustrated by Maurer et al. (2008). 	Emphasis of the unit-based/ use-based pricing model for IT services.
8.	Managerial objective/ Recommendation	A pricing intelligence institution coordinates information flows and supports in developing a future product portfolio aiming to increase profitability.	The result partly reflects the appreciation of the importance of pricing capabilities (2.3.2.2) (Dutta et al., 2003). The emphasis of a central pricing intelligence institution does not correlate with the research and can be interpreted as a practical recommendation.	No changes.
9.	Price strategy/ Recommendation	Transformation of the pricing manager to a value manager who leads the critical price-value discussion and acknowledges the customer's evaluation of IT services.	Following aspect no. 6, this aspect recommends a price strategy alignment according to the customer's IT services evaluation that correlates with the pricing situation (2.3.1.1) (Ingenbleek & van der Lans, 2013; Noble & Gruca, 1999).	Indication of reciprocal dependencies between price-setting practices and price strategies (see section 4.2.3).

Source: Proprietary development

4.3 Interviewee 3

4.3.1 Cognitive map and main statements

Figure 9: Cognitive map 3



Source: Result of interview 3

1. Internal pricing

Interviewee 3 basically distinguishes between bottom-up and top-down price-setting to determine the price for IT services. Thereby, bottom-up price-setting is dominated by the cost-plus practice where individual customer specifications and wishes are reflected. These specifications normally consist of standard IT services that are part of the service provider's standard portfolio, hourly rates that enable the customer to ask for specialists on demand, and individual elements that require individual cost estimation. Top-down price-setting practices are based on externally acquired market analyses, internal input from sales and account managers, as well as from the internal financial department. This information leads to the estimation of the assumed winning price that influences the top-down price-setting practice.

2. External pricing

The interviewee relates external pricing to price strategy and pricing models. The price strategy depends on the previously mentioned winning price that is considered the main but not the only decisive factor. Besides the winning price, the relationship to the customer plays an important role. This relationship is influenced by the good understanding of customer needs and the perceptive clarification of ambiguities. Existing business relationships also feed on good personal and service quality experiences. However, the interviewee sees a big portion of unexplainable and irrational reasons in the decision process besides price.

Pricing models applied to pricing IT services are T&M mainly for hourly rates, fixed price for individual services and unit-based pricing for countable services that are use-based (e.g., storage) or ticket-based (e.g., service desk). Pricing models that comprise discounts and incentives are also known but rarely applied in practice. Instead, either parameter-based or characteristics-based pricing models increasingly become suitable. Parameter-based pricing models look at KPIs like e.g., availability of services, performed service levels (quality), the number of incidents that characterize technological problems, and the time to resolve these issues, etc. Characteristics-based pricing, which requires a developed customer with a standardized IT environment and processes (usually a second or third generation IT outsourcing customer), measures IT services corresponding to their characteristics. Characteristics are cost drivers like e.g., complexity, technology clusters, user numbers, the number and the grade of commonness of supported languages for a

service desk, or the kind of interface. The establishment of a weighted scoring system that is based on these characteristics enables effectively setting the price depending on the effort. This approach makes the prices understandable and comprehensible. However, the basic requirement of characteristics-based pricing is the scalability of IT services in one way or another.

3. *Critical success factors*

Identified critical success factors are:

- the importance of the *pricing manager* who is a bridge builder and a negotiator that needs to have an overall picture of the scene (*transparency*) where various actors seek to safeguard their interests,
- *understanding divergent internal objectives* to canalize disputes,
- *understanding customer motivations*,
- the *tailored pricing model* to suit the customer need,
- *transparency and variability of pricing models*,
- consideration of *KPIs that measure and evaluate the criteria of service quality*, and
- *penalty elements* that convey a service quality confidence and provide *financial transparency*.

4. *Future recommendations*

The interviewee determines that flexibility in providing IT services will further increase in the future and the previously described character-based pricing will increase as customers ask for mechanisms behind the pricing to understand more specifically the cost drivers and gain more transparency. The pricing manager's understanding of the customer's business value as a critical success factor remains important especially regarding the conflicting internal and external interests. Beyond that, the interviewee predicts an increasing importance of managed services in the IT environment and the adaption of the latter to the individual customer needs. For explanation: A Managed Services Provider (MSP) takes the responsibility on a proactive basis to manage and optimize the agreed IT services by e.g., regulating storage capacities in a cost-efficient way and ensure that the achieved quality levels correlate with the service level agreements (SLAs). Thereby, the customer assigns the allocative function to the service provider who is rated on efficiency criteria.

4.3.2 Impression

The interviewee is a reflexive person who is familiar with the topic and knows about the critical processes that occur in practice. His categorization of pricing models is purposive regarding the trend that customers request a higher grade of flexibility, namely scalability in a complex technological environment.

The interviewee can clearly distinguish between basic internal price-setting processes and the role and function of applied external price strategies with a focus on pricing models. He justifies his categorization and names examples for practical application. During the interview and the member-checking session it becomes apparent that the interviewee's reflections on the as-is state and possible process improvements are not the outcome of this interview but part of an ongoing reflexive process that started in the past when he had to cope with the deficiencies of the pricing process. These deficiencies materialize in practice when offering pricing models that do not meet customer expectations regarding the flexibility and measurement of IT services. The interviewee's focus on categories like *characteristics-based* and *parameter-based* show his interest in the topic and the ability to identify the limitations of offering fixed prices. Simultaneously, he appreciates the importance of the customer relationship in a competitive environment and links internal and external pricing through the common goal of determining the winning price through market analyses, a good customer relation, or both.

However, emphasizing the role of a pricing manager as a central point of contact and thereby a critical success factor suggests on the one hand that the expectations to the scope of the pricing manager's responsibilities are considered differently across different companies. On the other hand, this emphasis suggests that the interviewee faces versatile liabilities that exceed the expected scope of responsibilities in his role. In this context, the researcher has the impression that the interviewee attached great importance to his anonymity. However, any doubts regarding personal data could be allayed by referring to the research ethics (see section 3.3.5).

4.3.3 Interpretation

1. Internal and external pricing

The interviewee identifies cost-plus as the most common price-setting practice when performing a bottom-up approach but puts this into perspective when reporting about the

antithetic top-down price-setting approach that depends on experiences or external information. Both approaches correlate with the pricing discretion model's conclusions by Monroe (2003) (see section Table 11 no. 4). The way the interviewee explains the distinctive approach of applying either one of them or both in parallel and providing examples appears conclusive. Against the background of the researcher's experience regarding a general tendency to avoid explicit criticism, the interviewee's statements appear credible and at the same time progressive and forward-looking. The interviewee emphasizes the area of conflict between, on the one hand, the in-house motivation of presenting a high staff utilization as part of productivity targets and, on the other hand, a realistic cost estimation that is market-compliant. Proposing a price-setting approach that comprises a parallel bottom-up and top-down approach that represents a kind of an *ex ante* benchmarking could solve the issue and simultaneously identify internal cost and efficiency problems.

The researcher interprets the presentation of the previously mentioned area of conflict and the existing price-setting practices as follows:

- Price-setting needs to implement internal cost estimation and external market analyses, respectively benchmarks, in parallel so that deviations can be discussed and traced back to technological peculiarities or deficiencies in cost estimation.
- The internal goal of determining the winning price is essential for the external strategy but is difficult due to comparability issues of individual customer requests.
- The implementation of a service catalogue pricing that bypasses extensive internal cost estimations and external market analyses is rarely purposeful as most offers for IT services include a big part of individual customer requests, even in the age of standardization.

2. Critical success factors and recommendations

The interviewee relates external pricing to price strategy and pricing models and puts an emphasis on a high customer relationship quality, pricing transparency, and a price offer on the usual market level. Identifying the pricing manager as a central point of contact and a critical success factor suggests the following interpretations:

-
- The role of the pricing manager is, besides the act of performing the pricing process itself, a coordinative function that is significant for a successful offer.
 - The required capabilities of a pricing manager become increasingly versatile. In addition to calculative capabilities, the role requires a certain degree of technological understanding as well as distinctive negotiation skills.
 - Understanding the customer's requirements in the age of standardization is still essential.
 - A scalable pricing model that refers to the complexity of IT systems and technological peculiarities is necessary to meet the market's high transparency standards.
 - The choice of an IT pricing model is related to the customer's business value.

Emphasizing the importance of the pricing manager role could also be interpreted either as a self-adulation regarding the interviewee's versatile capabilities and his irreplaceability or as a sign of capacity overload when resources become increasingly rare and resource utilization needs to be arranged in a very efficient way. Nevertheless, from the researcher's experience, the pricing manager's capabilities require at least an overall understanding of technological interrelations, scalability and its impact on profitability, and customer motivations and business value. Therefore, the interviewee's valuation of the pricing manager's role appears comprehensible the way that this function is a critical success factor in the pricing process and requires versatile talents.

4.3.4 Conclusion, correlation with the research, and implication

The conclusions drawn from the interview and its interpretation are intended to answer the research questions and put the existing research into perspective. The following table categorizes the related conclusions, illustrates their correlation with the existing research, and infers their implication for the proposed conceptual framework as follows:

Table 11: Conclusion, correlation with the research, and implication 3

No.	Category	Conclusion	Correlation with the research	Implication
1.	Managerial objective	The maintenance and renewal of the existing IT service contracts to defend the market share.	Positive correlation with pricing objectives specified by Oxenfeldt (1973) (2.1.1).	No changes.
2.	Managerial objective	Aspired high staff utilization rate reflecting productivity is the reasons for excessive cost estimations.	Positive correlation with the managerial model of utility maximization (2.1.2) (Weinstein, 2012).	No changes.
3.	Managerial objective/ Price-setting practice	Offerings below cost level are implemented in public bids with strategic importance and in renewal bids for existing customers to prevent the loss of market share.	<ul style="list-style-type: none"> Negative correlation with the pricing discretion model (2.3.1.1) by Monroe (2003) as the competition price can be lower than the cost base. Positive correlation with the managerial model of utility maximization (2.1.2) (Weinstein, 2012). 	Consideration of a pricing discretion below cost level.
4.	Price-setting practice	Cost-plus as a bottom-up price-setting practice combined with market analyses as a top-down price-setting practice are the dominant internal pricing processes that are either applied separately or in parallel.	Positive correlation with: <ul style="list-style-type: none"> the pricing discretion model's conclusions (2.3.1.1) by Monroe (2003), the differential system of market-based and cost-allocated economic models (2.3.3.4) predicted by Rau and Willmott (2012), and the dominance of the cost structure (2.3.1.2) determined by Bonoma et al. (1988). 	Neglect of value-based price-setting but no explicit contradiction to Monroe (2003), thus no changes (also see no. 6).
5.	Pricing model	Pricing models require flexibility that can be implemented through characteristics-based and parameter-based pricing models which measure different IT services depending on their type of units and apply a weighted score that is related to the IT service complexity.	The idea of flexibility of pricing models positively correlates with: <ul style="list-style-type: none"> the formula dimension in the five-dimension pricing model (2.3.2.1) by Iveroth et al. (2013), and the unit-based/use-based pricing model picked up by Maurer et al. (2008). Pricing depending on technological characteristics does not yet correlate with research explicitly. 	Consideration of characteristics-based and parameter-based pricing models, flexibility, and transparency.
6.	Critical success factor	Understanding of customer perception and evaluation.	The understanding of customer perception and evaluation is reflected in value-based price-setting (2.3.1.1) (Ingenbleek & van der Lans, 2013; Nagle et al., 2017).	Consideration of customer perception and evaluation.

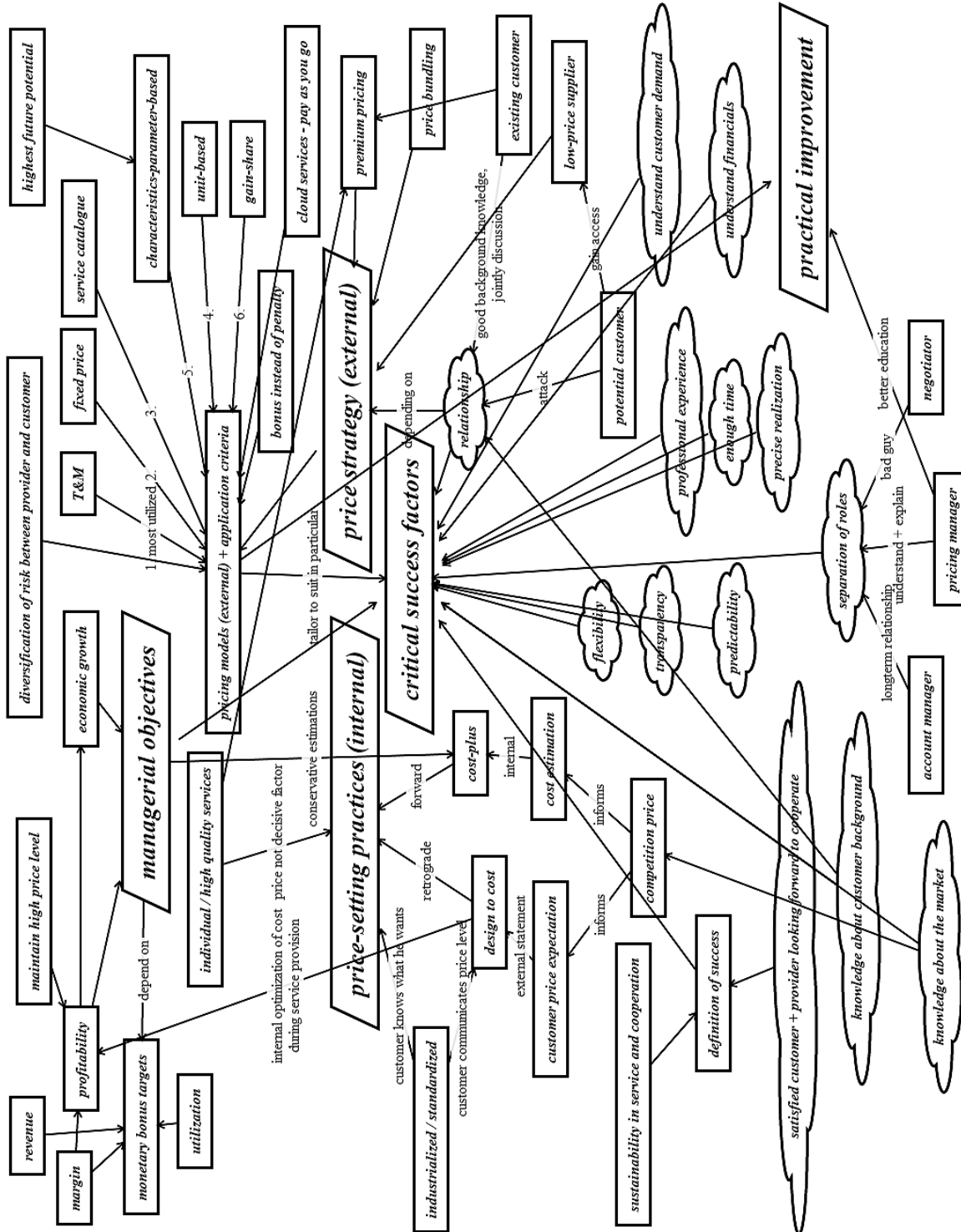
No.	Category	Conclusion	Correlation with the research	Implication
7.	Critical success factor	Pricing manager capabilities: <ul style="list-style-type: none"> • ensure internal and external coordination and negotiation, • understand the customer's technological and contractual requirements, and • apply pricing models the way that the customer's flexibility claims, and the IT service provider's risk minimization claims are balanced. 	Positive correlation with the appreciation of the importance of pricing capabilities by Dutta et al. (2003) (2.3.2.2).	No changes.
8.	Price strategy/ Recommendation	Strengthening of the pricing manager's role with a focus on the customer's business value.	<ul style="list-style-type: none"> • Positive correlation with value-based price-setting (2.3.1.1) (Ingenbleek & van der Lans, 2013; Nagle et al., 2017). • Recommendation of price strategy alignment according to the customer's IT services evaluation correlates with the pricing situation (2.3.1.1) (Ingenbleek & van der Lans, 2013; Noble & Gruca, 1999). 	Indication of reciprocal dependencies between price-setting practices and price strategies (for explanation compare to 4.2.3).
9.	Critical success factor	Persisting customer-specific requirements in the age of standardization emphasizes the importance of flexibility.	The call for flexibility positively correlates with the five-dimension pricing model by Iveroth et al. (2013) (2.3.2.1).	Explicit consideration of flexibility.

Source: Proprietary development

4.4 Interviewee 4

4.4.1 Cognitive map and main statements

Figure 10: Cognitive map 4



Source: Result of interview 4

1. Internal pricing

Interviewee 4 sees two main approaches of price-setting. The first approach is the cost-plus price-setting practice that is a bottom-up approach and reflects the estimated expenditures for providing IT services. The managerial objective of making conservative estimations influences the cost-based price-setting. Thereby, profitability, high margins, business growth, and staff utilization need to remain balanced and in a reasonable relation to each other. The second approach is based on the customer's price expectation. In this case, the customer signals his expectation of the price level with the request of a proposal that can either consist of a single IT service or a bundle of IT services. The IT service provider needs to check, if he can provide the requested service and simultaneously generate an appropriate profitability. This approach is usually used for standardized IT services. The interviewee calls these IT services *industrialized*. Both approaches are informed by internal cost estimations as well as competition prices. Especially in the case of providing individual or high-quality IT services, the provider performs an internal cost optimization after signing the contract during the service provision. Since the price is not considered the decisive factor for individual and high-quality IT services, the provider can generate a relatively high profitability and try to increase this through cost optimization instead of cutting service quality.

2. External pricing

The interviewee relates external pricing to price strategies as well as to pricing models. His view corresponds to the conceptual framework (section 2.4). According to the interviewee, the price strategy mainly depends on the kind and quality of the relationship between the customer and the provider. A well-established relationship is characterized on the one hand by a customer who has positive experiences with a provider and knows about the service quality, the provider's reliability, and his ability to innovate processes, adapt and optimize IT services, and provide long-term savings. On the other hand, the well-established relationship is characterized by a provider who knows about the reliability of the customer and recognizes the customer's willingness to maintain the business relationship. Mutual trust and background knowledge through experience is usually relevant for customers who request high-quality services. Customers whose main objective is the realization of savings do not attach as much value to service quality as those who maintain long business relationships. Therefore, the interviewee considers the premium pricing strategy predominant for existing business relationships.

In contrast, the low-price supplier strategy is predominant for new business offers where a relationship with the potential customer does not exist and the price is the decisive factor. Price-bundling is applicable for all kinds of offers irrespective of the relationship quality. The interviewee remarks that all price strategies considered in the conceptual framework are known and applied to external pricing of IT services. However, the explicitly mentioned premium pricing strategy, low-price supplier strategy, and price bundling strategy are most frequently applied and thus predominant in the IT services sector.

The interviewee considers pricing models applied as part of external pricing as a critical success factor that is relevant for the diversification of risk between the IT service provider and the customer. T&M and fixed price are currently the most frequently applied pricing models. However, also service catalogue, characteristics-based, parameter-based, unit-based, and gain-share pricing models are applied in practice, but with less attention. Service catalogue pricing models comprise standardized IT services where price-setting is cost-based. The advantage is that the price-setting only needs to be performed once and not for every offer separately. The disadvantage is the necessity of a standardization of the IT infrastructure and processes. The implementation of the latter can be more expensive than setting-up the price individually. However, in the long term, the missing possibility of comparison can also lead to disadvantages that could stimulate thinking about standardization.

Characteristics-based and parameter-based pricing models, as previously described in section 4.3.1 in detail, measure different IT services according to their types of units and their cost drivers, and apply a weighted score according to the IT service complexity. The interviewee considers the characteristics-based and parameter-based pricing models as comprehensible for the provider and the customer as price depends on cost drivers. Therefore, these pricing models are expected to have the highest future potential.

As a last point, the interviewee mentions upcoming cloud services which are comparable to IT services from a standard service catalogue. Likewise, the applied pricing model correlates with a service catalogue pricing.

3. Critical success factors

Identified critical success factors are:

- *transparency, flexibility, and predictability of pricing models;*
- *a fair mode of paying and being paid for an agreed service quality level (professional business relationship);*
- *understanding the market and knowing about competition prices;*
- *understanding customer motivation and demand;*
- *provider's good pricing capabilities in a balanced environment that enables reflecting on the solution, pricing, and service implementation.*

4. Future recommendations

The interviewee notes that especially characteristics-based and parameter-based pricing models have a high future potential, since prices correlate with cost drivers and are therefore considered comprehensible and fair. Furthermore, these pricing models distribute the financial risk between the providers and customers in an appropriate manner. The application of such a pricing model requires a collaborative analysis by the customers and providers to determine the cost drivers, complexities, and an appropriate weighted score system. Providing transparency and flexibility through characteristics-based or parameter-based pricing models requires pricing capabilities that were previously categorized as critical success factors. The interviewee states that many pricing managers lack essential pricing capabilities. Thus, they need a better and continual education to improve their internal and external pricing capabilities.

Regarding pricing models in general, the interviewee considers specific application criteria necessary to determine the convenient pricing model. The interviewee considers predictability, transparency, flexibility, comprehensibility, the support of cost reduction potential, the correlation with cost drivers, the ability to equally diversify risks, as well as the interference on cost drivers as relevant criteria to classify pricing models. The establishment of a system that considers the customer situation and the previously mentioned application criteria is expected to be one future challenge in pricing IT services.

4.4.2 Impression

The interviewee reflects on pricing IT services irrespective of this research and has new ideas for the external pricing of IT services. He can distinguish internal and external pricing clearly. The interview and the member-checking session reveal that, in his professional role, the interviewee categorizes pricing models according to pre-defined criteria to find the pricing model that meets customer demands and fits best for expected changes in the IT environment. He justifies his motivation for this structured approach by referring to professional experiences in the past where many projects failed due to disagreements on pricing models.

The lack of flexibility and transparency is often deplored by customers. However, the interviewee points to the contradiction that although customers ask for flexibility, one of the most frequently used pricing models is the fixed price pricing model. Moreover, the interviewee states that from his experience, customers who agree on flexible pricing models like unit-based or use-based pricing models rarely make use of their flexibility to change or shift consumption units. His reflection shows that the role of the pricing manager can go beyond the offer and negotiation phase of a contract and into the run phase of an IT service contract. Indeed, matching the previous cost and profitability estimations with *de facto* numbers is the task of the controlling department. Nevertheless, comparable to the theory-practice gap in pricing research, the pricing manager only makes valuable conclusions when comparing estimations and reality.

Another interesting point to mention is the impression that the interviewee puts an emphasis on the role of the pricing manager. One critical success factor for pricing IT services is the clear separation of responsibilities between the account manager, the pricing manager, and the negotiator in a bid process. Thereby, he attributes the maintenance of the long-term customer relationship to the account manager, the understanding of customer value, and the explanation of the possibilities of pricing to the pricing manager, and finally the bad guy role of insisting on price levels to the negotiator. Practice shows that responsibilities attributed to the diverse roles as proposed by the interviewee become blurred due to either the non-existence of such a separation or limited staff availability. Considering the interviewee's call for enough time for pricing reflection and the availability of professionals with adequate experience might indicate that the interviewee

feels overstressed. Thus, he cannot comply with the responsibilities that he personally attributes to the role and measure up to his own expectations. In this respect, the previously mentioned critical success factors are consistent with the interviewee's role appreciation and the necessity to separate responsibilities to externally convey the importance of the appropriate choice of pricing models.

4.4.3 Interpretation

1. Internal and external pricing

Reflecting on internal pricing, the interviewee distinguishes between cost-plus price-setting and *design-to-cost*, which assumes an upfront communication of the target price by the customer and is thereby closely connected to target costing. This statement corresponds to the pricing discretion model (Figure 2) where the pricing discretion is located between cost as the price floor and the value the customer attributes to the IT service, meaning his willingness to pay, as the price ceiling. Both approaches are informed by the competition price.

The interviewee's reflection on external pricing consisting of price strategies and pricing models is described in section 4.4.1 in detail. Although the interviewee does not explicitly set internal and external pricing in relation to each other, the analysis of the cognitive map (Figure 10) shows the relation. In fact, the connecting factor between internal and external pricing is the customer relationship quality that impacts on the application of a price strategy (also see section 4.4.1). Likewise, either the existing or non-existing relationship impacts on the price-setting practice applied. In the case that the relationship is close, the customer communicates his expectations, which are also informed by competition, respectively market price. Thereby, the customer can benchmark standardized IT services more easily than individualized requests. Nevertheless, the IT service provider can take the customer statement as the base for a retrograde top-down price-setting approach, which the interviewee calls *design-to-cost*. In the case that the relationship is non-existent, the IT service provider needs to perform a cost-plus price-setting approach that is also informed by the competition price in the case of standardized IT services. Individualized IT services cannot be compared unless the customer indicates his willingness to pay. All in all, the relationship quality between the customer and the IT service provider can be identified as the connecting and influential factor between internal and external pricing, and therefore as an explicit sign of reciprocal dependencies between the latter.

2. Critical success factors and recommendations

The estimation of characteristics-based and parameter-based pricing models as the pricing models of the future in connection with the critical success factors of transparency, flexibility, and predictability can be interpreted as follows: The preference of characteristics-based and parameter-based pricing in contrast to service catalogue pricing indicates that the interviewee does not expect a stronger standardization trend of IT environments. He rather predicts the application of transparent pricing models that enable establishing a comprehensible pricing system without changing the existing IT environments unreasonably.

An exaggerated standardization of IT environments is unlikely as standardization costs are expected to be higher than the benefits. At least the risk of additional costs that result from internal process changes in a company are hard to estimate. Therefore, companies will hesitate in pushing standardization attempts. Thus, pricing models must adapt to this future scenario and cannot expect an increasing standardization trend that automatically enables becoming flexible, transparent, and predictable. Characteristics-based and parameter-based pricing models adapt to existing conditions and therefore are supposed to be established as the preferred flexible pricing models. As people rarely change their habits, fixed price and T&M pricing models are expected to dominate IT service contracts in the future as well.

4.4.4 Conclusion, correlation with the research, and implication

The conclusions drawn from the interview and its interpretation are intended to answer the research questions and put the existing research into perspective. The following table categorizes the related conclusions, illustrates their correlation with the existing research, and infers their implication for the proposed conceptual framework as follows:

Table 12: Conclusion, correlation with the research, and implication 4

No.	Category	Conclusion	Correlation with the research	Implication
1.	Managerial objective	Economic business growth considering the maintenance of high price levels and profitability.	Positive correlation with: <ul style="list-style-type: none"> pricing objectives specified by Oxenfeldt (1973) (2.1.1); and objectives of managerial theories (2.1.2), especially utility and growth maximization (Weinstein, 2012). 	No changes.
2.	Managerial objective	Manager compensation is connected to target achievements.	Positive correlation between manager control through performance-related compensation and the divergence of motives between the entrepreneur and the manager reflected in managerial theories (2.1.2) (K. D. Miller & Tsang, 2010).	No changes.
3.	Price-setting practice/ Price strategy	Reciprocal dependency between internal and external pricing through the aspect of relationship quality between the IT service provider and the customer.	Reciprocal dependency between price-setting and price strategy not subject to research, thus no correlation yet.	Indication of reciprocal dependencies between internal and external pricing.
4.	Price-setting practice	<ul style="list-style-type: none"> Cost-plus price-setting is applied to individual requests and in the case that the customer relationship quality is low (no communication of price expectation). Target costing price-setting is applied to standardized IT services and in the case that the customer relationship is good (communication of price expectation). Both approaches are informed by the competition price. 	<ul style="list-style-type: none"> Positive correlation with the pricing discretion model's conclusions (2.3.1.1) by Monroe (2003). Positive correlation with the differential system of market-based and cost-allocated economic models (2.3.3.4) predicted by Rau and Willmott (2012). Cause-and-effect chain of business relationship quality and grade of standardization with price-setting not subject to research, thus no correlation. 	The dependency of price-setting on the business relationship quality and the IT services standardization grade needs to be considered.

No.	Category	Conclusion	Correlation with the research	Implication
5.	Price strategy	<ul style="list-style-type: none"> • Price strategy depends on the business relationship quality. • A well-established long-term business relationship indicates a good service experience, mutual trust, and a customer who requests high-quality services and accepts premium pricing. • Customers who aim to realize financial savings attach less value to service quality and can rather be convinced by a low-price supplier strategy. 	<ul style="list-style-type: none"> • The result positively correlates with the competitive pricing situation and the related price strategies (2.3.1.1) (Ingenbleek & van der Lans, 2013; Noble & Gruca, 1999). • The cause-and-effect chain of business relationship quality and service quality with price strategy not subject to research, thus no correlation. 	The dependency of price strategy on the business relationship quality and service quality must be considered.
6.	Pricing model	<ul style="list-style-type: none"> • The most utilized pricing models are T&M and fixed price. • Characteristics-based and parameter-based pricing models have the highest future potential as they feature transparency, flexibility, and predictability, and provide a diversification of risk between the provider and the customer. 	<ul style="list-style-type: none"> • The ideas of flexibility, transparency, and predictability of pricing models are reflected in the five-dimension pricing model (2.3.2.1) by Iveroth et al. (2013) and in diverse pricing models (2.3.3.3) picked up by Maurer et al. (2008). • No correlation of characteristics-based and parameter-based pricing models with research. 	Consideration of characteristics-based and parameter-based pricing models, and flexibility, transparency, and predictability.
7.	Critical success factor	Professional experience of the provider team and professional capabilities that facilitate the understanding of the customer demand and project financials.	Positive correlation with the appreciation of the importance of the pricing capabilities of Dutta et al. (2003) (2.3.2.2).	No changes.
8.	Recommendation	<ul style="list-style-type: none"> • Establishment of application criteria of convenient pricing models according to the customer situation. • Criteria: predictability, transparency, flexibility, comprehensibility, cost decrease potential, correlation with cost drivers, and risk diversification potential. 	Application criteria positively correlate with the dimensions reflected in the five-dimension pricing model by Iveroth et al. (2013) (2.3.2.1).	Consideration of the correlation between the application criteria and pricing models.

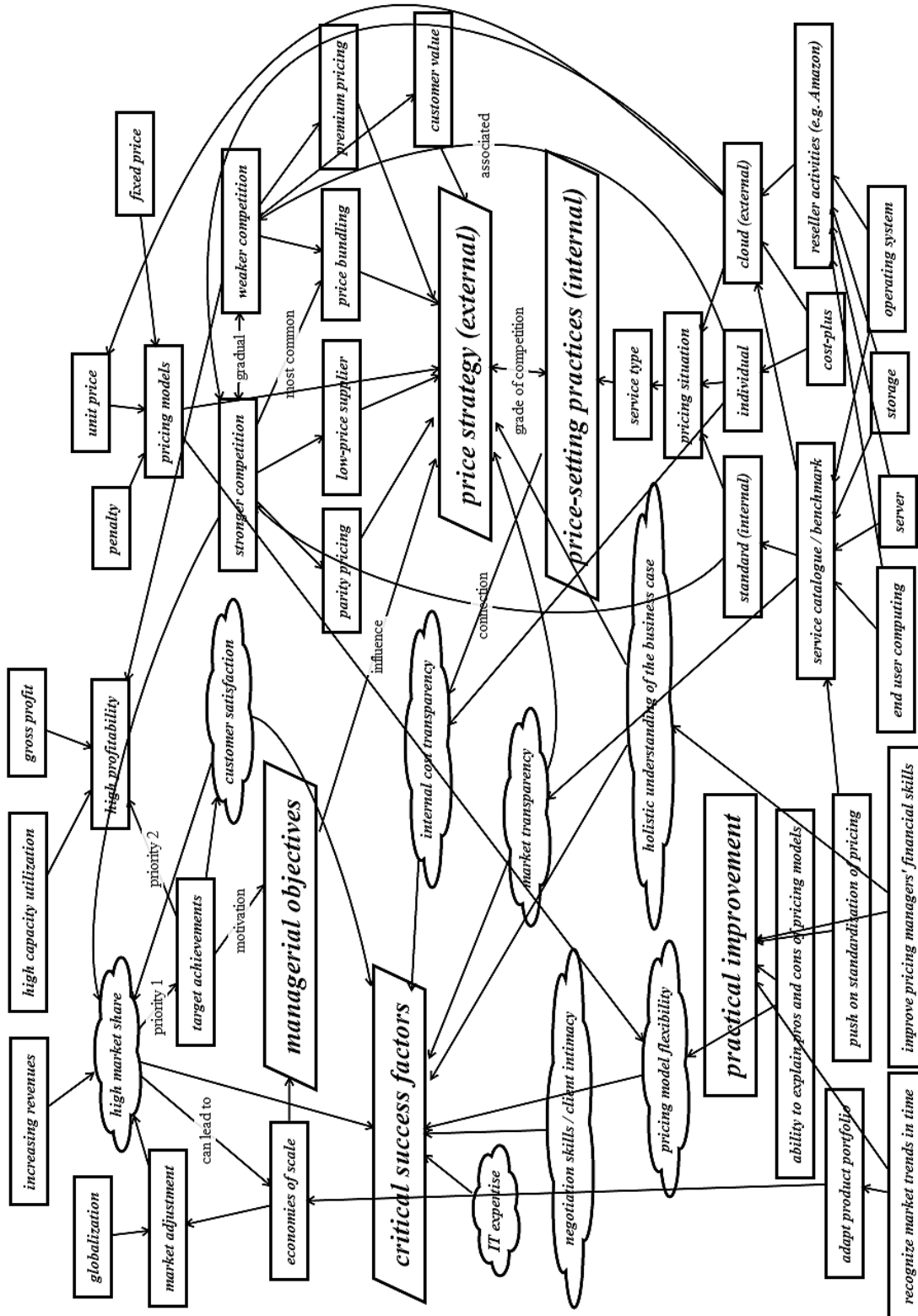
No.	Category	Conclusion	Correlation with the research	Implication
9.	Recommendation	Separation of roles: The pricing manager is not the sole point of contact in price negotiations and internal coordination but rather a mediator for internal conciliation and a consultant for customers regarding pricing models.	The recommendation indirectly corresponds to the appreciation of the importance of the pricing capabilities of Dutta et al. (2003) (2.3.2.2).	No changes.
10.	Critical success factor	<ul style="list-style-type: none"> • An exaggerated standardization of IT environments is unlikely as standardization costs are expected to be higher than the benefits. • The choice of an appropriate pricing model becomes increasingly important. 	This idea reflects the standardization element of unit-based pricing models (2.3.3.3) considered by Maurer et al. (2008) but contradicts its smooth implementation.	The correlation between the grade of standardization and the pricing models needs to be considered.

Source: Proprietary development

4.5 Interviewee 5

4.5.1 Cognitive map and main statements

Figure 11: Cognitive map 5



Source: Result of interview 5

1. Internal pricing

According to Interviewee 5, internal price-setting depends on the type of requested service. The types of IT services each represent a different competitive pricing situation (also see section 2.3.1.1) where the IT services can be attributed to different grades of competition. The interviewee distinguishes between standard IT services, individual IT services, and cloud services.

Standard services reflect a high grade of standardization like end user computing, server provision and support service, storage, and operating system services. As a result, these services can be obtained by different providers and a provider change is uncomplicated as interfaces are standardized. The market of standard IT services is considered as very competitive. Price-setting in this case depends on benchmarking the IT company's service catalogue prices regularly. An individual cost-plus calculation is time consuming and unnecessary for the offer of standard services. Thus, the competition price is the benchmark for the price-setting of standard services.

In contrast, individual service requests require a cost-plus price setting as the peculiarities of IT environments cannot be covered by a standard service catalogue. Likewise, the grade of competition is weaker compared to standard IT services. In this case, cost-plus is the most usual price-setting practice. However, the margin uplift on the calculated cost base can be informed by the market-customary margin.

The third type of IT services is cloud services. Cloud services distinguish from standard services the way that standard services are performed on the customer site whereas cloud services are usually distributed from a distance. Server computing power and storage capacity are provided externally from a data centre. The advantage of cloud services is the flexibility of ordering and terminating services without the obligation of considering the limitations of the existing IT environments. However, requirements of data security or the absence of appropriate interfaces do not always allow the integration of cloud services. The pricing situation for cloud services is considered even more competitive than standard IT services as they are fully standardized. Likewise, price-setting is related to benchmarking. In the case that the IT service provider is a reseller of cloud services, still the competition price is the reference point for offers.

2. *External pricing*

The interviewee gradually distinguishes between market conditions of stronger and weaker competition and assigns applicable price strategies accordingly. Price strategies like low-price supplier, parity pricing, and price bundling are assigned to competitive market conditions. In contrast, market conditions that are less or even non-competitive allow for the application of premium pricing and customer value price strategies. The price bundling strategy has an exceptional position as its application is also observed under non-competitive conditions. Here, psychological reasons are presumed. The most common pricing models applied under competitive and non-competitive conditions are fixed price, unit price, and the penalty element. The flexibility of pricing models is considered a main critical success factor that enables the customer to react to changing needs.

The interviewee sees a major influence of managerial objectives on the decision on how to approach a market and which price strategy should be applied. Thereby, the interviewee observes a market adjustment towards a homogeneous oligopoly. The few global players in the IT services market seek to grow and increase their market share. These global players consider economies of scale and the market power that both result from a high market share as the main critical success factors for the continuity of the company. The aim of a high profitability accompanied by a high capacity utilization is considered as second priority. However, according to the interviewee, the decision-making in the price strategy process mainly depends on managerial objectives that are closely linked to target achievements of which the increase of the market share is the most important target.

3. *Critical success factors*

Identified critical success factors are:

- *internal cost transparency* to preserve the competitiveness of the individual,
- *market transparency* to preserve the competitiveness of the service catalogue and cloud services offers,
- *the high market share* of an IT company to realize economies of scale and a required profitability,
- *customer satisfaction* to preserve the market share,

- *pricing model flexibility* to enable the customer to react to the changes in the IT environment,
- *negotiation skills and customer intimacy accompanied by an IT expertise* to ensure a good professional relationship and good results in price negotiations, and
- *a holistic understanding of the business case* to maintain profitability throughout the contractual relationship and recognize the possible disruptive factors.

4. Future recommendations

The interviewee considers different possibilities of practical improvement in the pricing process. Regarding pricing capabilities, the interviewee sees room for improvement of pricing managers' financial skills which supports the consideration of the holistic understanding of the business case as a main critical success factor. Another aspect that supports the importance of financial skills is the capability to explain the pros and cons of pricing models to the potential customer. This capability makes it possible to point out the financial risks to the customer and to choose the best approach. Likewise, this capability is necessary to minimize the financial risks to the IT service provider.

Another aspect of future recommendations for practical improvement is pushing on the standardization of pricing, especially regarding the extension of a competitive service catalogue. This call comes with a further recommendation to recognize market trends in time and adapt the product portfolio accordingly. As technological progress is accelerating, the transformation of an IT service provider's product portfolio and thereby standardized service catalogue requires permanent attention and willingness to change and improve processes and solutions.

4.5.2 Impression

The interviewee can clearly distinguish between internal and external pricing. He is a structured professional who assigns price-setting practices to pricing situations, and he relates these pricing situations to different grades of market competition. Simultaneously, he relates selected price strategies from the conceptual framework to different grades of market competition and thereby reciprocally correlates internal and external pricing.

The interviewee clearly identifies the critical success factors, which all appear realistic and are either related to pricing capabilities or to market power and the position of the IT

service provider in an oligopoly. This shows that the interviewee can take both, the microeconomic perspective and the macroeconomic perspective.

Emphasizing the importance of recognizing market trends in time and in connection to the identification of a high market share as the main critical success factor shows that the interviewee thinks strategically and knows about the importance of size and economies of scale in a competitive and fast-moving market. Mentioning cloud services as a separate type of IT service when distinguishing price-setting practices shows that the emphasis on progress and market trends also needs to be reflected in the internal pricing process. Thus, the interviewee's statements can be regarded as consistent.

4.5.3 Interpretation

1. Internal and external pricing

The identification of cost-plus and benchmarking as the main price-setting practices correlates with the internal pricing shown in the conceptual framework. However, the interviewee does not explicitly mention the customer value aspect of the pricing discretion model's conclusions (2.3.1.1) by Monroe (2003) and rather emphasizes the competitive aspect. This should not be rated as a contradiction as the interviewee identifies the customer value as an applied price strategy. Thus, the significance of customer value is rather reflected in the external pricing.

The special thing about the interviewee's view is that he categorizes service types and assigns these service types to selected price-setting practices. The distinct assignment of standard and cloud services to the service catalogue/benchmark category and the assignment of individual services to cost-plus show that the type of service determines the price-setting practice. The researcher interprets the distinct correlation between standard IT services and a stronger market competition, and between individual IT services and a weaker market competition as a correlation between price-setting practices and types of services, respectively the grade of competition.

Likewise, price strategies correlate with the grade of market competition and are clearly assigned either to a stronger or weaker market competition. As a result, price-strategies correlate with price-setting practices through the distinct aspect of the grade of market

competition. The low-price and parity pricing strategy are assigned to a stronger competitive environment and thus can be correlated with standard and cloud services where price-setting is dominated by benchmarking. The premium pricing and customer value strategy are assigned to a weaker competitive environment and can be correlated with individual services where price-setting is dominated by cost-plus. The interviewee makes no statements about the gradual transition from strong to weak competition. However, assigning the price bundling strategy to both conditions suggests that the transition between different price-setting practices and their correlated price-strategies is fluid. But the main indicator can be considered the grade of competition.

These interpretations regarding internal and external pricing can be summed up as follows:

- The price-setting of tailored IT solutions is made by cost-plus whereas the price-setting of standard and cloud IT services as part of a service catalogue is made by benchmarking.
- Price strategies can be assigned to different grades of competition.
- Price-setting and price strategy are reciprocally connected as each type of service indicates a pricing situation that represents a different grade of competition; thus, competition intensity determines both.

2. Critical success factors and recommendations

The identified critical success factors can be summarized to the following arguments:

- Internal cost transparency and external market transparency are essential for a good alignment of internal and external pricing and successful winning price estimations.
- A high market share lowers the risk of idle capacities, facilitates better commercial conditions from subcontractors, and thereby raises economies of scale and profitability.
- Moreover, a high market share is the premise for providing a high pricing model flexibility that offers a competitive advantage, especially in times of market consolidation.
- The holistic understanding of the business case comprising financial capabilities, negotiation skills, and customer peculiarities is essential to minimize risks on the

customer side and the provider side and optimize the long-term business relationship during phases of technological and procedural transformations.

These critical success factors pick up the diverse aspects of transparency and understanding. The awareness of their own cost structure but also the market conditions lets the IT service providers internally uncover cost drivers that might be responsible for low profitability or unsuccessful offers. Simultaneously, in a globalized world, competition determines the winning price if offers are comparable. Decreasing comparability promotes the other decision-making aspects other than price. However, if standardization in the IT environment rises, transparency increasingly becomes a critical success factor.

The interviewee insists on the high market share being one of the most important critical success factors. This must be interpreted the way that the interviewee expects a market consolidation where few big IT service providers remain and dictate market conditions. In times of automation and standardization, market entry becomes more difficult; existing smaller IT service providers cannot realize economies of scale and thus cannot survive the constant price decline. This statement rather applies to standardized and cloud services than for individual, tailored IT services. This assessment, however, shows the expectation of market consolidation in the IT services sector but also reveals the link between market share, the grade of competition, and its impact on decision-making regarding price strategy and price-setting.

4.5.4 Conclusion, correlation with the research, and implication

The conclusions drawn from the interview and its interpretation are intended to answer the research questions and put the existing research into perspective. The following table categorizes the related conclusions, illustrates their correlation with the existing research, and infers their implication for the proposed conceptual framework as follows:

Table 13: Conclusion, correlation with the research, and implication 5

No.	Category	Conclusion	Correlation with the research	Implication
1.	Managerial objective/ Critical success factor	A high market share leads to economies of scale, high capacity utilization, and increasing profitability.	Positive correlation with: <ul style="list-style-type: none"> pricing objectives specified by Oxenfeldt (1973) (2.1.1); and objectives of managerial theories (2.1.2), especially utility and growth maximization (Weinstein, 2012). 	No changes.
2.	Managerial objective/ Critical success factor	Customer satisfaction is leading to long-term business relationships and an increasing market share.	Positive correlation with pricing objectives specified by Oxenfeldt (1973) (2.1.1), especially the maximization of long-run profits, output and market share growth, market stabilization, price desensitization of the customer, and the prevention of competition market entry.	No changes.
3.	Price-setting practice	<ul style="list-style-type: none"> Benchmarking is applied to more competitive standard and cloud services. Cost-plus is applied to less competitive individual, tailored services. 	<ul style="list-style-type: none"> Positive correlation with the pricing discretion model's conclusions (2.3.1.1) by Monroe (2003). Positive correlation with the differential system of market-based and cost-allocated economic models (2.3.3.4) predicted by Rau and Willmott (2012). Cause-and-effect chain of the grade of competition and the grade of standardization of IT services with price-setting not subject to research yet, thus no correlation. 	The dependency of price-setting on the grade of competition and standardization of IT services needs to be considered.
4.	Price strategy	<ul style="list-style-type: none"> Customer value and premium pricing strategy applied in the case of weaker competition. Low-price supplier and parity pricing strategy applied in the case of stronger competition. Price bundling applied in both cases. 	Positive correlation with the competitive pricing situation, the new product pricing situation, and the related price strategies in each case (2.3.1.1) (Ingenbleek & van der Lans, 2013; Noble & Gruca, 1999).	Illustration of the correlation between the grade of market competition, respectively product standardization, and the pricing situation, respectively price strategy.
5.	Price-setting practice/ Price strategy	Price-setting and price strategy are reciprocally connected through the grade of competition of different pricing situations of service types.	The investigation of reciprocal dependencies between price-setting and price strategy is not subject to research yet. But unidirectional correlation with the dependency of price-setting on price strategy (2.3.1.2) made by Ingenbleek and van der Lans (2013) exists.	Indication of reciprocal dependencies between price-setting practices and price strategies.

No.	Category	Conclusion	Correlation with the research	Implication
6.	Pricing model/ Critical success factor	Offering pricing model flexibility is a competitive advantage of the IT service provider that provides price optimization and customer risk minimization.	The idea of flexibility of pricing models positively correlates with: <ul style="list-style-type: none"> the formula dimension in the five-dimension pricing model (2.3.2.1) by Iveroth et al. (2013), and the unit-based/use-based pricing model (2.3.3.3) picked up by Maurer et al. (2008). 	Consideration of pricing model flexibility as a critical success factor.
7.	Critical success factor/ Recommendation	The holistic understanding of the business case requires versatile capabilities like financial skills, negotiation skills, and customer intimacy.	Positive correlation with the appreciation of the importance of pricing capabilities by Dutta et al. (2003) (2.3.2.2).	No changes.
8.	Critical success factor/ Recommendation	<ul style="list-style-type: none"> A high grade of internal and external transparency is necessary to identify cost drivers and recognize market trends in time. A service catalogue facilitates benchmarking and the determination of the winning price. 	The call for transparency positively correlates with the five-dimension pricing model by Iveroth et al. (2013) (2.3.2.1).	Explicit consideration of transparency.
9.	Recommendation	Standardization of IT services and processes (automation).	The ideas of flexibility, transparency, and predictability of pricing models are reflected in the five-dimension pricing model by Iveroth et al. (2013) (2.3.2.1).	No changes.

Source: Proprietary development

4.6 Interview summary and conclusion

The findings provide new insights into the pricing managers' perspectives and highlight the key aspects with theoretical and practical pricing relevance. At this point it shall be emphasized again that each perspective is a value of its own and that a summary in a classical way would neglect elements that might appear less relevant at first sight but contribute to the whole context.

However, the main interview sessions and their interpretations enable the researcher to emphasize central aspects and thus contribute to the research objectives and questions substantially. In fact, the researcher can categorize the conclusions drawn from the interviews and their interpretations, relate them to the existing research, and infer their implications for the proposed conceptual framework. Categories are managerial objective, price strategy, price-setting practice, pricing model, critical success factor, and recommendation. Conclusions can relate to more than one category. Correlations with the existing research can be positive, negative, or non-existing.

Table 14 highlights the major conclusions drawn from the interviews and their correlation with the research in a structured way as follows:

Table 14: Overview of the conclusions and correlation with the research

No.	Category	Conclusion	Correlation with the research	Implication
1.	Managerial objective	The main managerial objective that impacts on pricing IT services is the economic business growth that combines market share and revenue growth considering the maintenance of high price levels and profitability.	Positive correlation with: <ul style="list-style-type: none"> • pricing objectives specified by Oxenfeldt (1973) (2.1.1); and • objectives of managerial theories (2.1.2), especially sales revenue, utility, and growth maximization (Weinstein, 2012). 	No changes.
2.	Price-setting practice	The most commonly applied price-setting practices are either cost-plus as a bottom-up approach or target costing as a top-down approach. Both approaches are informed by internal or external benchmarking. Cost-plus is rather applied to less competitive individual, tailored services whereas benchmarking is applied to more competitive standard and cloud services.	Positive correlation with: <ul style="list-style-type: none"> • the pricing discretion model's conclusions (2.3.1.1) by Monroe (2003), • the differential system of market-based and cost-allocated economic models (2.3.3.4) predicted by Rau and Willmott (2012), • the dominance of the cost structure (2.3.1.2) determined by Bonoma et al. (1988), and • the dominance of full-cost pricing behaviour (2.1.3) demonstrated by Lucas (2003). 	Neglect of value-based price-setting is not interpreted as an explicit contradiction to Monroe (2003) because interviewees consider value-based price strategy, thus no changes.
3.	Price strategy	<ul style="list-style-type: none"> • Customer value and premium pricing strategy applied in the case of weaker competition. • Low-price supplier and parity pricing strategy applied in the case of stronger competition. 	Positive correlation with the competitive pricing situation, the new product pricing situation, and the related price strategies in each case (2.3.1.1) (Ingenbleek & van der Lans, 2013; Noble & Gruca, 1999).	Illustration of the correlation between the grade of market competition, respectively IT services standardization, and the pricing situation, respectively price strategy.

No.	Category	Conclusion	Correlation with the research	Implication
4.	Price strategy/ Price-setting practice	<p>Internal and external pricing are reciprocally connected. The main connecting factors are:</p> <ul style="list-style-type: none"> • the grade of competition that mainly depends on the grade of IT service standardization, and • the relationship quality between the IT service provider and the customer that negatively correlates with the grade of competition. <p>Thus, the application of price-setting practices and price strategies is mutually dependent on the competitive situation.</p>	<p>The investigation of reciprocal dependencies between price-setting and price strategy is not subject to research yet. But unidirectional correlation with the dependency of price-setting on price strategy made by Ingenbleek and van der Lans (2013) (2.3.1.2) exists.</p>	<p>Indication of reciprocal dependencies between price-setting practices and price strategies.</p>
5.	Pricing model/ Critical success factor	<p>The most commonly applied pricing models are T&M, fixed price, and unit-based pricing models. The highest future potential is attributed to characteristics-based and parameter-based pricing models as they feature the critical success factors like transparency, flexibility, and predictability.</p>	<ul style="list-style-type: none"> • Positive correlation with Maurer et al. (2008) regarding the special focus on T&M, fixed price, and unit-based pricing models. • The ideas of flexibility, transparency, and predictability of pricing models are reflected in the five-dimension pricing model (2.3.2.1) by Iveroth et al. (2013). • No correlation of characteristics-based and parameter-based pricing models with research. 	<p>Consideration of characteristics-based and parameter-based pricing models, and the importance of flexibility, transparency, and predictability.</p>
6.	Pricing model	<p>Rebate and penalty elements are required to limit customers' financial risk, measure service quality transparently and stimulate consumption.</p>	<p>Rebate and penalty elements in pricing models resemble the incentive-based pricing model (2.3.3.3) identified by Maurer et al. (2008) in case the penalty element is interpreted as a negative incentive.</p>	<p>Extension of pricing models by rebate and penalty elements.</p>

No.	Category	Conclusion	Correlation with the research	Implication
7.	Critical success factor/ Recommendation	Strengthening the pricing manager's role as a pricing expert and market maven who is simultaneously a mediator for internal conciliation and an external consultant who understands the business value that a customer attributes to IT services is considered a main critical success factor and an area of practical improvement.	Positive correlation with: <ul style="list-style-type: none"> • The appreciation of the importance of pricing capabilities by Dutta et al. (2003) (2.3.2.2), and • The understanding of customer perception and evaluation is reflected in value-based price-setting by Ingenbleek and van der Lans (2013) and Nagle et al. (2017) (2.3.1.1). 	No changes.
8.	Critical success factor/ Recommendation	The perception of the introduction of a standard service catalogue that splits IT services into the smallest possible units to optimize internal price-setting as a practical process improvement is ambiguous; the effort of either rebuilding and adapting an IT provider's service portfolio to defined standards or changing a customer's IT environment for standardization purposes is sometimes considered higher than building an individual solution; anyway, the advantages cannot be dismissed either.	This idea reflects the standardization element of unit-based pricing models considered by Maurer et al. (2008) but contradicts its smooth implementation; moreover, this idea positively correlates with the five-dimension pricing model by Iveroth et al. (2013) (2.3.2.1).	Explicit consideration and emphasis on flexibility and transparency as the critical success factors.
9.	Critical success factor	Persisting customer-specific requirements in the age of standardization emphasizes the importance of flexibility.	The call for flexibility positively correlates with the five-dimension pricing model by Iveroth et al. (2013) (2.3.2.1).	Explicit consideration of flexibility.
10.	Recommendation	<ul style="list-style-type: none"> • Establishment of application criteria of convenient pricing models according to the customer situation. • Criteria: predictability, transparency, flexibility, comprehensibility, cost decrease potential, correlation with cost drivers, and risk diversification potential. 	Application criteria positively correlate with the dimensions reflected in the five-dimension pricing model by Iveroth et al. (2013) (2.3.2.1).	Consideration of the correlation between application criteria and pricing models.

Source: Proprietary development

The outcome is comprehensive, clearly structured, and generates different and refreshing perspectives. The interviewees contribute new and substantial aspects that provide a colourful picture of opinions, experiences, and ideas to all research questions. In this respect, the research was very successful.

Many conclusions can be positively related to selected pieces of research. These correlations indicate the academic relevance of these conclusions, but also illuminate the reality beyond hypotheses' verification. At the same time, non-correlating conclusions underline the explorative character and the novelty of this research.

Conclusions, references to the supporting evidence, and the implications of the conceptual framework prepare for the verification interview sequence, the subsequent discussion, and the final conclusions in Chapter 5.

4.7 Conclusion verification

The process of conclusion verification through the second sequence of five interviews of research participants 6-10 (see Table 7) is described in section 3.2.2.7 in detail. In the following, the adapted interview questions are illustrated, and the interview results are discussed per conclusion in detail. Notes made by the researcher during the verification interviews are documented in Appendix D.

4.7.1 Interview questions

According to the conclusions made in section 4.6, the researcher modifies and complements research questions for the verification interview sequence without cognitive mapping. Table 15 shows the newly formulated research questions, their reference to the conclusions in section 4.6, and their reference to the research objectives in section 1.3.

Table 15: Verification interview questions

No.	Question	Refers to conclusion (Table 14)	Refers to research objective (Table 1)
1.	<ul style="list-style-type: none"> • Would you consider economic growth (market share + revenue growth + maintenance of high price levels and profitability) as the main managerial objective that also impacts on the IT services pricing? 	1	2
2.	<ul style="list-style-type: none"> • Would you consider cost-plus and target costing (informed by benchmarking) the most common price-setting practices? • Do you see a connection to the grade of standardization or competition of an IT service? 	2	2
3.	<ul style="list-style-type: none"> • Do you see a connection between the applied price strategy and the grade of competition (e.g. premium pricing vs. low-price supplier)? 	3	2
4.	<ul style="list-style-type: none"> • Does the relationship quality between the IT service provider and the customer negatively correlate with the grade of competition? • Does the price-setting influence the choice of price strategy subject to the grade of competition or customer relationship quality? • Does the choice of price strategy influence the price-setting subject to the grade of competition or customer relationship quality? 	4	2
5.	<ul style="list-style-type: none"> • Would you consider T&M, fixed price, and unit-based pricing models as the most commonly applied pricing models? • Do you know characteristics-based and parameter-based pricing models? • Would you consider transparency, flexibility, and predictability as the critical success factors of a pricing model? 	5	2, 3
6.	<ul style="list-style-type: none"> • Can rebate and penalty elements in a pricing model limit customers' financial risk, measure service quality transparently and stimulate consumption? 	6	3, 4

No.	Question	Refers to conclusion (Table 14)	Refers to research objective (Table 1)
7.	<ul style="list-style-type: none"> Do you see the focus of the pricing manager role rather internally, externally, or both? What are his main responsibilities and are they critical? 	7	3, 4
8.	<ul style="list-style-type: none"> Do you consider a standard service catalogue for IT services a critical success factor for the improvement of the pricing process? Do you see implementation issues? 	8	3, 4
9.	<ul style="list-style-type: none"> How do customer-specific requirements relate to standard IT services? 	9	3
10.	<ul style="list-style-type: none"> Would the establishment of application criteria of pricing models depending on the customer situation improve the pricing process? Which of the following application criteria could be applied? (predictability, transparency, flexibility, comprehensibility, cost decrease potential, correlation with cost drivers, risk diversification) Do you think the conceptual framework and the practical recommendations of this research are useful? 	10	4

Source: Proprietary development

4.7.2 Interview results (Interviewees 6-10)

Conclusion 1

In unison, the interviewees confirm that economic growth, which refers to the growth of market share, revenue growth, and the maintenance of price levels and profitability, is the main managerial objective in the IT services sector. This objective influences the pricing for a specific customer situation as both, the customer requirements and the IT service provider's financial profitability need to be consistent. Thereby, an appropriate pricing offer must be able to reflect flexibility in demand where necessary and preserve profitability at the same time.

Conclusion 2

The interviewees consider cost-plus as the predominant price-setting practice. If information about customer expectations is available, target costing is the preferred price-setting practice. Both procedures are usually accompanied by benchmarking. All interviewees see a connection between the grade of standardization of IT services, the grade of competition of the relevant IT services, and the way price-setting is performed. In their answers, the interviewees mainly attribute cost-plus to individual solution requests and target costing to standardized services. Likewise, they expect standardized IT services to be under higher competition than individual services and thereby confirm the correlation between the grade of competition and standardization.

Conclusion 3

The interviewees confirm the observation that customer value and premium pricing strategy are applied in situations of weaker competition whereas low-price supplier and parity pricing strategy are applied in situations of stronger competition. Some participants attribute the grade of competition to the type of service and its grade of standardization.

Conclusion 4

The conclusion on the reciprocal relationship between price-setting and price strategy with the grade of competition and the relationship quality between IT provider and customer as the main connecting factors is partly confirmed and not rejected. The interviewees argue that in case of weaker competition due to a less standardized service scope, the relationship is more intensive as non-standardized solutions require a closer cooperation. According to some interviewees, this does not necessarily mean that the relationship quality is better. The researcher interprets that despite a different formulation, the meaning of quality and intensity in this case is the same. Furthermore, the researcher prefers the use of the term relationship quality as it also implies the provision of information about the target price by the customer.

The interviewees confirm directly and indirectly the relation between price-setting and price strategy via connecting factors like the standardization of IT services and the relationship quality. One interviewee describes the relationship as a triangle between price-setting, price strategy, and previously mentioned connecting factors that are all connected to each other. In unison, the interviewees state that a one-directional relationship that concludes price-setting from the applied price strategy was a one-sided consideration. They consider the interpretation as comprehensible that the application of price-setting practices and price strategies mutually depends on the competitive situation.

Conclusion 5

Without exception, the interviewees confirm that T&M, fixed price, and unit-based pricing are the most commonly applied pricing models in their practice. The fifth conclusion attributes the highest future potential to characteristics-based and parameter-based pricing models as they feature the critical success factors like transparency, flexibility, and predictability. Not all interviewees of the second interview sequence are familiar with

characteristics-based or parameter-based pricing models. However, the interview dialogues suggest that the pricing managers are not averse to the new pricing models. In unison, the interviewees agree that the transparency, flexibility, and predictability of pricing models are critical success factors.

Conclusion 6

The interviewees confirm that besides well-established processes, rebate and penalty elements can limit financial risks and measure quality. These elements convey a trust in the IT provider's ability to perform. As in many existing contracts, SLAs must be formulated precisely. The stimulation of consumption through rebate and penalty elements in a pricing model can neither be confirmed nor denied by the research participants.

Conclusion 7

The feedbacks on the focus of the pricing manager's role are not consistent. Some interviewees see only the internal focus of the pricing manager combined with sporadic customer contact regarding the clarification of pricing models, settlement problems, or tax issues. Others say that pricing managers have both internal and external responsibilities, and that the role's duties depend on the pricing manager's personality and expertise. The researcher notes that the area of responsibility tends to be extended to customer-oriented activities.

Likewise, the pricing manager's responsibilities are rated differently. Some limit the responsibilities to the determination of prices and the projection of profitability. Others see additional customer-oriented activities such as pricing model discussions and price negotiations as the responsibility of the pricing manager. All participants rate the role as very critical due to the far-reaching financial implications of pricing.

Conclusion 8

In unison, the interviewees confirm the criticality of a standard service catalogue for IT services. It is expected to make the pricing process easier, quicker, less error-prone, and more resource-efficient. If anything, only fragments of a service catalogue are available for standard elements such as servers, storage, and connectivity services. There is certainly the tension between delivery and sales, which on the one hand set the cost base and on the other hand the price level of the market as different points of reference. Furthermore, the

mutual acceptance in international companies is difficult due to regional peculiarities. In the end, a service catalogue cannot cover all elements of service, because the customer demand can differ in many details. However, the recommendation to implement a standard service catalogue for IT services is undisputed.

Conclusion 9

The verification interviews indicate that customer-specific requirements in the age of standardization are and will be persistent. Specific requirements are at first sight not always obvious, but every demand has its unique details. The interviewees estimate that about 80% of provided IT services are standardized. On the one hand, this assumption emphasizes the need for a service catalogue and, on the other hand, it underlines the importance of flexibility of pricing models.

Conclusion 10

The last conclusion recommends the establishment of application criteria of convenient pricing models according to the customer situation. The considered application criteria are e.g., predictability, transparency, flexibility, comprehensibility, cost decrease potential, correlation with cost drivers, and risk diversification potential. Some interviewees have concerns regarding the too extensive and expensive implementation and prefer other process optimization activities. Others see these concerns but consider the application criteria of pricing models as equally important in comparison with other pricing process improvements. However, all interviewees support this recommendation with varying emphasis on the relevant application criteria. All in all, the interviewees see the modified conceptual framework and the management recommendations as very useful for their pricing practice and expect to see further benefits from implementing the recommendations made across the organization.

4.7.3 Conclusion

The conclusion verification through the second sequence of five interviews of research participants 6-10 (see Table 6) supports the conclusions from the main interviews and the cognitive mapping process in section 4.6. The interviewees confirm that economic growth is the main managerial objective that influences the pricing process. They also confirm cost-plus and target pricing as the predominant price-setting practices. The reciprocal

relationship between price-setting and price strategy with the grade of competition and the relationship quality between IT provider and customer as the main connecting factors is partly confirmed and not rejected. The researcher sees this as approval since the connection is not obvious at first glance. In unison, conclusions regarding pricing models and penalty and rebate elements are supported. In addition, the interviewees emphasize the importance of the pricing manager's role, although the focus of the role and the associated internal and external tasks are seen differently. Recommendations regarding the service catalogue and application criteria for pricing models are considered very valuable. All interviewees believe that the modified conceptual framework correlates with all price-setting and price strategy elements and draws the right conclusions. The provided recommendations are considered as very useful for pricing practice.

All in all, the feedbacks of the verification interviews provide a more detailed understanding and a diversified picture of the conclusions made. A revision of the main conclusions summarized in section 4.6 is not considered necessary.

5 Discussion and conclusion

The previous findings chapter discusses, interprets, and verifies findings, correlates these conclusions to the existing research, and illustrates their implications for the conceptual framework. Thereby, positive correlations with the existing research indicate academic relevance, provide supporting evidence, and illuminate the reality, whereas negative correlations outline the explorative research character and the novelty of this research. This last chapter is based on these conclusions and correlations, and it has the following tasks:

1. Conclusions are related to the research questions concerning price-setting practices, price strategies, and their reciprocal dependencies (5.1.1), critical success factors (5.1.2), and pricing process improvements (5.1.3).
2. Theoretical contribution is made by discussing research correlations and their conceptual significance for future pricing research (5.2.1), implementing inferred implications to a revised conceptual framework (5.2.2), and discussing limitations that arise in the realization of this research (5.2.3).
3. Practical contribution is made by concluding recommendations concerning the role of the pricing manager (5.3.1.1), the standardization of the IT service catalogue (5.3.1.2), and a paradigm change in price-setting (5.3.1.3). Further practical contribution is made by suggesting a new and unique categorization of pricing models applied to IT services; this four-category pricing model toolbox results from the identified critical success factors and conclusions drawn (5.3.2).
4. The research résumé discusses the achievement of the self-imposed research goals (5.4.1), highlights the novelty of this research (5.4.2), and reflects on the alternative methodological research approaches and the transferability of this research approach to other industries (5.4.3).

5.1 Relating the findings and the conclusions to the research objectives

In this section, the researcher relates the conclusions from the findings chapter regarding price-setting practices, price strategies, and the identified reciprocal dependencies to the research objectives determined at the beginning of this research (5.1.1). Additionally, he discusses the critical success factors of internal and external pricing (5.1.2) and draws conclusions for pricing process improvements (5.1.3).

5.1.1 Price-setting practices, price strategies, and their reciprocal dependencies

Price-setting practices

The main price-setting practices identified are cost-plus accompanied by internal or external benchmarking. Benchmarking can serve on the one hand merely as a cross-check for the internal cost estimation. On the other hand, it can serve as a separate and independent top-down approach (target costing) detached from internal influences. A combination of both practices is considered necessary to compare a project-specific cost estimation with other internal or external projects of its kind to ensure competitiveness but also profitability. In a bid process, it is common that the customer provides feedback on the competitiveness of a given offer.

The managerial objective of showing a high utilization rate as a measure of staff productivity might be the reason for an excessive cost estimation when performing internal pricing. The previously described combination of price-setting practices can work against this tendency.

Comparing this résumé with the pricing discretion model described in section 2.3.1.1 shows that theory and practice are congruent regarding the areas of cost-informed, competition-informed, and value-informed pricing. That means that the final price ranges between the boundaries of the estimated costs as the price floor and the customer's product value perception as the price ceiling. At least in a competitive market, competition-informed pricing is applied in practice. Thereby, the competition price marks a reference point and narrows the final pricing discretion. Only in special cases, the competition price may be located below cost level. Thus, this research confirms the validity of the theoretical approach of setting the price according to the respective boundaries and reference points in practice.

Price strategies

External pricing stands for the implementation of price strategies depending on the pricing situations described in section 2.3.1.1. Price strategies applied in the IT services sector are related to the grade of competition of IT services. Therefore, other than on-demand and consulting services, standard IT services are mainly related to those strategies that are attributed to a competitive pricing situation (see Table 4). In unison, all research participants describe the winning price as the main but not the only decisive factor for a

buying decision. Thus, in the case of equal offers from a technical or service level perspective, the price strategy applied to IT services is the low-price supplier strategy. In the case that the IT service provider expects his technical solution or service quality level to be superior to the competition, the applied price strategy tends to be premium pricing or parity pricing depending on the grade of the expected predominance or standardization. The premium pricing strategy is also applicable when both, the relationship quality between the IT service provider and the customer is high, and a high and individualized service quality is expected by the customer.

Although most IT services from a standard service catalogue seem to be comparable between competitors at first sight, the research participants observe that in practice, comparability remains a misbelief as the understanding of IT services differs between the IT service providers and the customers as well. Thus, due to different understandings of service quality and information asymmetries, the exact correlation with a price strategy in the competitive pricing situation remains unfulfilled. However, it is important to note that all price strategies associated with the new product pricing situation as well as the product-line pricing situation are not applied to the external pricing of IT services in practice.

Reciprocal dependencies

The connecting factor between the application of price-setting practices and price strategies for IT services results in the grade of competition of the IT service. The relationship quality between the IT service provider and the customer is also an indication of the competition, since a good relationship is expected to prevent competition. The reciprocal relationship is as follows:

On the one hand, the more standardized an IT service is, the less cost-plus as a price-setting practice is required because standardized services do not need a new bottom-up costing for each offer. Standardized IT services rather require a benchmarking to determine the competitiveness of the price. Likewise, the more individualized an IT service is, the more individual cost-plus price-setting is required. Thus, performing a bottom-up cost-plus calculation with individual variables makes benchmarking ineffective. Benchmarking could only help if the IT service would be split into the standard and the individual part.

On the other hand, price strategies attributed to competitive pricing situations are particularly related to the grade of competition. When, due to an individualized demand, comparability gets increasingly difficult and therefore the grade of competition for an IT service remains relatively low, the IT service provider will seek to increase the price as much as possible according to the assumed value the customer attaches to the individualization. Thus, the distinctive factor in comparison to the standard IT service is the individualized service part. This distinction results in a price uplift and simultaneously in the application of a premium pricing strategy. Likewise, the application of a parity pricing or low-price supplier strategy is an indication of a higher grade of competition.

This research study finds that the cost-plus price-setting practice is reciprocally connected to the premium pricing strategy whereas benchmarking as a price-setting practice is reciprocally connected to a low-price supplier or a parity pricing strategy. Of course, these boundaries shall not be considered sharp because competition is gradual, and the transitions are fluid. However, in contrast to Ingenbleek and van der Lans (2013), who relate price-setting practices to price strategies one directionally, this research identifies the reciprocal relations. That means that the application of a price-setting practice can also be an indication of the price strategy to be pursued. The revised conceptual framework (Figure 13) illustrates this reciprocal relation. The significance of this negative correlation with the existing research for future pricing research is discussed in section 5.2.1 in detail.

5.1.2 Critical success factors

The main critical success factors identified in this research are transparency, flexibility, and predictability. These critical success factors are reflected in all subsequent discussions.

Internal and external transparency

From an IT service provider's perspective, internal transparency relates to a company's own cost estimation whereas external transparency refers to competition and market conditions. Good internal transparency can be reached by splitting IT services to the smallest possible unit to reuse this information in various situations. Thereby, efforts of cost estimation, benchmarking efforts, and response times decrease. Simultaneously, external transparency can be implemented by collecting market information either by employing experienced IT service managers who are willing and able to share their knowledge or buying up-to-date studies from market research institutions.

This approach sounds plausible in theory, but the interviewees' statements suggest a different reality. It is not only that service units in internal standard IT service catalogues are often not small and thus not universal and flexible enough to be recombined into different offers or external benchmarking data is difficult to obtain due to budget reasons or unavailability. The necessity of standardizing the IT infrastructure and its coherent processes can be more expensive than setting-up the price individually.

Pricing intelligence

What is missing is a central institution that could be a single pricing manager or a pricing intelligence department that has the authority, capability, expertise, and the overview of all pricing activities. The research outcome suggests that the previously described role is the central contact for coordination and negotiation issues. This responsibility requires a good understanding of technological and contractual requirements and a good understanding of the customer's business value that both help with understanding the evaluation criteria to determine the winning price.

Flexibility

From a customer's perspective, transparency and flexibility arise differently. The ability of booking or cancelling an IT service or at least changing the quantity of IT services ordered conveys the feeling of only paying for the capacity used and not paying for spare capacity. According to the interviewees, reality shows that customers rarely make use of this flexibility although the demand for flexibility in bids rises. Nevertheless, this demand for external transparency and flexibility requires pricing models that can satisfy this demand (see section 5.3.2). The application of unit-based or use-based pricing models especially for standardized IT services signals transparency as the customer knows exactly about the type and quantity he is paying for. Furthermore, it signals flexibility, as the customer can change the purchase quantity corresponding to his demand.

Predictability

This approach fundamentally contradicts the IT service provider's objectives of long-term capacity planning dependability, early revenue bookings, and risk minimization. A compromise would be an agreement that ensures a minimum revenue commitment that covers governance costs and a certain level of profit. Alternatively, characteristics-based

and parameter-based pricing models as the highly praised future of pricing models enable diversifying the financial risk between the providers and the customers in an appropriate way as they correlate prices with cost drivers and thereby provide transparency, flexibility, but also comprehensibility to the customer. These pricing models are attractive for situations where the standardization is either not existent or too extensive to realize.

Understanding customer motivation

The ability to convey the understanding of different functions and possibilities of pricing models to the customer is another critical success factor that supports transparency and flexibility. Stimulating this reciprocal understanding enables the pricing manager to get into an empathetic dialogue, understand the customers' business values, discuss ideas of improvement, and finally offer a suitable pricing model.

Table 16 summarizes the identified critical success factors which can be inferred from the findings in Chapter 4, allocates relevant reference points in the pricing process, names contributing factors for implementation, and infers the goals of the critical success factors.

Table 16: Critical success factors

Critical success factors	Reference points	Implementation factors	Goals
Internal transparency	<ul style="list-style-type: none"> • IT service provider's internal cost estimation 	<ul style="list-style-type: none"> • Pricing intelligence • Granular split of IT services to the smallest possible unit (IT service catalogue) • Internal process standardization 	<ul style="list-style-type: none"> • Price-setting cost reduction • Internal process optimization • Reduction of bid response time
External transparency	<ul style="list-style-type: none"> • Competition and market conditions 	<ul style="list-style-type: none"> • Process of external benchmarking data acquisition • Experienced staff 	<ul style="list-style-type: none"> • Continuous market observation • Competitiveness
Flexibility	<ul style="list-style-type: none"> • Pricing models 	<ul style="list-style-type: none"> • Pricing intelligence • Standardization of customer IT environment 	<ul style="list-style-type: none"> • Competitiveness • Quick response to changing requirements
Predictability	<ul style="list-style-type: none"> • Pricing models • Fluctuations in customer demand 	<ul style="list-style-type: none"> • Customer dialogue • Pricing intelligence 	<ul style="list-style-type: none"> • Planning reliability
Pricing intelligence	<ul style="list-style-type: none"> • Unified processes • Pricing capabilities 	<ul style="list-style-type: none"> • Pricing capabilities • Business experience 	<ul style="list-style-type: none"> • Internal cost reduction • Competitiveness • Optimize internal information flows • Influence the other critical success factors

Critical success factors	Reference points	Implementation factors	Goals
Understanding customer motivation	<ul style="list-style-type: none"> • Customer business values • Decision-makers 	<ul style="list-style-type: none"> • Pricing intelligence • Customer intimacy 	<ul style="list-style-type: none"> • Demand identification • Tailored offer • Convey understanding of pricing models • Discussion of pricing options

Source: Proprietary development

It becomes clear that some critical success factors are mutually dependent. Changes influence the pricing process at different points and thus also affect different critical success factors. The main critical success factors of transparency, flexibility, and predictability are rather abstract and depend on establishing a pricing intelligence and an understanding of customer motivations. The practical implementation of these concrete critical success factors is discussed in the upcoming sections 5.1.3 and 5.3.1.

5.1.3 Pricing process improvements

Identifying the main critical success factors leads to implications for pricing process improvements. In unison, three main factors are considered necessary to improve the pricing process directly or indirectly:

- the existence of a central pricing institution,
- a standardized IT service catalogue, and
- the simplification of the pricing process.

1. Central pricing institution

A central pricing institution is responsible for providing internal and external transparency by managing a clear internal costing process and collecting price hints and external information about market conditions. Moreover, this institution shall build the bridge to the customer and explore his value perception. The interviewees attribute this role to the pricing manager or to the pricing department. The denotation *value manager* is significant as it emphasizes value-informed pricing. However, such an institution should be able to perform the cost-informed and the competition-informed pricing approach as well. The advantages of bundling these responsibilities can be derived as follows:

-
- Information asymmetries that occur through deficient communication decrease.
 - Pricing processes can become lean.
 - Pricing capabilities rise as information concentrates at a single point.

Making this information centrally available in an institution prevents its loss in the case of personnel fluctuation.

2. Standardized IT service catalogue

As previously mentioned, a standardized service catalogue provides internal cost transparency, makes it easier to benchmark standard elements of IT services, shortens the pricing process, and thereby reduces the response time. Moreover, a standard service catalogue entails the split of IT services to the smallest possible units so that these units can be recombined to meet the customers' expectations. Simultaneously, flexible pricing models like unit-based or use-based pricing models benefit from this information base and can provide external flexibility but also transparency to the customer.

3. Simplification of the pricing process

The simplification of the pricing process goes hand-in-hand with the advantages of the previously mentioned standard service catalogue. The existence of a high grade of standardization reduces cost estimation efforts and thereby leads automatically to a simplification of the pricing process. Of course, individual IT service demands still require an extra portion of cost estimation. However, advancing the simplification through unification improves the internal pricing process and benchmarking activities as well. Establishing continuous standard benchmarking processes supports a shorter response time, an authoritative forecast of the competition price, and a general appraisal of the market situation. Simultaneously, excessive cost estimations motivated by the managerial objective of showing a high utilization rate as a measure of staff productivity might decrease gradually as cost estimators try to present themselves competitively and bottom-up costing is increasingly limited to individual demands.

The improvement of the pricing process is not necessarily limited to the internal pricing process. Leading an external price-value dialogue with the customer bursting the deficiency of being very much internally focussed shall serve to understand the customer's perspective and his motivations. Although every dialogue is as individual as the respective

customer, the pricing manager as the formal instance should guide this dialogue in a structured manner. That means that the customer and his demands and motivations might be classified according to a standardized scheme. This classification scheme enables assigning pricing models to either the customer's IT service demands, the customer profile, or the customer's progressiveness that is reflected in the grade of standardization of the customer's implemented IT processes. Of course, such attempts of customer classification and their connection to pricing models is challenging and might also represent a separate research topic.

However, at this point it is important to determine that besides the internal pricing process, also the external pricing process benefits from standardization especially regarding the price-value discussion with the customer. Strengthening the pricing manager's role as a responsible value manager, who leads a sensitive dialogue, understands the business values of the customer, discusses improvement potentials, and provides a customer-specific flexibility, is necessary when it comes to improving the pricing process.

Ultimately, all the mentioned internal and external factors of pricing process improvement are interconnected and must be considered. Nevertheless, also isolated changes in the pricing process are expected to improve competitiveness.

5.2 Theoretical contribution

Theoretical contribution is made by discussing research correlations with the existing research and their conceptual significance for future pricing research (5.2.1), implementing inferred implications to a revised conceptual framework (5.2.2), and discussing limitations that arise in the realization of this research (5.2.3).

5.2.1 The significance of the conclusions and research correlations for future pricing research

Correlations with the existing research can be positive, negative, or non-existing. The interview sessions and their interpretations in the findings of Chapter 4 enable the researcher to substantially contribute to research by making correlations with the existing research. Table 14 highlights the major conclusions drawn from the interviews and their

correlation with the research in a structured way. In the following, the researcher discusses the implication and significance of the positive, negative, and non-existing correlations for future pricing research in the categories managerial objective, price-setting practice, price strategy, pricing model, and critical success factor.

5.2.1.1 Managerial objective

The researcher concludes that the main managerial objective for IT service providers is the economic business growth that combines the market share and revenue growth considering the maintenance of high price levels and profitability (Table 14 no. 1). This conclusion positively correlates with the pricing objectives already specified by Oxenfeldt (1973) (2.1.1) and with objectives of managerial theories (2.1.2), especially sales revenue, utility, and growth maximization (Weinstein, 2012). No implication on the conceptual framework can be concluded.

The identified positive correlation between pricing objectives and objectives specified by Oxenfeldt (1973) and Weinstein (2012) can guide future pricing research in such a way that other sector-specific pricing objectives can be compared to the objectives identified for the IT services sector. Principles might then be derived by meta-analysis of several studies regarding e.g., the pricing objective-competition grade-relation. This research concludes that the objective of economic business growth correlates with the high grade of competition for mainly standard IT services. The transferability of this conclusion to other sectors should be subject to future research. This research provides a significant starting point.

5.2.1.2 Price-setting practice

The researcher concludes that the most commonly applied price-setting practices are either cost-plus as a bottom-up approach or target costing as a top-down approach. Both approaches are informed by internal or external benchmarking (Table 14 no. 2). This conclusion positively correlates with the pricing discretion model's conclusions (2.3.1.1) by Monroe (2003), the differential system of market-based and cost-allocated economic models (2.3.3.4) predicted by Rau and Willmott (2012), the dominance of the cost structure (2.3.1.2) determined by Bonoma et al. (1988), and the dominance of full-cost pricing behaviour (2.1.3) demonstrated by Lucas (2003). Although value-based price-

setting is neglected, the researcher does not interpret the absence as an explicit contradiction to Monroe (2003).

The positive correlation with the pricing discretion model with costs as the price floor and the competition price as the final price ceiling confirms its applicability in the IT services sector. However, this research also uncovers that in special cases, the competition price may be located below cost level, namely when e.g., competitors seek a higher market share irrespective of the negative impact on their profitability or the potential customer is of special interest. Consequently, future pricing research needs to verify, if the defined pricing discretion model is applicable for other sectors, and if special circumstances can cause a break of its defined boundaries.

5.2.1.3 Price strategy

The researcher concludes that external pricing, namely the determination of the price strategy, depends on the grade of competition, respectively the grade of IT services standardization (Table 14 no. 3). Customer value and premium pricing strategy are applied in the case of weaker competition and lower standardization, whereas low-price supplier and parity pricing strategy are applied in the case of stronger competition and higher standardization. This conclusion positively correlates with the relation of competitive and new product pricing situations with price strategies (2.3.1.2) as defined by Noble and Gruca (1999) and Ingenbleek and van der Lans (2013), although the correlation with the grade of market competition and IT services standardization is not explicitly depicted.

The positive correlation between price strategies and pricing situations confirms the conclusions made by the previous research and the practical relevance of pricing situations on the applicability of price strategies in the IT services sector. This confirmation can serve as a reference point for future research in other sectors that correlate pricing situations with price strategies. But also, in the fast-developing IT sector where e.g., the importance of cloud services becomes increasingly apparent, future research should investigate, if this correlation is also relevant for other situations.

5.2.1.4 Reciprocal dependencies between internal and external pricing

Based on the conclusions for internal (price-setting) and external (price strategy) pricing, the researcher interprets that internal and external pricing are reciprocally connected. The connecting factors are the grade of competition that mainly depends on whether an IT service is standardized or individual, and the relationship quality between the IT service provider and the customer. Likewise, these connecting factors are correlated with each other. In the case that the customer asks for a very standardized IT service that indicates a competitive situation, the relationship quality might represent the decisive factor if the offered price is competitive.

As a result, the application of price-setting practices and price strategies is in the first place mutually dependent on the competitive situation (Table 14 no. 4). Ingenbleek and van der Lans (2013) (2.3.1.2) correlate the dependency of price-setting on price strategy only in a unidirectional way. The investigation of reciprocal dependencies between price-setting and price strategy is not subject to their or others' research yet and can be considered a novelty in research.

The researcher's supposition of a reciprocal dependency between internal and external pricing is reflected in the second research objective formulated in section 1.3. The confirmation of this reciprocal dependency contradicts Ingenbleek and van der Lans (2013) who only demonstrate the dependency of price-setting practices on price strategies, but do not consider the opposite, namely the dependency of price strategies on price-setting practices. Moreover, they do not consider the factors that influence and thereby connect internal and external pricing.

The researcher interprets the distinct correlation between standard IT services and a stronger market competition, and between individual IT services and a weaker market competition as a correlation between price-setting practices and types of services, respectively the grade of competition. Likewise, price strategies correlate with the grade of market competition and are clearly assigned either to a stronger or weaker market competition. As a result, price-strategies correlate with price-setting practices through the distinct aspect of the grade of market competition and the grade of standardization of IT services.

This novelty of reciprocity in pricing research should characterize future pricing research and investigate the following aspects:

- product and service characteristics that impact on price-setting;
- the influence of product comparability and market competition on price-setting;
- reciprocal dependencies between price-setting and price strategy in sectors other than IT services; and
- critical factors like e.g., customer relationship quality, multi-product responsibility, information asymmetries, long-run effects, managerial objectives, and a combination of the latter that impact on price-setting and price strategy.

What becomes apparent is that general pricing research and the dominance of quantitative research leads to the inability to identify the relation of critical factors amongst each other. In contrast, this research considers the multi-dimensional reality and can inform future pricing research regarding the complexity of interrelations between e.g., managerial objectives and the grade of competition.

What should be emphasized is the finding that the relationship quality between the IT service provider and the customer is another main connecting factor that illustrates very clearly that the price strategy can also depend on the price-setting (in contrast to the conclusions of e.g., Ingenbleek and van der Lans (2013)). Indeed, a good customer relationship can reduce information asymmetries regarding e.g., target price and service qualities. Performing price-setting according to target pricing then influences the price strategy by balancing e.g., the offered price and service quality. This uncovered relationship is an example and should motivate future research to investigate comparable, unexpected factors. In the end, this approach is expected to contribute significantly to closing the theory-practice gap.

5.2.1.5 Pricing model

The researcher concludes that the most commonly applied pricing models in the IT services sector are T&M, fixed price, and unit-based pricing models. This conclusion positively correlates with Maurer et al. (2008) who also focus on T&M, fixed price, and

unit-based pricing models. The highest future potential is attributed to characteristics-based and parameter-based pricing models as they feature the critical success factors like transparency, flexibility, and predictability. The ideas of transparency, flexibility, and predictability of pricing models are reflected in the five-dimension pricing model by Iveroth et al. (2013). However, no explicit correlation with the existing research regarding the characteristics-based and parameter-based pricing models can be drawn.

Future research of pricing models should consider the characteristics-based and parameter-based pricing models focussing on their featured critical success factors like transparency, flexibility, and predictability. Research should investigate the critical success factors relevant for pricing models applied in other sectors and compare those in a meta-analysis. Moreover, the researcher concludes that rebate and penalty elements are required to limit customers' financial risk, measure service quality transparently, and stimulate consumption. Although these elements resemble the incentive-based pricing model (2.3.3.3) identified by Maurer et al. (2008), in the case that the penalty element is interpreted as a negative incentive, further research is required to extend the existing pricing models but also innovative pricing models like the characteristics-based and parameter-based pricing models by these elements.

The researcher proposes a four-category pricing model toolbox that implies the previously illustrated conclusions regarding pricing models in section 5.3.2. Future research should pick up the researcher's contribution of providing pricing model categories that can be considered as hypotheses of various combinations between the grade of pricing variability and the grade of standardization of an IT environment. These hypotheses should be subject to either quantitative or action research approaches in the future.

5.2.1.6 Critical success factors

The researcher concludes different critical success factors for pricing IT services, their reference points, important implementation factors, and goals in section 5.1.2 in detail. Correlation with the existing research is likewise versatile and exemplified in the following points:

- the appreciation of the importance of pricing capabilities by Dutta et al. (2003) (2.3.2.2);

- the understanding of customer perception and evaluation reflected in value-based price-setting by Ingenbleek and van der Lans (2013) and Nagle et al. (2017) (2.3.1.1);
- the idea of standardization reflected in unit-based pricing models considered by Maurer et al. (2008) (2.3.3.3);
- the call for flexibility reflected in the five-dimension pricing model by Iveroth et al. (2013) (2.3.2); and
- the recommendation of application criteria of convenient pricing models according to the customer's situation like predictability, transparency, flexibility, comprehensibility, cost decrease potential, correlation with cost drivers, and risk diversification potential reflected in the five-dimension pricing model by Iveroth et al. (2013) (2.3.2).

Future research should take this opportunity of identifying concrete and practical critical success factors and examine the following aspects:

- the implementation of recommendations in the pricing process,
- the interrelation of the critical success factors and their priority, and
- the significance of the critical success factors in other sectors.

5.2.1.7 Conclusion

The researcher discusses the implications and the significance of the research conclusions and their positive, negative, and non-existing correlations with the existing research for future pricing research in the categories of managerial objective, price-setting practice, price strategy, pricing model, and critical success factor. He finds out that many findings confirm the existing research statements and provide practical insights that lead to unique and new recommendations for improving the pricing process in the IT services sector. At the same time, some findings contradict or do not correlate with the research statements. The existence of reciprocal dependencies between internal and external pricing should be particularly pointed out (5.2.1.4).

All in all, the researcher concludes that besides negative or non-existing correlations to the research, positive correlations also pioneer to close the theory-practice gap by providing insights to a sector that is normally hidden behind the boundaries of confidentiality. In compliance with ethics guidelines, future research should maintain pricing research in other sectors to compare findings. Moreover, findings that lead to hypotheses concerning e.g., the four-category pricing model toolbox (5.3.2) could be validated. Non-existing research correlations like the reciprocal dependencies between internal and external pricing that lead to conclusions on influential factors like the grade of competition and the customer relationship quality could motivate to find other influential factors in the complex multi-dimensional reality of pricing.

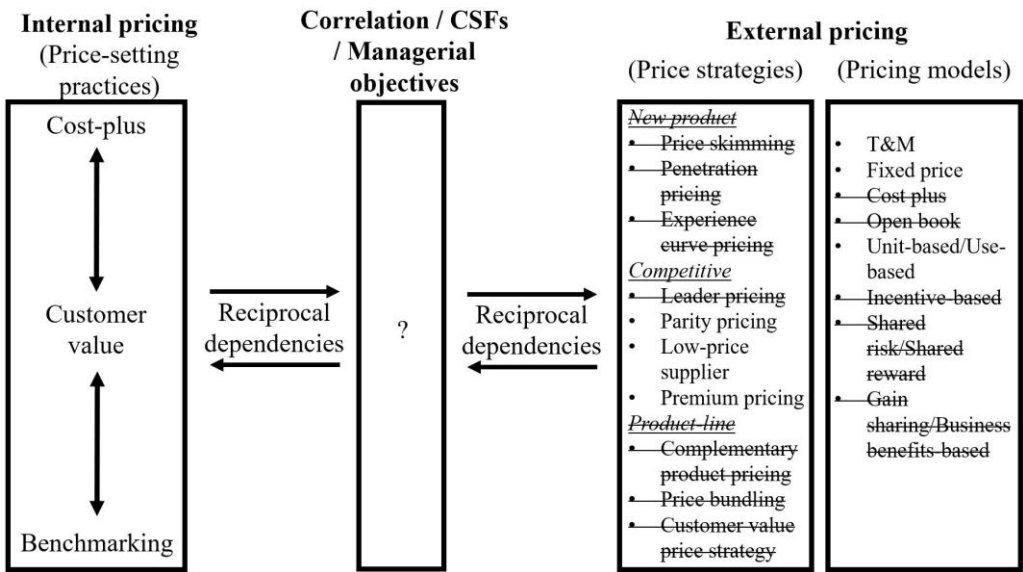
Referring to Monroe (2011) in section 2.1.3, this research shows that a paradigm change in pricing research, namely the application of descriptive and qualitative research, can be successful for creating knowledge. Future pricing research should follow this multifaceted approach.

5.2.2 Revision of the conceptual framework

The revised conceptual framework is based on the initial conceptual framework illustrated in section 2.4. The initial conceptual framework is a combination of the basic theoretical elements of previous pricing research and case-related IT services-specific practical elements (see Figure 4).

Considering the research findings and their interpretations, the researcher sees the necessity to revise the initial conceptual framework to eliminate irrelevant elements (step 1) and to visualize the reciprocal dependencies between internal and external pricing (step 2). Figure 12 illustrates the elimination of irrelevant price strategies and pricing models from the initial conceptual framework (step 1).

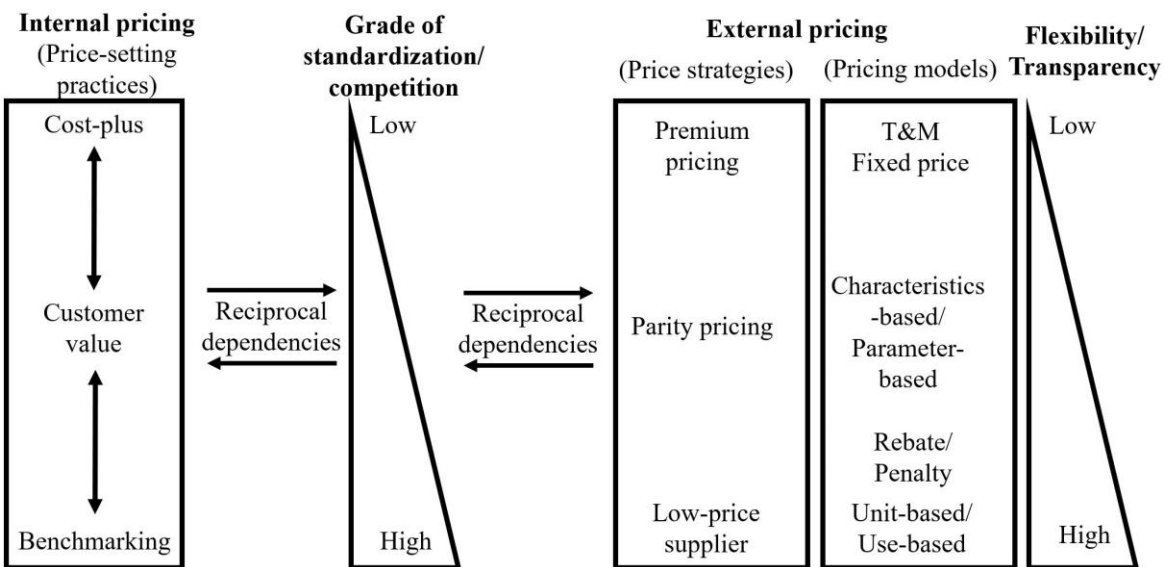
Figure 12: Elimination of irrelevant elements from the initial conceptual framework



Source: Proprietary revision of the initial conceptual framework

Figure 13 illustrates the revised conceptual framework (step 2) maintaining the original structure with internal pricing on the left side being reciprocally connected to the external pricing section on the right side that includes price strategies and associated pricing models.

Figure 13: Revised conceptual framework



Source: Proprietary revision of the initial conceptual framework

As initially shown in section 5.1.1, the researcher could identify the reciprocal dependencies between internal and external pricing of IT services. Figure 13 picks up the results and visualizes the significance of the grade of standardization of IT services and the grade of competition that both positively correlate. That means that IT services with a higher grade of standardization are by trend under higher competition and pricing pressure than individualized IT services. The application of price-setting practices corresponds to the grade of standardization, respectively competition. IT services with a high grade of competition are more easily comparable than individual IT service configurations. Likewise, their prices are rather determined by benchmarking than by a cost-plus estimation. This is also applicable for individual IT services whose prices are rather determined by cost-plus as comparability is more difficult. The transition between the two extreme poles of cost-plus and benchmarking are fluid and depend on the grade of standardization of the requested IT services and the customer value. Conceptualizing this relation between internal pricing and the grade of IT services standardization and competition is a first step towards closing the theory-practice gap in pricing research.

Focussing on external pricing, a comparable relation to the grade of competition can be observed. Thereby, the price strategy of low-price supplier is rather applied to very standardized IT services with a high grade of competition. In contrast, the premium pricing strategy is rather connected to individualized IT services that are hard to compare and where competition is low.

The main managerial objectives identified are:

- the achievement of a high profitability that results in a high margin, and
- the defence or growth of the existing market share.

But the division and assignment of a price strategy to the grade of competition is not always that distinct. In unison, the interviewees state that different IT service offerings are not always fully congruent, and some IT services are offered e.g., with a higher service quality than others. Providers know about the price sensitivity of customers but also their deficiencies of understanding and comparing all details. This leads to the application of a parity pricing strategy, although one offer might contain a higher service quality than the other offer. Even the tendency of reducing the service quality silently to the lowest

possible level but still corresponding to the respective demand can be increasingly observed.

Knowing about this general behaviour, the parity pricing strategy becomes predominant with either the one or other tendency towards premium pricing strategy or low-price supplier strategy. Therefore, the revised conceptual framework considers these three price strategies and shall be understood as on the one hand an unambiguous correlation between the extreme poles of existing or non-existing competition and the associated price strategies. On the other hand, it shall illustrate the graduation of competition in practice and the fluid transition between the price strategies, respectively their combination.

Thus, the revised conceptual framework shows the reciprocal dependencies of price-setting practices and price strategies and identifies the grade of competition as the determining and connecting factor. The integration of pricing models in the context of external pricing into the overall concept reveals the connection to the identified critical success factors and internal pricing as follows:

- The crucial critical success factors for pricing models are their transparency and their flexibility because these criteria are externally visible in the market and can be evaluated by the customers.

Depending on the grade of competition, the customers can request either a higher or lower flexibility and consequently a higher or lower transparency. Unit-based and use-based pricing models offer a higher flexibility than e.g., a fixed price pricing model. Customers can request this flexibility for highly standardized IT services as switching the provider is much easier in a standardized IT environment. Customers may also request a high flexibility for individualized IT services; however, the provider does not necessarily need to give in to this request due to weak comparability and competition. Furthermore, the provider can argue that an individualized IT service is tailored and fluctuations in use cannot be compensated due to exclusively allocated capacities.

Thus, the choice of pricing models also correlates with the grade of competition that implies the willingness to give in to the call for transparency and flexibility. Likewise, the

previously illustrated graduation of competition can be transferred to the pricing models' grade of flexibility and transparency. This conclusion is also applicable for the provision of rebate and penalty elements of pricing models. As soon as competition exists, the IT service provider needs to prove his service quality promise by providing a penalty model and his flexibility promise by providing a rebate model in the case of increasing consumption.

In a nutshell, the revised conceptual framework summarizes the identified reciprocal dependencies between internal and external pricing. Furthermore, it shows, which price-setting practices and price strategies are applied to pricing IT services in practice. Their two-way relationship, depending on the grade of competition that itself depends on the grade of standardization of IT services, is a result that confirms the researcher's assumption of reciprocity and can therefore be considered as an advance on the existing research.

Achieving research objective 2 described in section 1.3 can be considered as a major contribution to knowledge. Simultaneously, incorporating practical experiences into this conceptual framework is one step forward in overcoming the theory-practice gap, for which the existing pricing research is criticized (see section 2.1).

5.2.3 Limitations

Limitations that arise through the applied research methodology or the researcher's limited access to appropriate research participants are discussed in section 3.3.3 in detail, thus not picked up again at this point. Furthermore, focussing on a single sector might be considered disadvantageous when seeking for the identification of pricing factors that are not sector-specific. But this is not the primary aim of this research. Therefore, the case study strategy is well-considered and purposive, although conclusions for pricing in general like the revised conceptual framework (5.2.2) are beneficial for closing the theory-practice gap as well. This discussion of the boundaries is intended to illustrate the limitations that arise in the realization of this research and help with improving comparable future research.

One of the most challenging parts of performing this research successfully is finding appropriate research participants who are not only allowed and willing to participate but

who are also able to understand the research objectives and the research questions. Aiming to provide a colourful picture of opinions, experiences, and new ideas requires individuals who have the relevant background and the ability to answer specifically. Not all potential research participants who are called pricing managers or similar have the relevant professional backgrounds and can give answers to the open research questions. It seems that they are trapped in their daily work and the repetitive sequences of pricing IT projects, so that a reflection on the bigger picture is impossible. Also, in a generation of multiple choice question victims, creativity and innovation sometimes fall by the wayside. Or it might simply be that some potential participants just do not understand the research objectives as the context is complex.

However, the researcher made the experience that the individual appropriateness of a research participant could only be verified to a certain degree in advance. Although the professional background indicates the appropriateness of a research participant to a high extent, researchers performing in similar research settings are well advised to have a conversation before the proper interview and explicitly highlight the requirement of reflecting and questioning the existing pricing processes and provide new ideas. The identification of the critical success factors requires the ability to be critical and express oneself in an appropriate way.

The interviewees presented in Chapter 4 are all critical and provide new ideas for the practical improvement of the internal and external pricing processes. Moreover, their ability to reflect enables the researcher to gain a holistic view on the dependencies and influencing factors. Each of the interviewees provides respective insights and ideas. This leads to theoretical and practical contributions but also to the conclusion that more research participants might possibly lead to a more diversified picture with additional ideas.

Extending the circle of the research participants to people who only indirectly get in touch with the pricing process might be a possibility to get a more diversified picture. Additional research participants could be members of the management team who overlook multiple sales activities in parallel, know about profitability of specific customer or service types, and determine the overall business strategy. Although this knowledge is also attributed to the pricing manager role, responsibilities and standings are different in every company.

However, this approach requires a higher research capacity and might lead to a lower yield. The adequacy of the research participant remains important but is difficult to assess in advance.

Research participants on the customer side can be considered for external pricing investigations. However, aiming to gather a holistic view on the relation of internal and external pricing requires also the internal view, thus cannot solely be provided by participants from the customer side. Performing a multiple-methods approach could reject this concern but presumes a modification of the research setting and the research objectives.

After performing research, the researcher still concludes that, in an environment where few pricing managers are key players that evaluate and influence the formation of prices, a qualitative research methodology based on an interpretive epistemology is the research approach that provides the most qualitative, purposive, innovative, and efficient way to answer the research questions, considering the capacity limitations as well (also see section 3.3.3). The selection of ten highly specialized and experienced pricing managers provides a considerable variety of perspectives that contribute to knowledge significantly.

5.3 Practical contribution

This section refers to the previously concluded practical contributions resulting from the research findings and their interpretations and discusses concrete managerial recommendations. The researcher proposes a pricing model categorization that restructures the existing pricing models of IT services that become evident in the findings and explains its relevant practical but also theoretical contributions. A discussion on the significance of these management recommendations completes this section.

5.3.1 Management recommendations

What emerges in the findings chapter is that, in unison, the research participants consider the role of the pricing manager as a critical success factor. Ignoring a possible self-adulation that reflects the irreplaceability and the versatile capabilities associated with this role, the researcher considers the following recommendations valuable for improving the internal and external pricing process significantly.

5.3.1.1 The role of the pricing manager

Irrespective of capacity issues, the role of the pricing manager needs to be defined clearly regarding the internal and external responsibilities. Internally, it needs to be clarified to what extent the pricing manager enters the solution and costing process. Externally, it needs to be questioned, whether a pricing manager simply explains the pros and cons of different pricing models to the customers or also acts as a distinctive negotiator in hard price negotiations.

In either case, the pricing manager needs to find a balance between understanding the technological solution, its related cost drivers, and profitability impacts on the one hand, and the customer motivation, the assessment criteria of IT services, and the customer's business value on the other hand. Undoubtedly, the pricing manager has a coordinative function and needs to keep track of the whole pricing process. High capabilities in financial understanding and risk evaluation combined with a customer-oriented managerial appearance are assumed.

In the case that the pricing manager is not the sole point of contact, it needs to be ensured that information flows are standardized according to a pre-defined process. The exchange of ideas among different disciplines like technical, financial, legal, and sales regarding the internal and external risk evaluation, customer motivation, or competition approach is essential for a good coordination that shall provide transparency and a holistic view.

5.3.1.2 Standardization of the IT service catalogue

Besides the pricing manager's role that is considered a critical success factor, the standardization of IT services and their price-setting is an area with practical improvement potential. Thereby, it shall be stated that an exaggerated standardization of IT environments is unlikely as its implementation might often be unprofitable. However, a pricing manager should be seeking to establish a standard IT service catalogue and set an internal structure that enables to make versatile IT service combinations, benchmark prices easily, and react quickly to requests for quotation. Depending on the individual requirement and its grade of standardization, this IT service catalogue facilitates in providing internal and external transparency. What is important in the process of

standardizing the IT services portfolio is splitting IT services into the smallest possible unit. Nevertheless, every company should perpetuate enough capacity to respond to individual IT services.

5.3.1.3 Paradigm change in price-setting

Another very important practical contribution of this research and a strong managerial recommendation is a paradigm change in pricing. Although it seems incredible, the main price-setting approach applied in practice is cost-plus. A strong recommendation would be a paradigm change towards *market makes price, not cost*. This research shows that in practice, price-setting is informed by both, cost-plus and – in the case that the customer relationship quality is high – also target pricing. But cost-plus remains an inherent part of price-setting.

As in a competitive market, the customer usually does not communicate the winning price, cost-plus helps with determining the profitability. Simultaneously, target costing is impossible as the competition price is also unknown. If no price indication is available, the DevOps practice described above is recommended (see section 4.2.1). The IT service provider needs to test the winning price-value combination by lowering the price until a bid is successful. Thereby, the pricing manager can challenge internal costing, determine the current market price, and possibly predict the winning price for upcoming deals. Learning the hard way might lead to a less profitable deal in the short term. However, knowing about the current market price in an industry where price lists are non-existent or easily accessible probably leads to higher prospects of success in the long term.

5.3.2 The four-category pricing model toolbox

The findings chapter illustrates the plurality of known pricing models applied in the IT services sector and discloses that in some cases different notations of pricing models describe the same functionality. Using a different diction makes communication internally difficult across departments and externally difficult towards the customer. The research participants having professional experience in the same industry confirm this non-transparency.

Categorizing pricing models in a revised way shall contribute to the simplification in practice but also as a base for consistent future research. Figure 14 illustrates the four-category pricing model toolbox.

Figure 14: The four-category pricing model toolbox

<p><i>fixed/self-contained</i></p> <p>Fixed price</p>	<p><i>variable/independent</i></p> <p>Unit-/Use-based</p> <p>T&M Pay-as-you-go Ticket-based</p>
<p><i>variable/self-contained</i></p> <p>Characteristics- /Parameter- based</p> <p>Service catalogue</p>	<p><i>extension</i></p> <p>Bonus/Penalty</p> <p>Incentive Discount</p>

Source: Proprietary new categorization of pricing models

The researcher arranges IT services pricing models into four categories that either can stand alone or be combined with other categories. What distinguishes the pricing models is firstly their variability and secondly their independence:

1. A fixed price pricing model includes a rigid agreement that determines the scope of IT services, its price, and its runtime. A fixed price might also be agreed on for a project like a transition from another provider or a transformation of internal processes and technologies of IT services irrespective of the applied pricing model during normal service provision. The fixed price pricing model is not variable and can only be applied in the context of an IT service environment that is self-contained.
2. In contrast, a unit-based pricing model is variable as it provides flexibility in consuming varying volumes. The provider cannot foresee the volume development, but the customer is able to manage the IT services according to his demand. In the

case that the provider manages the variability of the IT services that are utilized, the service is called *managed service*. But what distinguishes this category from the fixed price category is not only the grade of variability but also the independence from the integration in a self-contained IT service environment. That means that e.g., a unit-based pricing of a cloud storage IT service can be utilized without ordering the whole package of an IT environment with physical servers, firewalls, and storage. This service can be ordered in one month and terminated the next month without contracting long-term agreements and being dependant on a tailored IT environment.

3. The third category of this pricing model toolbox is represented by characteristics- and parameter-based pricing models. This category is based on cost drivers that can be e.g., the complexity of an application or technology, the number of users, or the number of supported languages by a service desk. Depending on the respective cost driver, characteristics- and parameter-based pricing is comparably variable like unit-based pricing. What makes the difference is the necessary integration in a self-contained IT environment with pre-defined and individual cost drivers.
4. The fourth category is the bonus-penalty category. This pricing category cannot stand alone but shall be understood as an extension to the first three pricing model categories. It serves as financial motivation for the IT service provider to deliver according to the agreed service level agreements and signalize the belief in his service quality capabilities. Of course, this extension can also motivate the customer to fulfil his obligation to cooperate in the case that this is agreed on.

What makes this categorization unique and practical is its clear correlation with the respective combination of aspired pricing variability (fixed or variable pricing agreement) and the grade of standardization of an IT environment (standardized/independent or non-standardized/closed). The following hypotheses reflect these unambiguous combinations:

1. A fixed pricing agreement combined either with a standardized or non-standardized IT environment favours a fixed price.
2. A variable pricing agreement combined with a standardized IT environment favours a unit-price model.
3. A variable agreement combined with a non-standardized IT environment favours characteristics-based pricing.

The researcher contributes to future research by providing pricing model categories that simultaneously represent hypotheses of various combinations of the grade of pricing variability with the grade of standardization of an IT environment. These hypotheses could be subject to either quantitative or action research approaches in the future.

Practically, the simplicity of the categorization could help explain the advantages and disadvantages of the pricing models to the customers and to the internal stakeholders of the IT service provider while appreciating the purposeful selection and application of complex pricing models.

5.3.3 The significance of management recommendations

The different management recommendations result from the interpretations and conclusions of the individual interviews illustrated in the findings (4). They become manifest in relating the findings and conclusion to the research objectives (5.1) and illustrating the concrete practical contributions (5.3).

The researcher emphasizes three areas where he sees implementable contributions to practice, namely the role of the pricing manager (5.3.1.1), the standardization of the IT service catalogue (5.3.1.2), and a paradigm change in price-setting (5.3.1.3). Likewise, the proposition of the four-category pricing model toolbox (5.3.2) also contributes to further transparency in practice by giving pricing managers the possibility to form a pricing agreement between the IT service provider and the customer that considers the demand for pricing variability according to the grade of standardization of an existing or aspired IT environment.

In the end, these management recommendations resulting from this research are intended to diminish the theory-practice gap in pricing (2.1). Recapitulating the essential outcome of the theory-practice dialogue, the researcher determines the inability of capable researchers to overcome the theory-practice gap, although they identify the necessary steps for more realism in pricing research (2.1.3). Subjects of debate are e.g., unrealistic assumptions of pricing models and their empirical validation, the inability of pricing models to realistically describe pricing decisions, the lack of descriptive research that can create knowledge about

the decision process, and the complexity of real world pricing that requires a differentiated approach emphasizing the identification of the factors that influence pricing behaviour.

In contrast to the existing pricing research, this research and especially the presented management recommendations pick up these identified deficiencies and subjects of debate as follows:

- The emphasis of pricing manager capabilities and a clear definition of the role regarding internal and external responsibilities correlate with healing the aspects of information asymmetry and the availability of cost information (2.1.3). This managerial recommendation is deduced from the conclusions on the critical success factors like the identification of internal and external transparency as well as pricing intelligence (5.1.2). This recommendation is significant because it considers the relevant subjects of theoretical debate by capable researchers and translates them to practice.
- The call for a standardization (IT service catalogue) is derived from the conclusions on the critical success factors like internal and external transparency as well as flexibility that customers and pricing managers ask for. Aspects of the theory-practice dialogue like information asymmetry and the dominance of cost structure (2.1.3) correlate with this managerial recommendation. This relation to the existing research gives meaning to the suggestions for practical improvement and shows the relevance of the conclusions made by this research.
- The recommendation for a paradigm change in price-setting towards *market makes price, not cost* reflects the identified critical success factors of internal and external transparency, flexibility, and the understanding of customer motivations and the value assigned to IT services. The correlation between this managerial recommendation and research by e.g., Monroe (2003) regarding the pricing discretion model's conclusions (2.3.1.1) and Rau and Willmott (2012) regarding the differential system of market-based and cost-allocated economic models (2.3.3.4) underlines the significance of this theory-practice bridge.
- The proposition of the four-category pricing model toolbox (5.3.2) contributes to transparency in practice by giving pricing managers the possibility to form a tailored pricing agreement according to the grade of standardization of an IT environment. The healing of many aspects of the theory-practice dialogue like the

realism of assumptions, empirical validation, and especially the objectives of price-setting (2.1.3) are reflected in this recommendation. This pricing model proposition is therefore a significant approach to overcome the theory-practice gap. Moreover, this four-category pricing model toolbox formulates hypotheses that can be questioned and implemented by future research activities to contribute to knowledge.

In the end, these managerial recommendations are all significant because they consider the call for more realism in research. These recommendations overcome the theory-practice gap by providing practical advice that concurrently correlates to subjects of debate in research.

5.4 Research résumé

The research résumé reflects on the achievements of the self-imposed research objectives, the novelty of this research, and the conceptual orientation of future pricing research.

5.4.1 Reflection on the achievements of the research objectives

This research seeks to understand the internal price-setting process, the related critical success factors, and the reciprocal dependencies between price-setting and price strategies in the IT services industry. The motivation for this research can be attributed to the academic theory-practice dialogue that reveals a gap between the theoretical perspectives and the practical application of pricing. Expecting a significant contribution to knowledge by performing an interpretive approach, the researcher uses his professional experiences and reputation to gain access and interview the few pricing managers available for IT services at eye level.

This thesis critically illustrates and analyses relevant pricing research focussing on both, the academic theory-practice discussion as well as its practical importance for pricing IT services. Thereby, the researcher conveys a fundamental understanding of price theories to transparently carve out the rather unapparent theory-practice dialogue that emphasizes the discrepancy between the isolated focus of the research on a few variables and the multi-dimensional reality in practice.

The identification of the grade of competition as the main connecting factor between price-setting practices and price strategies, indicating the reciprocal dependencies, contributes to the research by providing a change of perspective away from a one-way relationship as supposed by previous research. As the exploration of reciprocal dependencies is not yet subject to research, this approach gives new impulses to future research.

The dialogue with experienced pricing professionals focussing on IT services enables identifying transparency, flexibility, and predictability as the critical success factors of pricing IT services. This leads to recommendations for practical improvements that focus on the clear definition of the pricing manager role, the standardization of IT services documented in a service catalogue, and a paradigm change of price-setting towards benchmarking.

The provision of an innovative four-category pricing model toolbox contributes in equal measure to theory and practice by providing a new categorization that considers the identified critical success factors of transparency, flexibility, and predictability. Each category reflects a combination between the aspired variability of a pricing agreement and the grade of standardization of the respective IT environment, and thereby implicitly formulates new hypotheses that could be subject to future research.

Ultimately, the research goals (1.3) are achieved and a step towards closing the theory-practice gap is made. The researcher believes that this thesis balances the area of conflict between academic research and practical relevance that is also reflected in the theory-practice gap of pricing research. Since research should not be an end in itself, future pricing research should consider its practical relevance and focus accordingly without denying its aim of identifying principles and formulating theories.

5.4.2 The novelty of the research

Looking retrospectively at this research, the researcher meets his claim to contribute to knowledge significantly and provide an original approach that shall also serve future pricing research to break new grounds. In the following, the researcher retrospectively reviews the aspects of novelty formulated in section 1.4 regarding their significance for this and future research:

1. The new illustration and analysis of the theory-practice gap of pricing research uncovers details and proves the existence of the decision-making deficiencies of fundamental pricing theories regarding their practical applicability (2.1.2). This novelty can serve future research as a reference as the analyses are not sector-specific. Additionally, the analysis of the theory-practice dialogue (2.1.3) reveals the diverse attempts of capable researchers to overcome the theory-practice gap and the subjects of debate. The correlation between the conclusions and these controversial subjects serves as supporting evidence to illustrate their significance for academic research.
2. The implemented paradigm change in this pricing research from a common quantitative towards an innovative qualitative methodological approach serves to answer the exploratory research questions appropriately to gain insight into the IT-specific critical success factors of internal and external pricing. Indeed, the findings like e.g., the practical importance of pricing intelligence, the differentiation between the consequences of standardized and individual IT services, and the reciprocal dependencies between price-setting and price strategy would not have been possible as previous research does not indicate any of them. Thus, this epistemological paradigm change reveals the conclusions that were undiscovered so far and contribute to knowledge significantly.
3. The call for more descriptive pricing research by e.g., Monroe (2011) (2.1.3) emphasizes the importance of creating knowledge about the real decision process and heuristics used by managers and buyers. Releasing descriptive research from the role as the unwanted stepchild of academic research makes it acceptable and legitimate for knowledge development. This can help to understand under which circumstances an existing pricing model is applicable and identify which structural deficiencies these models have. Retrospectively, this call is justifiable because this research proves that, in the end, only experienced managers can give hints about the significance and applicability of pricing models. Moreover, in the IT services sector, practitioners can indicate the upcoming requirements to pricing model characteristics due to technological changes, trends, and behavioural aspects. In a nutshell, the descriptive side of this research enables to e.g., understand motivations and relations, develop a new, realistic, and utilisable pricing model categorization (5.3.2), and generate new hypotheses that can lead to new and universal theories in

future pricing research. This research questions the uncritical reliance on the economic paradigm, considers practical diversity, and is therefore able to overcome the theory-practice gap.

4. Broadening the view of a one-way relationship of price strategy predicting price-setting to a two-way relationship and identifying the reciprocal dependencies puts the existing research into perspective. Already the formulation of the second research objective (1.3) contradicts the existing researchers like Ingenbleek and van der Lans (2013) and breaks new ground. The conclusions supporting this new perspective (discussed in 5.1.1) as well as their significance for future research (5.2.1.4) reward the courage of seeing things differently and confirm the novelty of this research.
5. The diverse practical recommendations deduced from the interviews with experienced pricing professionals from the IT services sector (5.3) represent a significant practical contribution that could not be made by pricing research yet. The successful ambition of identifying the critical success factors of pricing IT services (5.1.2) supports the overcoming of the theory-practice gap and confirms the researcher's claim to research innovation.

5.4.3 Conceptual orientation of future pricing research

The researcher discusses the significance of the conclusions and research correlations for future pricing research in section 5.2.1 in detail. However, he can also imagine a different conceptual orientation of future pricing research with different epistemological backgrounds. Thereby, the conceptual orientation of future pricing research could be informed by two different streams:

- Performing an epistemologically comparable research approach in different sectors enables identifying sector-specific and sector independent dependencies between internal and external pricing by subsequent meta analyses. Besides this theoretical contribution, this stream can also contribute to sector-specific practical improvements.
- Separate elements of this research could be part of research approaches with a different epistemological foundation. The researcher can imagine that e.g., price-setting practices could be subject to action research. Based on a different epistemological background than this research, an action research approach could

attend a company's internal change process of implementing price-setting practices when realizing the previously described IT services standardization. The researcher can also imagine a mixed-methods research approach that combines a qualitative research approach for hypotheses formulation and a subsequent quantitative research approach for testing purposes. This approach can even be considered in reverse order as the researcher is of the firm conviction that progress in research can only be achieved by unorthodox approaches.

In the end, the researcher believes in this research setting and is enthusiastic about the contribution to knowledge by answering the research questions and driving a paradigm change in pricing research.

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Appendices

Appendix A The philosophical debate

The discussions of philosophers mainly concern their different ontological and epistemological positions. Their different views of the world and underlying assumptions lead to different research methodologies, which might not be accepted by researchers with different ontological and epistemological backgrounds. Easterby-Smith, Thorpe, Jackson, and Jaspersen (2018) report a lack of researchers' consciousness of methodological fundamentals, realizing that many researchers just follow the tradition of either their teachers or their scientific areas. Therefore, the researcher takes the opportunity to clarify the essential terminology and reflect on the fundamental ontological and epistemological streams to be able to position his research strategy, its limitations, and reflect on new thought-provoking impulses.

Particularly, regarding the predominant research methodologies applied in pricing research, the researcher sees the necessity to pick up and explain the extreme ontological and epistemological positions to pricing researchers so that they can step out of their unilateral tradition and understand a different methodological perspective and its contribution to create knowledge. Researchers without expertise on the pricing topic should understand the different focusses of methodological approaches and their importance for overcoming the theory-practice gap of pricing research.

Ontology

The term ontology describes the philosophical assumption about the nature of reality. Moses and Knutsen (2012) call ontology the most abstract of the three musketeers of metaphysics beside epistemology and methodology. It means "the study of being – the study of the basic building blocks of existence" (p. 5) and basically asks about the composition of the world. As the world can be perceived in contrasting ways, there is no unique ideology that describes the world best. The variety of philosophies, points of view, and descriptions of the latter can be seen in the inconsistent terminology used by different authors for describing the same categories of ontologies and epistemologies.

The two extreme antithetic points of ontology in literature represent either the standpoint of realism or nominalism.

Realism (objectivism)

Realism assumes a single truth, which can be revealed. Traditional positions of realism emphasize the world as being concrete and external. As typical for natural science, this position considers that research can only be made through direct observations of the phenomena. Realism in social sciences assumes that social phenomena and their meanings have an existence, which is independent of the external influence of social actors. Bryman and Bell (2015), who use a different terminology for realism, namely *objectivism*, describe e.g., culture from an objective perspective as “repositories of widely shared values and customs into which people are socialized so that they can function as good citizens” (p. 21). That means that the values and beliefs of cultures are internalized by their actors and thus can be considered as existing, external reality. The same applies for an objective/realistic point of view of an organization. Although different hierarchies or procedures exist in different organizations, the individual within this organization perceives this environment as a given and external social order and complies with the rules and collective aims.

A newer position of realism, namely the transcendental realism, emphasizes that objects of scientific research and their mechanisms are independent of scientific activity, thus exist regardless of human access to them (Bhaskar, 1989). What unifies these realist positions is the objective view that assumes reality to be external and objective.

Nominalism (subjectivism)

The other extreme antithetic point of ontology is nominalism. Nominalism, as stated by Easterby-Smith et al. (2018), assumes that there is no single truth but that facts are all created by humans themselves. Within social science, the position of nominalism argues that reality is a creation of people, especially through language and speech (Cunliffe, 2001). This position suggests that events are evaluated from a subjective point of view, so the individual labels and names his experiences. Bryman and Bell (2015) use a different terminology for nominalism, namely *constructionism* as the other extreme antithetic point of ontology. Constructionism means that social phenomena and categories are social constructions being continually accomplished by social actors. That means that individuals

have an active role in the creation of their social reality and as situations change, people need to rethink their understanding of social phenomena and reflect on their categorizations, thus they are in a constant state of change.

In a more extreme view of constructionism as part of the discussion in postmodernism, the researcher can only present a specific and individual version of social reality, not a definitive one, thus even neglects a point of reference that implies a certain level of an objective reality.

The world is not ready categorized by God or nature in ways that we are all forced to accept. It is constituted in one way or another as people talk it, write it, argue it. ...To judge whether a description was mirroring or constructing reality requires the description to be compared to reality. Yet reality ... cannot enter this debate except as another description, which would beg the question of whether this new description is itself descriptive or constructive. (Potter, 1996, p. 98)

The split between viewing the social world, on the one hand, with at least a structure that can be considered as an objective reality and, on the other hand, as a subjective reality in an ongoing process of change shows that even the ontological position of constructionism, respectively nominalism, has a broader horizon of variation and reflects the clashes of different philosophies.

Epistemology

Epistemology denotes the philosophical study of knowledge and deals with the question of what can be considered as acceptable knowledge in a field of study. As the extreme ontological positions of either objectivity or subjectivity embrace the bandwidth of ontological philosophies, so do the extreme epistemological positions. Consequently, a link between the (ontological) attitude of seeing the world and perceiving reality and the (epistemological) way of acquiring acceptable knowledge can be established.

Positivism

According to Bryman and Bell (2015), positivism is an epistemological position that advocates the application of scientific methods also to the studies of social reality.

Positivism assumes that phenomena and knowledge can only be considered as a secured state of knowledge if they are perceivable by the senses. Additionally, science needs to be free of value, namely objective rather than being inferred subjectively. The link to ontological realism and thus the assumption of the existence of an external reality is apparent.

Positivism comprises both, elements of deductive and inductive research approaches. A deductive research approach is characterized by generated hypotheses that are tested, whereas an inductive approach builds up knowledge by collecting facts, which then provides a basis for formulating laws. As observations are made and data is collected either prior to formulating and testing a hypothesis or a hypothesis is tested with regard to its validity by making observations, both approaches are conceivable from a positivist perspective. Easterby-Smith et al. (2018) describe causality as one aim of positivism meaning that social sciences shall lead to causal explanations and fundamental laws explaining systems in human behaviour. Thus, reducing a problem to its basic elements can lead to a better understanding (reductionism). This approach completed by a quantitative measuring of selected random samples of a sufficient size might lead to an identification of a structure or principle with absolute validity.

Realism

Realism shares two characteristics with positivism. Firstly, they share the assumption that an external reality exists, which is independent from the researcher's impression. Secondly, realists share the belief that researchers in natural and social sciences shall both apply the same approach for collecting and explaining data. The realist approach is distinct from the positivist approach in the way that realists acknowledge that the conceptualization is a provisional way of knowing reality whereas positivists believe that scientific concepts directly reflect reality (Bryman & Bell, 2015; Saunders et al., 2015).

Saunders et al. (2015) distinguish between two major forms of realism, namely direct realism and critical realism. Direct realism assumes that experiences can directly be made by the senses, thus reality can be understood accurately. Critical realism, in contrast, accepts that reality is an individual sensation that employs provisional categories (Bryman & Bell, 2015). The evolution from empirical realism to critical realism is in the end the awareness that critical realists are conscious of the difference of, on the one hand, the

existence of the phenomena and, on the other hand, the way of describing and explaining those phenomena. Unlike positivists, critical realists are conscious of the imperfection of their explanations of reality and accept the imperfect terms and concepts (Bhaskar, 1989).

Interpretivism

Interpretivism represents a contrasting view to positivism and arises from criticism to the application of the scientific model to the social world. The interpretivist position sees that the subject matter of social sciences, namely people and organizations, is different from the subject matter that natural science deals with. Consequently, the study of the social world requires a logical approach which respects the differences of people in contrast to objects of the natural sciences and thus captures the idea of the subjective meaning of social action (Bryman & Bell, 2015).

Interpretivism is influenced by different intellectual traditions: Weber's notion of *Verstehen*; the hermeneutic-phenomenological tradition; symbolic interactionism.

Hermeneutics is a theological term transferred to social sciences that deals with the understanding and interpretation of human behaviour. In contrast, positivism puts the emphasis on explaining human behaviour. So, interpreting human behaviour is rather an empathic act of understanding than explaining the mechanisms behind it.

In his *Verstehen* approach, Weber (1947) describes sociology as a "science which attempts the interpretive understanding of social action in order to arrive at a causal explanation of its course and effects" (p. 88). The emphasis is put on the interpretive understanding of social action rather than the causal explanation.

Phenomenology is a philosophy that deals with the way that humans make sense of the world and how philosophers should eliminate their prejudices about understanding the world (Bryman & Bell, 2015; Saunders et al., 2015). The crucial point of phenomenology is the fact that social reality has a meaning for humans, and as human action is meaningful, humans act according to their interpretation of their and others' actions. Consequently, the social scientist needs to access people's thinking and interpret their actions from the people's point of view.

Another major intellectual influence on interpretivism is symbolic interactionism, a theoretical tradition in sociology. Symbolic interactionism describes a continual process of interpreting the social world where people interpret the symbolic meaning of other people's behaviour and adjust their own behaviour accordingly. So, the position of symbolic interactionism requires the researcher to catch the process of interpretation by which social actors construct their actions.

Easterby-Smith et al. (2018) use a different terminology for the interpretive epistemological approach, considering people having different experiences and reacting differently in the social context, namely social constructionism. The position of social constructionism as an interpretive method emphasizes the idea that people make sense of the world by sharing their experiences through the medium of language. To adopt an empathetic stance, the researcher needs to understand the ways of communication, verbally or non-verbally, to appreciate different meanings and constructions that people place upon their experience. Furthermore, Easterby-Smith et al. (2018) distinguish between constructionism and strong constructionism. Normal constructionists construct their own knowledge and accept the existing independent and objective knowledge. The strong constructionist position makes no difference between individual and social knowledge.

The finely graduated differences of epistemological positions impact on the way that research is performed regarding the research aims, research designs, analytical methods, and research objectives. Accordingly, drawing a clear line between different epistemological positions requires finesse.

Methodology

The term methodology describes the ways that knowledge can be acquired. The question "how do we know" (Moses & Knutsen, 2012, p. 5) emphasizes the exploration of theories, concepts, and principles of reasoning. M. Crotty (1998) identifies the term methodology more precisely as the description of a research strategy or plan of action, and as a "research design that shapes our choice and use of particular methods and links them to the desired outcome" (p. 7). It is important to point out that methodology is not a synonym for the term method. Method describes concrete research techniques and the means of data collection whereas methodology is rather a theoretical analysis of the underlying philosophical assumptions to understand which research strategy fits best for a specific

case. Thus, methodology can be a synonym for research design in conjunction with research strategy.

Research design – quantitative and qualitative

Apart from the fact that quantitative researchers use measurement (numerical data) and qualitative researchers do not (non-numerical data), according to Bryman and Bell (2015), there are deeper differences to the designs than just the presence or absence of quantification. Quantitative and qualitative research is considered to have different epistemological and ontological foundations and differences in other aspects as well.

Quantitative research

Pure quantitative research has its ontological orientation towards objectivism. It incorporates the practices and norms of natural sciences; epistemologically, it follows positivism in particular (Saunders et al., 2015). Quantitative research based on objectivism builds in protections against bias. In addition, alternative explanations are sought in order to generalize and replicate results. Creswell and Creswell (2018) characterize quantitative research as an approach that tests objective theories by examining the relationship between variables, which can be measured so that numerical data can be analysed using statistical methods.

In the relationship of theory and practice, a deductive approach is conducted. This means that the researcher puts an emphasis on testing his theoretical considerations and what is known about a domain, and then formulates a hypothesis. This hypothesis needs to be scrutinized empirically. In particular, a “social scientist must both skilfully deduce a hypothesis and then translate it into operational terms” (Bryman & Bell, 2015, p. 11). This means that the researcher must specify how to collect data in relation to the concepts of his hypothesis. After confirming or rejecting a hypothesis, in a last step, the researcher must infer the implications of his findings to a theory. This opposite direction of the *deduction* process is called *induction*. At the end of a very linear deductive process of quantitative research, the inductive process leads to a replenishment or expansion of knowledge and the related theory.

Qualitative research

Qualitative research has an ontological orientation towards subjectivism. It rejects the practices and norms of the scientific model and particularly positivism as an epistemological perspective. More likely, pure qualitative research has the epistemological position of interpretivism (Saunders et al., 2015). It prefers the emphasis of observing the ways that people interpret their social world. Social reality is considered a constantly shifting creation of individuals (Bryman & Bell, 2015), and as previously described, this creation is made mainly through language and speech. Thus, qualitative research is a research design that emphasizes words more than numbers when collecting and analysing data.

In opposition to quantitative research, qualitative research has an inductive approach with a focus on theory generation. The process of induction aims to draw generalizable inferences out of observations (Bryman & Bell, 2015). The inductive process also comprises deductive elements. Once the researcher has reflected on the obtained data, he may want to establish conditions under which the collection of further data may confirm or reject his theory. This iterative approach is a back and forth between theory and data creation. In the end, induction is an alternative approach linking theory and research.

Mixed-methods research

The previously described deductive and inductive research approaches shall be understood as tendencies rather than hard distinctions. Studies that mainly have characteristics of one research design may also comprise elements of the other research design. Zachariadis, Scott, and Barrett (2013) use the terminology *mixed-methods-design* for the quantitative-qualitative mix whereas the combination of either quantitative or qualitative designs is called *multiple-methods*.

From an ontological and epistemological perspective, quantitative and qualitative research designs are incompatible (Robson, 2011) and bring up several dilemmas like what topic to focus on and which data to include (sense-making dilemma), emphasizing only facts or also conveying the researcher's voice (representation dilemma), how research legitimates itself (legitimization dilemma), and the ethical dilemma (Kelemen & Rumens, 2008).

The adoption of a mixed-methods research design, although increasingly popular, can lead to difficulties, especially because researchers traditionally favour either the quantitative or the qualitative approach. Thus, they are influenced in both, their philosophical imprint and their limited ability and skill, applying different designs and methods from both traditions. New researchers might get over this philosophical and consequently methodological dissent by studying both approaches (Robson, 2011).

Research strategy

The term research strategy in the style of Saunders et al. (2015) stands for the plan, which describes the researcher's approach of answering his research questions. Consequently, every research strategy is associated with either a more positivist or a more interpretivist epistemological background. Different research traditions have led to diverse possible research strategies of which the most common are e.g., experiment, survey, action research, archival research, co-operative inquiry, ethnography, phenomenological research, narrative research, case study, and grounded theory.

Appendix B Raw version of cognitive maps

Figure A1: Raw version of cognitive map 1

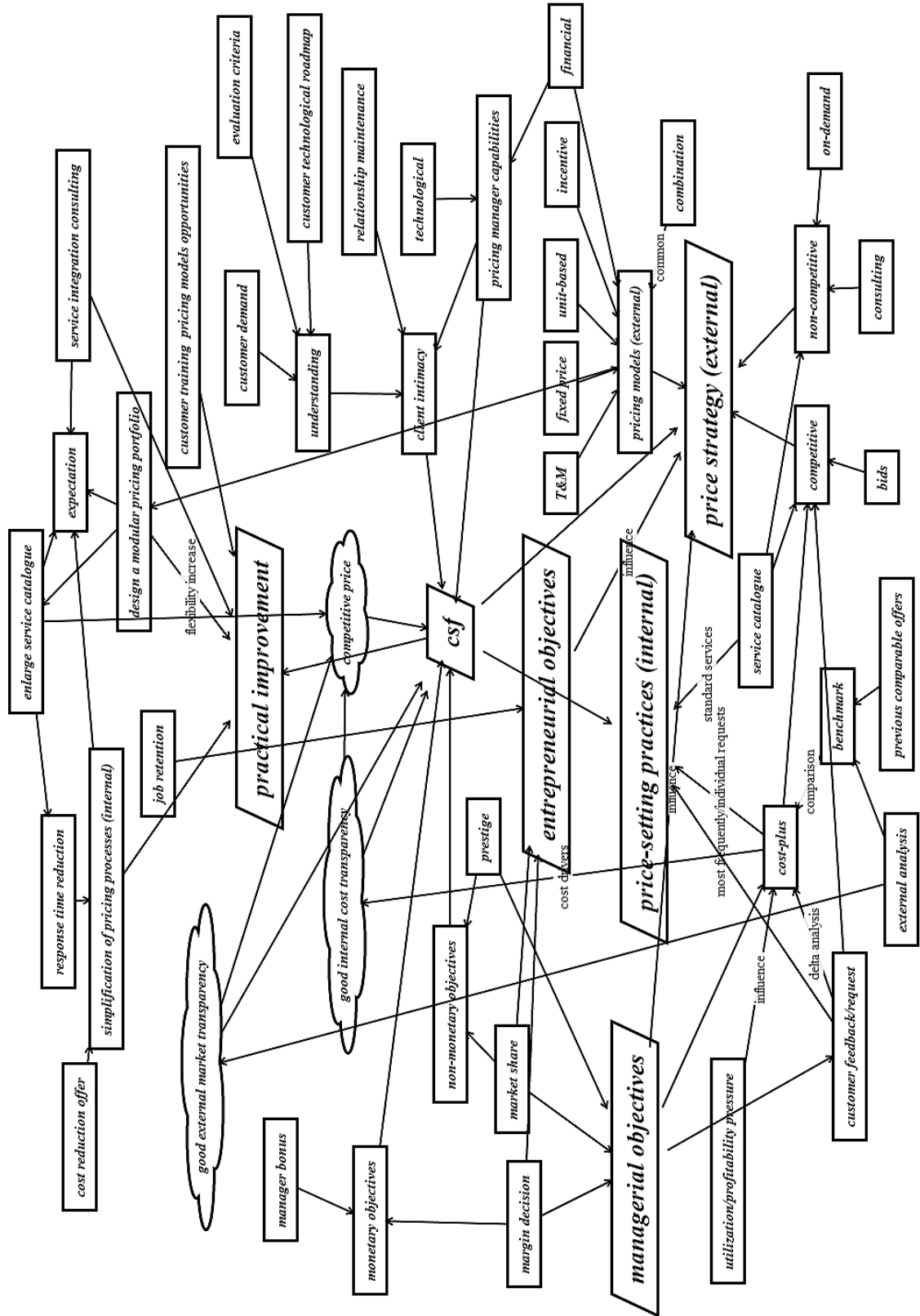


Figure A4: Raw version of cognitive map 4

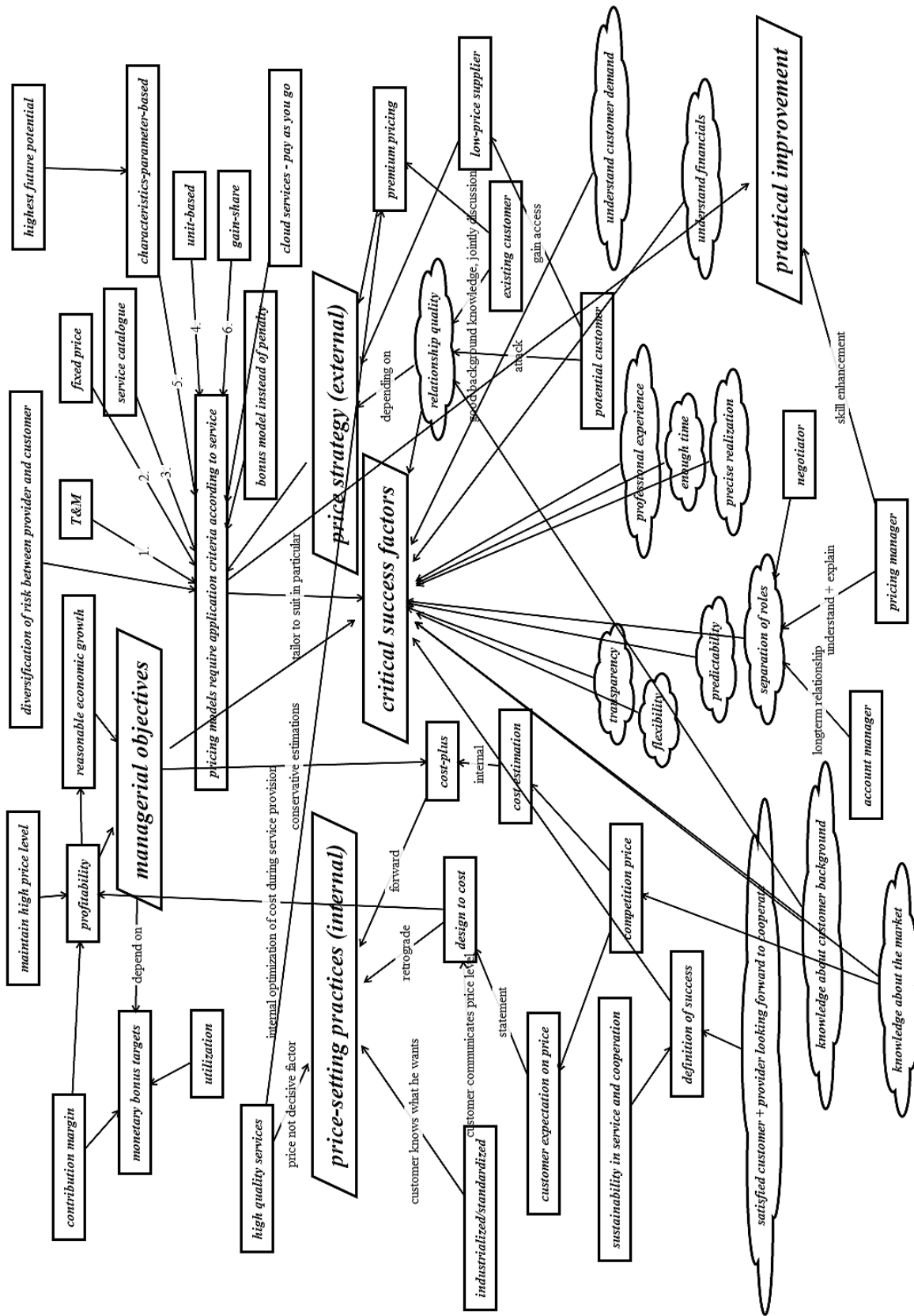
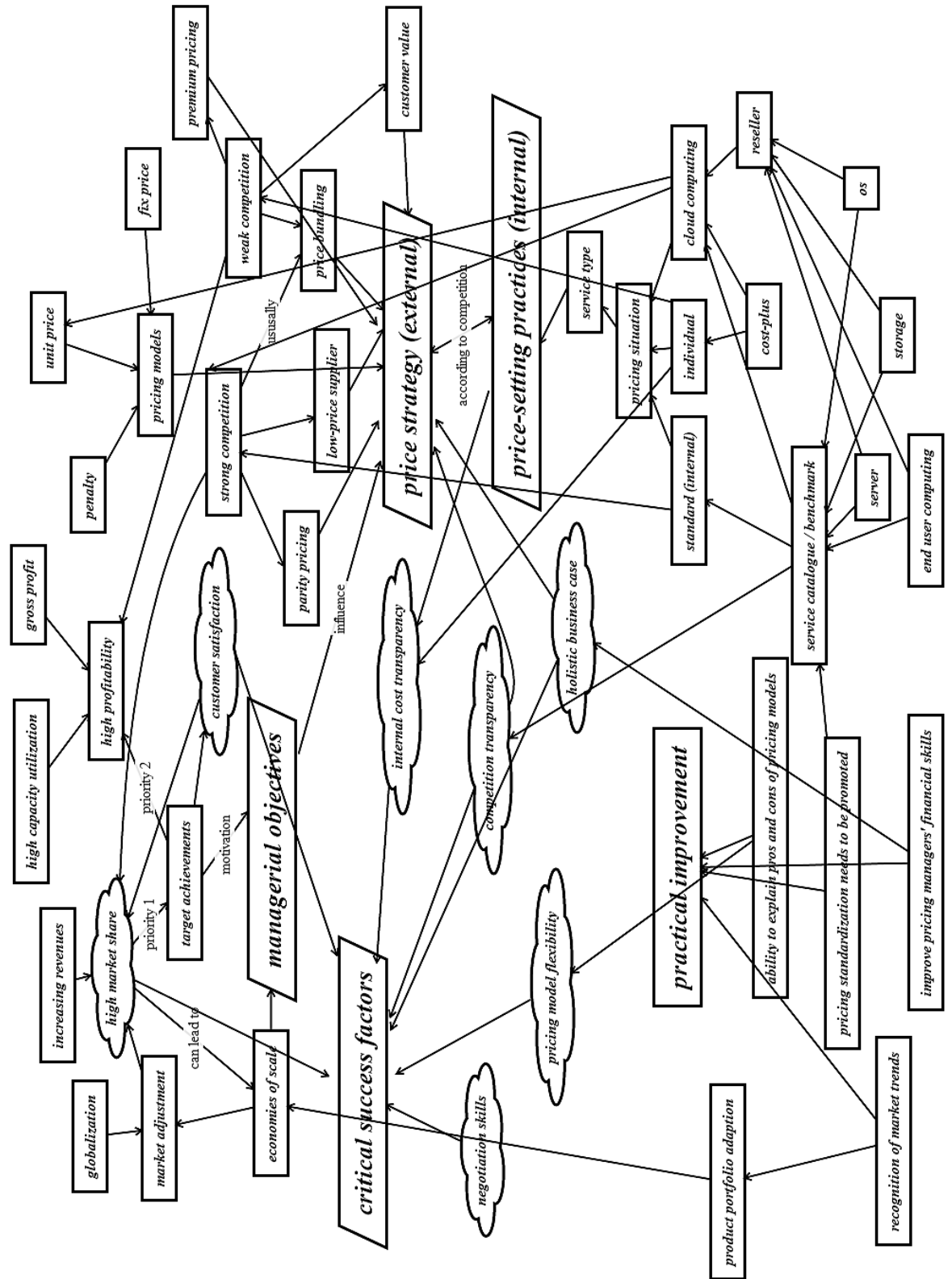


Figure A5: Raw version of cognitive map 5



Appendix C Additional notes of main interviews

Table A1: Additional notes main interview 1

<p>1. Price-setting practices (known/applied)</p> <ul style="list-style-type: none"> • Known: All price-setting practices in conceptual framework • Applied: 1. Cost-plus due to high number of individual requests, elements of service catalogue always included for standard elements • Competition checks by benchmarking + customer feedbacks in multi-stage bids • Cost estimations always too high
<p>2. Entrepreneurial/managerial objectives influential to price-setting</p> <ul style="list-style-type: none"> • High staff utilization / budget
<p>3. Price strategies (known/applied)</p> <ul style="list-style-type: none"> • Known: All strategies + pricing models in conceptual framework • Applied: Depends on competitiveness of bid, usually focus of competitive price strategies
<p>4. Pricing models (known/applied)</p> <ul style="list-style-type: none"> • Known: all • T&M, fixed price, unit-based + incentive element (also combinations)
<p>5. Entrepreneurial/managerial objectives influential to price strategy</p> <ul style="list-style-type: none"> • High market share, profitability • Prestige, manager bonus
<p>6. Reciprocal dependencies between price-setting and price strategy</p> <ul style="list-style-type: none"> • No observations made in practice • Assumption: Price-setting influences the application of price strategies according to the availability of information about market, competitors and competition grade of IT services
<p>7. Critical success factors</p> <ul style="list-style-type: none"> • Transparency (cost, competition) • Understanding what the customer wants (e.g., financial expectations on savings) • Customer intimacy
<p>8. Monetary/non-monetary influential objectives to critical success factors</p> <ul style="list-style-type: none"> • Process improvements on customer side • Financial savings / pressure regarding IT budget
<p>9. Resource-based pricing capabilities</p> <ul style="list-style-type: none"> • Both, technological and financial understanding required • Empathy with client • Considered CSF
<p>10. Implications of critical success factors for practical improvement</p> <ul style="list-style-type: none"> • Understanding customer demand, evaluation criteria, technological roadmap (external) • External market transparency and internal cost transparency • Understanding of customers' financial motivations and expectations
<p>11. Which changes can be implemented efficiently?</p> <ul style="list-style-type: none"> • Process simplification • Standardized costing and benchmarking procedures
<p>12. Future development of pricing</p> <ul style="list-style-type: none"> • Modular pricing portfolio – increasing flexibility demand • Consulting in terms of pricing models
<p>13. General impressions/comments</p> <ul style="list-style-type: none"> • -

Table A2: Additional notes main interview 2

<p>1. Price-setting practices (known/applied)</p> <ul style="list-style-type: none"> • Cost-plus most frequent • Political pricing when heavy competition and other reasons beyond margin • Value-based + volume-based (check understanding)
<p>2. Entrepreneurial/managerial objectives influential to price-setting</p> <ul style="list-style-type: none"> • Incentive-based • See price-setting value/volume-based
<p>3. Price strategies (known/applied)</p> <ul style="list-style-type: none"> • Offer lowest value for winning price • Goal is to be non-transparent to make comparison with competition more difficult for customer
<p>4. Pricing models (known/applied)</p> <ul style="list-style-type: none"> • Rebate + penalty elements increasingly popular (quality measurement) • Standard service catalogue
<p>5. Entrepreneurial/managerial objectives influential to price strategy</p> <ul style="list-style-type: none"> • Brand, growth, market share/entry • Personal goals (sell bill etc.)
<p>6. Reciprocal dependencies between price-setting and price strategy</p> <ul style="list-style-type: none"> • Value-based price-setting might indicate a reciprocal connection, but no explicit statement
<p>7. Critical success factors</p> <ul style="list-style-type: none"> • External transparency • Early planning of future product portfolio • Central pricing manager role
<p>8. Monetary/non-monetary influential objectives to critical success factors</p> <ul style="list-style-type: none"> • Technological knowledge • Ability to understanding customer motivation
<p>9. Resource-based pricing capabilities</p> <ul style="list-style-type: none"> • See 8 • Pricing manager needs to develop towards a versatile role, thus understand and push on commercial and technical issues
<p>10. Implications of critical success factors for practical improvement</p> <ul style="list-style-type: none"> • Align price-setting to DevOps (test price-value combination) • “market makes price, not cost”
<p>11. Which changes can be implemented efficiently?</p> <ul style="list-style-type: none"> • Introduce standardized penalty-rebate element • See map elements around future product portfolio • Assign more responsibilities to pricing manager
<p>12. Future development of pricing</p> <ul style="list-style-type: none"> • Pricing manager must become a value manager • Further process standardization necessary • Smaller units of service
<p>13. General impressions/comments</p> <ul style="list-style-type: none"> • Focus on internal processes • Structured, reflexive • Reflects beyond provided conceptual framework

Table A3: Additional notes main interview 3

<p>1. Price-setting practices (known/applied)</p> <ul style="list-style-type: none"> • Bottom-up vs top-down (market analyses, sales department) • Cost-plus – individual wishes
<p>2. Entrepreneurial/managerial objectives influential to price-setting</p> <ul style="list-style-type: none"> • Staff utilization leads to higher estimations • See map: pricing manager role
<p>3. Price strategies (known/applied)</p> <ul style="list-style-type: none"> • All competitive strategies in conceptual framework
<p>4. Pricing models (known/applied)</p> <ul style="list-style-type: none"> • T&M, fixed, unit-based, discount, incentive • New: Characteristics-based + parameter-based (look-up precise definition)
<p>5. Entrepreneurial/managerial objectives influential to price strategy</p> <ul style="list-style-type: none"> • Public bid – offer below cost level to increase market share • Also, irrational decisions observed • Winning price requires knowledge about market level / innovation / competitors
<p>6. Reciprocal dependencies between price-setting and price strategy</p> <ul style="list-style-type: none"> • -
<p>7. Critical success factors</p> <ul style="list-style-type: none"> • Customer relationship, external communication • Pricing manager role + capability • Flexibility of pricing models • Psychological aspects • Market transparency
<p>8. Monetary/non-monetary influential objectives to critical success factors</p> <ul style="list-style-type: none"> • Understanding of customers' business values • Customer relationship
<p>9. Resource-based pricing capabilities</p> <ul style="list-style-type: none"> • See map around "pricing manager"
<p>10. Implications of critical success factors for practical improvement</p> <ul style="list-style-type: none"> • Versatile role of pricing manager requires management consciousness on importance • Penalty elements require stable service level provision • Characteristics-based/parameter-based pricing model understanding needs to be conveyed to customers (competitive advantage?)
<p>11. Which changes can be implemented efficiently?</p> <ul style="list-style-type: none"> • Design of tailored pricing model • Penalty elements to convey belief in own service quality
<p>12. Future development of pricing</p> <ul style="list-style-type: none"> • Characteristics-based and parameter-based pricing model due to their flexibility • Increasing importance of managed services • Customer assigns allocative function to MSP
<p>13. General impressions/comments</p> <ul style="list-style-type: none"> • Knows about critical processes in practice • Pricing model specialist • Reflexive and passionate about the topic • Emphasizes anonymity

Table A4: Additional notes main interview 4

<p>1. Price-setting practices (known/applied)</p> <ul style="list-style-type: none"> • Cost-plus means cost-based • Design to cost according to customer expectations (industrialized=standardized IT services) • Price not considered decisive factor for individual, qualitative IT services
<p>2. Entrepreneurial/managerial objectives influential to price-setting</p> <ul style="list-style-type: none"> • Profitability • Economic growth • Setting targets to manager bonus
<p>3. Price strategies (known/applied)</p> <ul style="list-style-type: none"> • Relationship quality to customer most important decisive factor for strategy • Mutual positive experiences, reliability, drive innovation processes, establish savings characterize good relationship • But, customer whose main objective is savings does not emphasize service quality, thus lower relationship quality • Premium pricing vs. low-price supplier, price bundling (depends on service demand)
<p>4. Pricing models (known/applied)</p> <ul style="list-style-type: none"> • CSF, as diversification of risk between parties • T&M, fixed price most frequently applied • Mentions also characteristics-based/parameter-based pricing models (future potential) • Setup of standardized service catalogue can be more expensive than individual setup • Cloud services become more important
<p>5. Entrepreneurial/managerial objectives influential to price strategy</p> <ul style="list-style-type: none"> • See 2
<p>6. Reciprocal dependencies between price-setting and price strategy</p> <ul style="list-style-type: none"> • Relationship quality connected to price-setting and price strategy could be a connection • See cognitive map for connection
<p>7. Critical success factors</p> <ul style="list-style-type: none"> • Relationship quality, understanding customer demand and motivation • Pricing manager capability (also social competence)
<p>8. Monetary/non-monetary influential objectives to critical success factors</p> <ul style="list-style-type: none"> • Good relationship management • Internal transparency and flexibility that impacts on pricing models
<p>9. Resource-based pricing capabilities</p> <ul style="list-style-type: none"> • -
<p>10. Implications of critical success factors for practical improvement</p> <ul style="list-style-type: none"> • Application criteria for pricing models • Predictability, flexibility, risk diversification • Emphasize and analyse customer relationship quality
<p>11. Which changes can be implemented efficiently?</p> <ul style="list-style-type: none"> • Pricing manager role needs to be more versatile
<p>12. Future development of pricing</p> <ul style="list-style-type: none"> • Characteristics-based and parameter-based pricing because increasing level of standardization and risk sharing • Pricing manager consults customer regarding pricing model • Pricing manager is rather a mediator/coordinator between internal/external players
<p>13. General impressions/comments</p> <ul style="list-style-type: none"> • Good understanding of conceptual framework • New ideas for the application of pricing models due to bad experiences in the past (lost deals) • Stressed person, needs more time to reflect, asks for clearer allocation of responsibilities

Table A5: Additional notes main interview 5

<p>1. Price-setting practices (known/applied)</p> <ul style="list-style-type: none"> • Depends on service type (standard vs. individual + cloud) • Standard = benchmark, individual = cost-plus
<p>2. Entrepreneurial/managerial objectives influential to price-setting</p> <ul style="list-style-type: none"> • Realization economies of scale • Capacity utilization
<p>3. Price strategies (known/applied)</p> <ul style="list-style-type: none"> • See cognitive map, attributed to grade of competition • Check reciprocal dependency according to grade of competition
<p>4. Pricing models (known/applied)</p> <ul style="list-style-type: none"> • Fixed price • Unit price (flexible) • Penalty
<p>5. Entrepreneurial/managerial objectives influential to price strategy</p> <ul style="list-style-type: none"> • Parent company targets (revenue, profitability)
<p>6. Reciprocal dependencies between internal and price strategy</p> <ul style="list-style-type: none"> • See map and 3, grade of competition = correlation
<p>7. Critical success factors</p> <ul style="list-style-type: none"> • Internal + external transparency • Market share • Customer satisfaction • Understanding the business case as a whole
<p>8. Monetary/non-monetary influential objectives to critical success factors</p> <ul style="list-style-type: none"> • Pricing manager capabilities see 9 • Standardized IT services quality evaluation
<p>9. Resource-based pricing capabilities</p> <ul style="list-style-type: none"> • Good negotiation skills • Client intimacy • IT expertise • Financial skills need to be improved
<p>10. Implications of critical success factors for practical improvement</p> <ul style="list-style-type: none"> • Ability to explain pros and cons of pricing models internally and externally • Internal and external transparency regarding cost drivers and competition price • Service catalogue
<p>11. Which changes can be implemented efficiently?</p> <ul style="list-style-type: none"> • Difficult as standardization needs time and capacity, thus necessary but not easy to implement
<p>12. Future development of pricing</p> <ul style="list-style-type: none"> • Cloud services with standardized and comparable pricing • Only big players survive • Predictability of costs gets more important
<p>13. General impressions/comments</p> <ul style="list-style-type: none"> • Relates his answers to the conceptual framework, well prepared • Consider micro- and macroeconomic perspective • Knows about fast-moving market trends

Appendix D Verification interview notes

Table A6: Verification interview notes 1 (participant 6)

No.	Question	Answer
1.	<ul style="list-style-type: none"> • Would you consider economic growth (market share + revenue growth + maintenance of high price levels and profitability) as the main managerial objective that also impacts on the IT services pricing? 	<ul style="list-style-type: none"> • Yes, manager compensation is geared to revenue targets, margin targets, new logo business, and prolongation of existing contracts. IT services pricing depends on service scope, but IT provider will never accept a disadvantageous deal regarding profitability.
2.	<ul style="list-style-type: none"> • Would you consider cost-plus and target costing (informed by benchmarking) the most common price-setting practices? • Do you see a connection to the grade of standardization or competition of an IT service? 	<ul style="list-style-type: none"> • In practice yes, cost plus always, target costing when information available. • Yes, cost-plus for the individual customer demand, target costing for standardized services, which are apparently under higher competition.
3.	<ul style="list-style-type: none"> • Do you see a connection between the applied price strategy and the grade of competition (e.g. premium pricing vs. low-price supplier)? 	<ul style="list-style-type: none"> • Yes, same correlation as previous question
4.	<ul style="list-style-type: none"> • Does the relationship quality between the IT service provider and the customer negatively correlate with the grade of competition? • Does the price-setting influence the choice of price strategy subject to the grade of competition or customer relationship quality? • Does the choice of price strategy influence the price-setting subject to the grade of competition or customer relationship quality? 	<ul style="list-style-type: none"> • Not necessarily. However, individual demand requires closer cooperation whereas standardized services need less fine-tuning. • They both are related to the service scope, the historic relation between customer and provider, and the business volume. Standardized IT services lead to a higher competition. Services with higher competition are usually priced by looking into the service catalogue. Thus, there is a relationship, whether the one influences the other or vice versa. • See previous answer.
5.	<ul style="list-style-type: none"> • Would you consider T&M, fixed price, and unit-based pricing models as the most commonly applied pricing models? • Do you know characteristics-based and parameter-based pricing models? • Would you consider transparency, flexibility, and predictability as the critical success factors of a pricing model? 	<ul style="list-style-type: none"> • Yes. • No. But KPI-related penalty elements. • Yes, besides the absolute price.
6.	<ul style="list-style-type: none"> • Can rebate and penalty elements in a pricing model limit customers' financial risk, measure service quality transparently and stimulate consumption? 	<ul style="list-style-type: none"> • Rebate and penalty elements can convey a trust in the IT provider's ability to perform, limit financial risks, and measure quality. The stimulation of consumption can neither be confirmed nor denied.
7.	<ul style="list-style-type: none"> • Do you see the focus of the pricing manager role rather internally, externally, or both? • What are his main responsibilities and are they critical? 	<ul style="list-style-type: none"> • Internal yes, external only if special questions regarding pricing specifics occur. • Determination of prices and projection of profitability is very critical.
8.	<ul style="list-style-type: none"> • Do you consider a standard service catalogue for IT services a critical success factor for the improvement of the pricing process? • Do you see implementation issues? 	<ul style="list-style-type: none"> • Yes, makes the pricing process easier, quicker, and less error-prone. Comment: Everybody asks for it in the last years, but still not available. • One issue might be that delivery estimation on standard costs is higher and leads to discussions with sales.

No.	Question	Answer
9.	<ul style="list-style-type: none"> • How do customer-specific requirements relate to standard IT services? 	<ul style="list-style-type: none"> • Normally, 80% of the service scope is standard service and 20% is individual. IT provider needs to supply both.
10.	<ul style="list-style-type: none"> • Would the establishment of application criteria of pricing models depending on the customer situation improve the pricing process? • Which of the following application criteria could be applied? (predictability, transparency, flexibility, comprehensibility, cost decrease potential, correlation with cost drivers, risk diversification) • Do you think the conceptual framework and the practical recommendations of this research are useful? 	<ul style="list-style-type: none"> • Yes, but implementation might be too expensive, there are other more important issues like the implementation of a service catalogue. • Transparency, correlation with cost drivers, risk diversification • Yes, conceptual framework reflects IT services pricing reality and might be transferred to other businesses. Practical recommendations are known among specialists but not documented, therefore helpful.

Table A7: Verification interview notes 2 (participant 7)

No.	Question	Answer
1.	<ul style="list-style-type: none"> • Would you consider economic growth (market share + revenue growth + maintenance of high price levels and profitability) as the main managerial objective that also impacts on the IT services pricing? 	<ul style="list-style-type: none"> • Yes, in the past there were phases with emphasis on profitability and other on growth. Pricing is related to price levels and risk mitigation.
2.	<ul style="list-style-type: none"> • Would you consider cost-plus and target costing (informed by benchmarking) the most common price-setting practices? • Do you see a connection to the grade of standardization or competition of an IT service? 	<ul style="list-style-type: none"> • 70% cost-plus, 30% target costing • Ideally, standardized services depend on benchmarking, however in practice, benchmarking is only the verification process after costing.
3.	<ul style="list-style-type: none"> • Do you see a connection between the applied price strategy and the grade of competition (e.g. premium pricing vs. low-price supplier)? 	<ul style="list-style-type: none"> • Yes, e.g., premium pricing is applied where less competition exists, depends on the product/service.
4.	<ul style="list-style-type: none"> • Does the relationship quality between the IT service provider and the customer negatively correlate with the grade of competition? • Does the price-setting influence the choice of price strategy subject to the grade of competition or customer relationship quality? • Does the choice of price strategy influence the price-setting subject to the grade of competition or customer relationship quality? 	<ul style="list-style-type: none"> • It is rather the relationship intensity that correlates with the grade of competition. The wording is important here. • - • -
5.	<ul style="list-style-type: none"> • Would you consider T&M, fixed price, and unit-based pricing models as the most commonly applied pricing models? • Do you know characteristics-based and parameter-based pricing models? • Would you consider transparency, flexibility, and predictability as the critical success factors of a pricing model? 	<ul style="list-style-type: none"> • Yes, in descending order fixed price, T&M, unit-based. • Yes, but not applied in practice, many customers' processes/organization not standardized enough, customers not ready. • Yes, mainly flexibility and transparency
6.	<ul style="list-style-type: none"> • Can rebate and penalty elements in a pricing model limit customers' financial risk, measure service quality transparently and stimulate consumption? 	<ul style="list-style-type: none"> • Yes, already applied in many contracts.
7.	<ul style="list-style-type: none"> • Do you see the focus of the pricing manager role rather internally, externally, or both? • What are his main responsibilities and are they critical? 	<ul style="list-style-type: none"> • Internally. • Price-setting (collect cost estimations), filling price-sheets, and defending financials in internal management meetings.
8.	<ul style="list-style-type: none"> • Do you consider a standard service catalogue for IT services a critical success factor for the improvement of the pricing process? • Do you see implementation issues? 	<ul style="list-style-type: none"> • In an ideal world, a service catalogue would be available, but not in reality, only fragments. • Yes, especially mutual acceptance of cost-base in international companies is difficult.
9.	<ul style="list-style-type: none"> • How do customer-specific requirements relate to standard IT services? 	<ul style="list-style-type: none"> • Depends on the customer organization and its processes, but every bid has customer-specific requirements, and that will not change. There is no 100% standardized offer.

No.	Question	Answer
10.	<ul style="list-style-type: none">• Would the establishment of application criteria of pricing models depending on the customer situation improve the pricing process?• Which of the following application criteria could be applied? (predictability, transparency, flexibility, comprehensibility, cost decrease potential, correlation with cost drivers, risk diversification)• Do you think the conceptual framework and the practical recommendations of this research are useful?	<ul style="list-style-type: none">• Yes, now it is always a chaos and new discussion.• Correlation with cost driver, risk diversification.• Very useful, IT pricing needs more attention and this research is the right step. The conceptual framework covers all nuances and the managerial recommendations are helpful in contrast to what is expected by normal academic research.

Table A8: Verification interview notes 3 (participant 8)

No.	Question	Answer
1.	<ul style="list-style-type: none"> • Would you consider economic growth (market share + revenue growth + maintenance of high price levels and profitability) as the main managerial objective that also impacts on the IT services pricing? 	<ul style="list-style-type: none"> • Main managerial objective is the maximization of own compensation that is normally bound to economic growth, so indirectly yes.
2.	<ul style="list-style-type: none"> • Would you consider cost-plus and target costing (informed by benchmarking) the most common price-setting practices? • Do you see a connection to the grade of standardization or competition of an IT service? 	<ul style="list-style-type: none"> • Yes, cost-based price-setting is predominant. Cloud service price-setting is normally benchmark, e.g., AWS, EC2. • Yes, see previous example.
3.	<ul style="list-style-type: none"> • Do you see a connection between the applied price strategy and the grade of competition (e.g. premium pricing vs. low-price supplier)? 	<ul style="list-style-type: none"> • It is a combination of product- and customer-specifics, might correlate to competition grade.
4.	<ul style="list-style-type: none"> • Does the relationship quality between the IT service provider and the customer negatively correlate with the grade of competition? • Does the price-setting influence the choice of price strategy subject to the grade of competition or customer relationship quality? • Does the choice of price strategy influence the price-setting subject to the grade of competition or customer relationship quality? 	<ul style="list-style-type: none"> • Seems logical, as standardized services require less coordination. • Yes, because price-setting is the first activity followed by the price strategy. Good customer relationship can indicate target price. • Thinking about the relationship between price-setting, price strategy, competition, it is like a triangle that connects these elements. The grade of competition could be the influential factor.
5.	<ul style="list-style-type: none"> • Would you consider T&M, fixed price, and unit-based pricing models as the most commonly applied pricing models? • Do you know characteristics-based and parameter-based pricing models? • Would you consider transparency, flexibility, and predictability as the critical success factors of a pricing model? 	<ul style="list-style-type: none"> • Yes. • No. KPI-related bonus-malus-elements are known. • Yes, a price model also needs to be understood easily.
6.	<ul style="list-style-type: none"> • Can rebate and penalty elements in a pricing model limit customers' financial risk, measure service quality transparently and stimulate consumption? 	<ul style="list-style-type: none"> • Yes, besides well-established processes.
7.	<ul style="list-style-type: none"> • Do you see the focus of the pricing manager role rather internally, externally, or both? • What are his main responsibilities and are they critical? 	<ul style="list-style-type: none"> • Both, but depends on the pricing manager's personality and expertise, so the role is what the pricing manager makes out of it. • They are critical, defend margins, ensure profitability.
8.	<ul style="list-style-type: none"> • Do you consider a standard service catalogue for IT services a critical success factor for the improvement of the pricing process? • Do you see implementation issues? 	<ul style="list-style-type: none"> • Yes, makes life easier and resource capacities deployed more efficiently. • No, somebody must initiate the implementation.
9.	<ul style="list-style-type: none"> • How do customer-specific requirements relate to standard IT services? 	<ul style="list-style-type: none"> • Customer-specific requirements complement the mainly standardized IT environment.

No.	Question	Answer
10.	<ul style="list-style-type: none">• Would the establishment of application criteria of pricing models depending on the customer situation improve the pricing process?• Which of the following application criteria could be applied? (predictability, transparency, flexibility, comprehensibility, cost decrease potential, correlation with cost drivers, risk diversification)• Do you think the conceptual framework and the practical recommendations of this research are useful?	<ul style="list-style-type: none">• Yes, but the same as with the service catalogue, somebody must take the lead and drive the process.• Flexibility, transparency, cost drivers. Customer needs to understand the pricing model easily.• Anything is useful that conceptualizes IT pricing. The very positive element about this research is that the recommendations reflect the real problems that pricing managers must cope with in their daily business, namely the need for process standardizations in a business where the customers expect quick response to their price inquiry.

Table A9: Verification interview notes 4 (participant 9)

No.	Question	Answer
1.	<ul style="list-style-type: none"> • Would you consider economic growth (market share + revenue growth + maintenance of high price levels and profitability) as the main managerial objective that also impacts on the IT services pricing? 	<ul style="list-style-type: none"> • Yes, defending market share and profitability are the main goals. But there can be an area of conflict between profitability and market share.
2.	<ul style="list-style-type: none"> • Would you consider cost-plus and target costing (informed by benchmarking) the most common price-setting practices? • Do you see a connection to the grade of standardization or competition of an IT service? 	<ul style="list-style-type: none"> • Yes. • Cost-plus for specific services (not standardized), benchmarking for commodity services, where competition is higher.
3.	<ul style="list-style-type: none"> • Do you see a connection between the applied price strategy and the grade of competition (e.g. premium pricing vs. low-price supplier)? 	<ul style="list-style-type: none"> • Yes, premium pricing for less competitive offers (mainly technological innovations, unique software products), low-price supplier for cloud services (although margins are high).
4.	<ul style="list-style-type: none"> • Does the relationship quality between the IT service provider and the customer negatively correlate with the grade of competition? • Does the price-setting influence the choice of price strategy subject to the grade of competition or customer relationship quality? • Does the choice of price strategy influence the price-setting subject to the grade of competition or customer relationship quality? 	<ul style="list-style-type: none"> • No, but cooperation is more intense in tailored solutions. • Benchmarking is usually connected to intense competition and therefore leads to a low-price supplier strategy, and vice versa. • That is the chicken or the egg causality dilemma.
5.	<ul style="list-style-type: none"> • Would you consider T&M, fixed price, and unit-based pricing models as the most commonly applied pricing models? • Do you know characteristics-based and parameter-based pricing models? • Would you consider transparency, flexibility, and predictability as the critical success factors of a pricing model? 	<ul style="list-style-type: none"> • Yes. • No. • Yes, especially transparency, flexibility, and comprehensibility.
6.	<ul style="list-style-type: none"> • Can rebate and penalty elements in a pricing model limit customers' financial risk, measure service quality transparently and stimulate consumption? 	<ul style="list-style-type: none"> • Yes, SLAs need to be formulated precisely.
7.	<ul style="list-style-type: none"> • Do you see the focus of the pricing manager role rather internally, externally, or both? • What are his main responsibilities and are they critical? 	<ul style="list-style-type: none"> • More internally, sometimes externally when billing and taxation questions occur. • Yes, very critical, provider needs to earn money but at the same time must make his offer understandable.
8.	<ul style="list-style-type: none"> • Do you consider a standard service catalogue for IT services a critical success factor for the improvement of the pricing process? • Do you see implementation issues? 	<ul style="list-style-type: none"> • Yes, for some services already available (server, storage, connectivity). • Service catalogue cannot be made for all elements, because customer demand may differ in detail, which cannot entirely be covered in all its characteristics.
9.	<ul style="list-style-type: none"> • How do customer-specific requirements relate to standard IT services? 	<ul style="list-style-type: none"> • Specific requirements are at first sight not always obvious, but every demand has unique details.

No.	Question	Answer
10.	<ul style="list-style-type: none">• Would the establishment of application criteria of pricing models depending on the customer situation improve the pricing process?• Which of the following application criteria could be applied? (predictability, transparency, flexibility, comprehensibility, cost decrease potential, correlation with cost drivers, risk diversification)• Do you think the conceptual framework and the practical recommendations of this research are useful?	<ul style="list-style-type: none">• There are other steps in the process that would improve the pricing (e.g. clear allocation of responsibilities) but would not be bad.• Transparency and flexibility (unit-pricing), comprehensibility.• Yes. The multifaceted role of the pricing manager stands out and underlines its importance. Recommendations should be shown to global pricing responsible management as it can address the relevant issues.

Table A10: Verification interview notes 5 (participant 10)

No.	Question	Answer
1.	<ul style="list-style-type: none"> • Would you consider economic growth (market share + revenue growth + maintenance of high price levels and profitability) as the main managerial objective that also impacts on the IT services pricing? 	<ul style="list-style-type: none"> • Yes.
2.	<ul style="list-style-type: none"> • Would you consider cost-plus and target costing (informed by benchmarking) the most common price-setting practices? • Do you see a connection to the grade of standardization or competition of an IT service? 	<ul style="list-style-type: none"> • As most of the bigger IT projects base on a greenfield approach, cost-plus is the most commonly applied price-setting practice, which is then verified through benchmarking. • Although there should be a difference in price-setting for standardized and non-standardized IT services, in practice there is none.
3.	<ul style="list-style-type: none"> • Do you see a connection between the applied price strategy and the grade of competition (e.g. premium pricing vs. low-price supplier)? 	<ul style="list-style-type: none"> • Yes, premium pricing is applied for very specific demands (projects, application services) whereas low-price supplier is applied for infrastructure services.
4.	<ul style="list-style-type: none"> • Does the relationship quality between the IT service provider and the customer negatively correlate with the grade of competition? • Does the price-setting influence the choice of price strategy subject to the grade of competition or customer relationship quality? • Does the choice of price strategy influence the price-setting subject to the grade of competition or customer relationship quality? 	<ul style="list-style-type: none"> • Yes, low competition = better relationship quality because the customer is dependent on IT provider services. • - • -
5.	<ul style="list-style-type: none"> • Would you consider T&M, fixed price, and unit-based pricing models as the most commonly applied pricing models? • Do you know characteristics-based and parameter-based pricing models? • Would you consider transparency, flexibility, and predictability as the critical success factors of a pricing model? 	<ul style="list-style-type: none"> • Yes. • No. • Yes.
6.	<ul style="list-style-type: none"> • Can rebate and penalty elements in a pricing model limit customers' financial risk, measure service quality transparently and stimulate consumption? 	<ul style="list-style-type: none"> • Penalty elements are connected to SLAs, therefore existing in 99% of IT services contracts.
7.	<ul style="list-style-type: none"> • Do you see the focus of the pricing manager role rather internally, externally, or both? • What are his main responsibilities and are they critical? 	<ul style="list-style-type: none"> • Increasingly both, previously only internal. • Yes, they are critical. Financial responsibility of a deal.
8.	<ul style="list-style-type: none"> • Do you consider a standard service catalogue for IT services a critical success factor for the improvement of the pricing process? • Do you see implementation issues? 	<ul style="list-style-type: none"> • Yes, in times of increasing competition, shorter feedback times, less resource capacity, and shorter contract renewal cycles necessary. • Needs to be a team that focuses on service catalogue implementation in a separate project apart from daily business.
9.	<ul style="list-style-type: none"> • How do customer-specific requirements relate to standard IT services? 	<ul style="list-style-type: none"> • Standard IT services are always accompanied by individual wishes.

No.	Question	Answer
10.	<ul style="list-style-type: none">• Would the establishment of application criteria of pricing models depending on the customer situation improve the pricing process?• Which of the following application criteria could be applied? (predictability, transparency, flexibility, comprehensibility, cost decrease potential, correlation with cost drivers, risk diversification)• Do you think the conceptual framework and the practical recommendations of this research are useful?	<ul style="list-style-type: none">• Yes, but same issues as the implementation of a service catalogue.• All.• Absolutely yes. You can never capture all facets of IT services pricing as it constantly changes in time due to technological progress. However, this conceptual framework relates all elements of int./ext. processes and pricing models and draws the right conclusions.