IT Consulting: A systematic literature review

Seminar paper

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Abstract

Information technology is rapidly developing, making it difficult for companies to keep up with digital knowledge and skills. At the same time, disruptive and innovative business models are entering the market, forcing more traditional companies to innovate and digitalize. As a result, many companies today rely on the expertise of IT consultants to stay competitive. This literature review aims to provide a general overview of the IT consulting market, the offered services and job requirements. 20 out of 473 publications have been selected for a detailed analysis. The results are structured in three categories (market situation, services, employees), focusing on offered services. In total, ten practice areas have been discovered and combined into a framework. This framework serves as an overview of current IT consulting services to support managers in making business decisions. Furthermore, it can be used as the foundation of further research.

Keywords: IT consulting, IT services, consulting, information technology

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1 Introduction

Today, the risk of disruption is omnipresent, and digital transformation has become a necessity, so organizations need to reconsider and adjust their business models to remain competitive (Veit, Clemons et al., 2014). Due to the pressure to digitalize existing business models, creating new ones, or transforming existing services and processes, organizations often draw upon the knowledge of consultancies as external knowledge providers with specialized skills and resources to manage their digital transformation (Poulfelt, Olson 2018). Systems like Customer Relationship Management (CRM) and Enterprise Resource Planning (ERP), introduced by IT consulting firms, have played vital roles in management improvements. In fact, Information Systems have become a necessity for any management firm to achieve sustainable competitive advantage (Clemons, 1986). However, in the same way that regular organizations feel pressured to remain competitive, so do IT consulting firms (Nissen, Seifert, 2018). While their fundamental business model has not changed for many decades, IT consulting firms are currently facing significant challenges (Poulfelt, Olson, 2018).

This review is an attempt to provide an overview of the current situation in the IT consulting market. It aims to give managers a brief outline of the current trends and practices to identify IT consulting services that can support their business decisions. Furthermore, this review gives an overview of current requirements and challenges for IT consultants to allow academics to understand requirements and job perspectives in that environment better.

After the introduction, this review is split into three parts. First, the research methodology is described alongside the filtering process and the selected literature. The second part presents the findings structured into three categories. Finally, the last part discusses and concludes the result, naming limitations and giving an outlook for future research.

2 Literature Review

This systematic literature review aims to give an overview of the current state of the art of IT consulting. The selected literature for the review was not confined to any geographic region, research methodology or one set of journals (Webster & Watson, 2002). To understand and summarize the general term IT consulting and its practices, the results of six different databases have been considered. In total, 473 articles were found, of which 20 papers were used for further analysis. The following sections describe the filter and selection process in greater detail.

2.1 Preliminary search term analysis

To find relevant literature efficiently, the optimal search terms must be found without missing out on important papers. Since the literature review aims to provide a general overview, the search terms should also be chosen as general as possible. I experimented with the terms "IT consulting", "consulting", "information systems", and “IT services”. In a first analysis of the results, I found that a lot of literature focuses on management consulting or software development rather than IT consulting. Therefore, I decided to use the search terms "IT consulting", "IT consultant", and "information system consulting" to keep the focus on IT consulting.

2.2 Database search

To find the relevant literature, the following databases have been used: ACM Digital Library, IEEE Explore, Science Direct, EBSCO Host, AIS electronic Library and the library of the University of Hamburg. I limited the results by only including English publications which have been published later than January 2000. To filter out results that focus on management consulting and just mention IT consulting as a side note, I only selected publications where the search terms appeared in the title or abstract of the documents. In total, the database search provided 473 results, including duplicates.

2.3 Selection process

To extract the relevant literature, I defined the following search criteria: Selected papers need to focus on either services, methods, market situation or personnel aspects of IT consulting. The filtering process itself is conducted in four steps. First, I removed the duplicates. Secondly, I reviewed the titles of the publications for relevance. Thirdly, I read the abstracts to verify whether the papers focused on IT consulting. Finally, I checked the remaining publications for compliance with the criteria by analyzing the entire study. The detailed steps and their resulting numbers of papers are shown in table 2.

Filter process step	Number of results
Database results	473
1 Remove duplicates	424
2 Relevance by title	210
3 Relevance by abstract	43
4 Relevance by full text	20

Table 1. The filtering process and the number of results

2.4 Selected literature

Filtering by reviewing the abstract removed various papers. Even though the title of most of them seemed promising, the abstract mainly revealed little to no focus on IT consulting. Therefore, those publications were not considered in the final review. I categorized the final 20 papers into three sections: Market situation, services and employees. Each section is split into different subsections to have a more detailed view. The category market situation is divided into challenges and trends, services is divided into roles of IT consultants and practices, and employees is divided into profile, challenges and motivation. The Literature Matrix (Table 2) shows the distribution of publications across the different categories.

Title	Author	Year	Market Situation		Services		Employees		
			challenges	trends	roles of IT consultants	practices	profile	challenges	motivation
A two-wave study of the impact of job characteristics and motivators on perceived stress among information technology (IT) consultants	Wallgren, Lars Göran Hanse, Jan Johansson	2012						x	x
Adaptive processes for knowledge creation in complex systems: The case of a global IT consulting firm	Sherif, Karma Xing, Bo	2009				x			
Combining SDLC Method And ITIL Framework by Involving Auditors	Rahmani, Hani Fitria Himawati, Erna	2020				x			
Concurrent-convergent strategy in IT consulting	Liao, Ziqi Cheung, Michael Tow	2003				x			
Current trends in the IT services market	Krasavina, Vera	2019	x	x					
Did IT consulting firms gain when their clients were breached?	Chen, Jengchung V.; Li, Hung Chih Yen, David C.; Bata, Kenneth Vincent	2012				x			
Directions of strategic IT consulting	Vasil'ev, R. B.; Kalyanov, G. N. Levochkina, G. A.	2010				x			
Do You Need an IT Consultant . . . or a Different One?	Friedman, Gregory H.	2004					x		
Excellence in IT consulting: Integrating multiple stakeholders perceptions of top performers	Joshi, K. D.; Kuhn, Kristine M. Niederman, Fred	2010					x		x
Hiring an IT Consultant.	McCormack, John	2003					x		
IT Consulting Names Are Looking More Favorable.	Bernstein C.	2004		x					
IT Consulting: A Systematic Literature Review BT - Digital Nations – Smart Cities, Innovation, and Sustainability	Kumar, Abhishek; Grover, Purva Kar, Arpan Kumar; Pani, Ashis K	2017				x	x		
IT Consulting: Communication Skills Are Key	Djavanshir, G R Agresti, W W	2007					x		
Knowledge sharing in IT consultant and SME interactions	Bradshaw, Adrian; Pulakanam, Venkateswarlu Cragg, Paul	2015				x			
Knowledge Transfer in Knowledge Network of IT Consulting Company	Liu, H Zhao, L	2009				x			
Less Complex than Expected – What Really Drives IT Consulting Value	Oesterle, Severin; Buchwald, Arne Urbach, Nils	2019				x			
IT Consultants in Acquisition IT Integration - A Resource-Based View	Henningsson, Stefan Øhrgaard, Christian	2016	x		x				
Tales of IT consultants: Understanding psychological contract maintenance and employment termination	Kautz, Karlheinz Bjerknes, Gro	2015						x	
Towards a Formal Description Language for Digital IT Consulting Products in Decentralized IT Consulting Firms	Bode, M	2019				x			
Types of Technostress on Employees of IT Consulting Company	Ferziani, A; Rajagukguk, R O Analya, P	2018						x	

Table 2. Literature Matrix

3 Results

The selected literature allows a comprehensive overview of three different aspects of IT consulting. The first aspect defines the current state of the IT consulting practice in terms of challenges and trends. This section is crucial to understanding IT consulting in general and giving context to the following two aspects. The second aspect focuses on the services IT consulting companies offer to their customers. This part provides managers with an overview of application areas in a business context. The last section is about the consultant working in the IT consulting environment. This part aims to provide an understanding of the skills, stress factors and motivators existing in this market segment. Therefore, allowing academics to understand requirements and job perspectives.

3.1 Market situation

IT consulting companies are among the largest employers in the world, making a significant contribution to both economic growth and social well-being. The IT industry is rapidly developing and implementing the latest digital technologies, representing the latest platforms for innovation and business growth. This necessitates an understanding of the IT consulting market's current strategic trends and challenges (Krasavina, 2019).

Challenges

Today, in the context of global digitalization, the world IT services market is developing rapidly and remains one of the fastest-growing segments of the IT industry. While this development enables growth for the IT consulting branch, it also creates new challenges and problem. The biggest challenges today are competition, the need for innovation and specialization (Krasavina, 2019). According to Gartner, the current market leaders are big management and IT consulting firms with a broad scope of competencies. These companies usually operate on a more traditional business model, which has been working for decades. However, some medium- and small business consulting firms (MSB) are considering innovative business models to increase competitiveness, challenging more traditional companies. Additionally, enterprises start introducing in-house consulting jobs to suit their market situation and consulting needs better (Krasavina, 2019).

Trends

With the intensification of digitalization, three major trends have emerged in the IT consulting market: Globalization, market consolidation and the rise of Indian IT service companies.

The IT consulting industry is becoming more and more global. Consultancies start to operate in multiple countries, IT systems and problems are often found across multiple sites in multiple countries, and global revenue of IT consultancies (e.g., Accenture, NTT Data) is rising. The downside of this trend is that most IT consultancies start to offer the same services since global IT problems become more and more similar. Small and medium-sized consulting and IT service companies introduce innovative business models with certain specializations to counteract this market consolidation. Especially Indian companies (e.g., Wipro, Infosys) have started to provide IT services in more innovative ways, threatening bigger consultancies (Krasavina, 2019).

3.2 Services

Roles of IT consultants

Two generic roles of IT consultants can be found in the literature: The complementary and the supplementary roles (e.g., Sedera and Gable, 2010; Ko et al., 2005). Complementary roles tend to be associated with the use of best practice within organizations and with introducing new knowledge to clients (Sedera and Gable, 2010; Davenport, 1998). The supplementary role delivers resources similar to those the client already possesses but answers the need for flexible staffing in times of high demand on the organization

(Siakas and Balstrup, 2006). Taking a more detailed approach, these two general classifications can be broken down into four different roles in which IT consultant provide value to companies. The four roles are differentiated by their strategic or operational impact and the degree of new knowledge it provides to the client.

Muscle

The Muscle role is defined by operational tasks, serving as a flexible resource for clients rather than providing new knowledge.

IT consultants assuming the Muscle role often perform implementation tasks that the company would be able to do but cannot due to the lack of resources. This can, for example, involve the migration of data or the development of integration points (Freitag et al., 2010). Thus, the use of IT consultants as Muscle is driven by high, temporary resource demands during project phases and focuses on implementation parts (Henningsson, Øhrgaard, 2016).

Expert

The Expert role is defined by strategic tasks, serving as a flexible resource for clients rather than providing new knowledge.

IT consultants can be used in the role of Expert when used for high-level tasks that the client already has staff to carry out. This responds to a need to complete a project within a given time frame, with limited internal resources available to complete the tasks. In contrast to the muscle role, the Expert focuses on high-level tasks (e.g., project management) (Henningsson, Øhrgaard, 2016).

Craft

The Craft role is defined by operational tasks that the client cannot do on his own.

In this role, consultants are brought into projects with specific challenges that rarely occur in the company. Therefore, the work of external workers can be considered as Craft when it requires know-how that is not present in the client company (Henningsson, Øhrgaard, 2016).

Brain

The Craft role is defined by strategic tasks that the client cannot do on his own.

When companies hire IT consultants to act as Brains, they hire them to help the company develop strategies or high-level assessment and architecture plans that the company could not carry out on its own (Lajoux, 1998). Companies use IT consultants in the Brain role to facilitate strategy definition related to integration or to the future IT landscape of the company (Henningsson, Øhrgaard, 2016).

Practices

As suggested by (Vasil'ev, Kalyanov, & Levochkina, 2010), I defined the two categories "strategic IT consulting" and "operational IT consulting" and broke them down in detail to provide a structured framework (figure 1) on IT consulting practices.

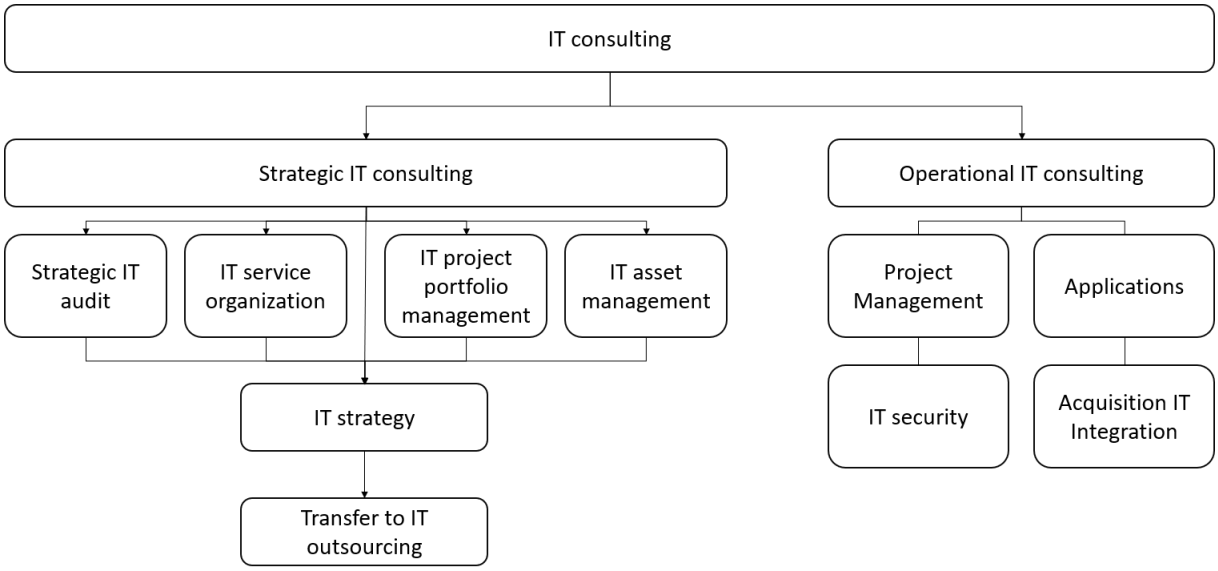

Figure 1. IT consulting practices framework adopted from (Vasil'ev et al. 2010)

The following sections take a detailed look at the research results of every subcategory. This framework considers only practices found in the selected literature that clearly belong to IT consulting rather than management consulting. Therefore, this framework serves as a theoretical classification and does not necessarily reflect all the practices offered by IT consulting companies in practice.

Strategic IT audit

Strategic IT audit aims to identify the reasons for discomfort suffered by a company's top management when using IT. This means that strategic IT audits are carried out in the interests of the top management, which is to satisfy their information needs and maintain competitive advantage rather than being interested in platform or software solutions. Therefore, the focus is on assessing the impact of IT investment on the business price and gaining competitive advantages using IT (Vasil'ev, Kalyanov, & Levochkina, 2010).

IT service organization

Effective management of the entire IT development process is needed for a successful strategy realization. Therefore, an IT service (ITS) must be established in a company that is to be headed by a chief information officer who is responsible for two groups of tasks. The first group of tasks are those related to IT development: Planning of IT development and control of the plan's accomplishment; IT investment project management; cooperation with outsourcing executors; elaboration of normative and methodological documents in the field of IT. The second group of tasks are those related to the rendering of informative and technological services: maintenance of information systems, operating and installing; research and information support of the top and middle managers; development of IT infrastructure and IT training of the personnel (Vasil'ev, Kalyanov, & Levochkina 2010). The most common framework for IT service management best practices is called IT Infrastructure Library (ITIL). By using this framework, the resulting system will be of higher quality and in accordance with the User's requirements (Rahmani, Himawati, 2020).

IT project portfolio management and IT asset management

IT project portfolio management and IT asset management belong to the field of strategic IT consulting (Vasil'ev, Kalyanov, & Levochkina, 2010). According to (Vasil'ev et al., 2010), these topics should be

the subject of their own independent studies. To my knowledge, these terms have not been further specified in the current literature on IT consulting.

IT strategy

It is necessary to work out an IT strategy to organize the integrated corporate process of developing, maintaining and using IT and to comply with the main business goals and directions. The essence of an IT strategy contains two interrelated points. The first aspect is part of a general business development strategy that utilizes information technologies to enhance core activity efficiency. The second aspect is a document describing the business goals and priorities of IT projects, an IT project portfolio, a list of tasks and a register of the results expected, a phased plan of realization and resources, deadlines and budget of the portfolio project implementation, and the advice on IT service organization. IT strategy development starts from the mission and proceeds to the business goals of a company. Therefore, it is essential to first characterize its main activity (Vasil'ev, Kalyanov, & Levochkina, 2010).

IT Outsourcing

The process of organizing IT service outsourcing demands extensive preparations and consists of several stages, which duration can differ for various companies. The principal stages of the process of organizing IT service outsourcing are the following: Strategic and economic feasibility of the outsourcing project; selection of one or several service providers; pre-contractual work performance and conclusion of a contract; a transfer period; management of the contract execution; renewal or closeout of the contract. IT consultants generally use a methodology that is based on multicriteria expert evaluation. While using this approach, a set of criteria are identified. Then, each of them gets specified with its description, possible values, an appraisal method and an impact of the obtained estimations on the outsourcing project (Vasil'ev, Kalyanov, & Levochkina, 2010).

Project Management

IT project management deals with planning, organizing, and describing responsibilities for successfully completing the firm's IT goals. Traditionally Project Management Information Systems focused only on scheduling and resource management. However, now its role evolved to be a comprehensive system that supports the entire project life cycle, project program and project portfolios (Kumar et al., 2017). The quality of the consulting services in project management received by the customers can be measured based on six dimensions such as reliability, responsiveness, assurance, empathy, process and education (Yoon and Suh, 2004).

IT security

IT consultants use their IT expertise to prevent data breaches on client IT systems. Nevertheless, data breaches regularly happen. It has been found that those data breaches affect not only the attacked company but also the IT consultancy responsible for IT security. On the positive side, the market value of security consultants raises with the disclosure of security breaches. On the other side, the reputation of IT consulting firms can be negatively affected if the number of breaches of their systems is massive (Cavusoglu et al., 2004). This impact becomes even more severe if clients belong to specific industries such as technology and retail sectors. According to information transfer theory and capital market expectation, clients and investors may hold IT consultation providers responsible for IT security breaches, leading to negative returns (Chen et al., 2012).

Applications

Software systems might have a different scale, characteristics, requirements, types, and properties but usually have the same stages in their development. These stages occur by implementing the System Development Life Cycle (SDLC). Software developers on IT projects must implement SDLC by

selecting a particular model process. Nevertheless, many IT development teams do not pay attention to software management frameworks or standards. As a result, they will experience difficulties in planning, reporting work results, monitoring, and controlling, especially when all personnel in the team do not have sufficient experience. Therefore, in many cases, an IT consultant is needed to apply a general framework so that the software development process will be more structured to produce higher quality systems (Rahmani, Himawati, 2020). Additionally, concurrent-convergent IT consulting strategies can be used to increase the client's efficiency and derive insights from other information-based applications (Liao and Cheung, 2003).

Acquisition IT integration

Acquisition IT integration, which integrates the acquirer's and target's IT following a corporate acquisition, presents a difficult but crucial IT challenge for the many acquiring organizations (Henningsson, Øhrgaard, 2016). Acquisitions are used as strategic means for companies to create value through economies of scale and scope by securing access to essential technologies or enabling future growth options (Haleblian et al., 2009). The following figure shows the IT-based value creation in acquisitions.

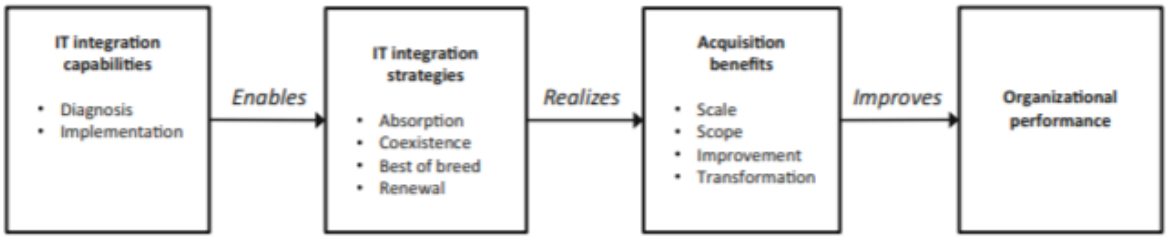

Figure 2. IT-based value creation in acquisitions from (Henningsson, Øhrgaard 2016)

IT consultants are used to evaluate the right integration strategy for the client, planning the IT architectural changes and analyzing potential acquisition benefits. In addition, IT consultants often perform change management, monitoring, and controlling tasks after completing the acquisition (Henningsson, Øhrgaard, 2016).

3.3 Employees

Profile

An IT consultant has to have specific skills both in business management and information systems (Kumar et al., 2017). Therefore, people who seek to work in this market segment need to have a wide yet specialized skillset. Additionally, many IT consulting companies belong to the most prominent companies globally and can afford only to hire the best of their many applicants. According to (Friedman, 2004) an IT consultant needs to be knowledgeable, current on technology trends and tool, open-minded and flexible, a great communicator and have excellent availability. Most consultants are measured by the standards of a "top performer". The exact definition of a "top performer" depends on the observer's perspective, but in general, a "top performer" is about five to eight times more productive than their counterparts. The attributes a "top performer" must-have differentiate across the seniority levels of the consultant. Critical attributes for entry-level consultants are: Ability to deliver; build and manage credible relationships; ambitious, analytical; assertive; having business knowledge; committed; cooperative; interpersonally skilled; quick learner, self-confidence; handling high pressure; technical skills; verbally skilled. In more senior positions, attributes like being independent, coaching abilities and leadership qualities become more important (Joshi, Kuhn, & Niederman, 2010).

Challenges

IT consultants face two major challenges: To satisfy multiple stakeholders and deal with different kinds of stress.

Given the boundary-spanning role of an IT professional within an organization, various stakeholders (such as end-users of IT services, top managers, HR personnel, and IT staff) may have input into IT staff assessments. Different stakeholder groups may vary in evaluating successful IT performance because they emphasize different performance attributes or observe different aspects of the IT professional's job. This divergence in mental models can create a misalignment in stakeholder and IT staff perceptions. This lack of goal congruency can lead to dissatisfaction either on the consultant or the stakeholder side (Joshi, Kuhn, & Niederman, 2010).

While not necessarily being congruent in the demands, all stakeholders expect the best performance, which leads to different kinds of stress for the IT consultant. The most common types of stress are communication technostress, society technostress, boundary technostress, time technostress, workplace technostress, learning technostress and family technostress (Ferziani, Rajagukguk, & Analya, 2018).

Motivation

To motivate an IT consultant, the job itself must be challenging, enriching and interesting. Therefore, IT consultancies try to maximize specific motivators to keep their employees motivated and counteract the stress factors. Typical motivators in the IT consulting market segment are recognition, achievement, variety of work, and growth possibilities. Most of these motivators are of intrinsic nature, which has been found to be a more important buffer against stress than extrinsic motivation (Joshi, Kuhn, & Niederman, 2010). Additionally, IT consultants usually get extrinsic motivation in the form of high salary and performance-related bonus payments (Kautz and Bjerknes, 2015).

4 Discussion

This systematic literature review provides a broad overview of IT consulting in general. Overall, there is little literature on the current state of IT consulting. Many publications only deal with management consulting as it is the larger industry. Others mix up management and IT consulting topics making it hard to focus on IT consulting itself or even find the needed publications. Additionally, the market for IT consulting is rapidly evolving, making it difficult to assess the current situation. The provided classification of market situation, services and employees attempts to structure the available literature most comprehensively.

Considering IT consulting services, many publications name IT consulting practices without describing them in detail. There is a need for more research to describe IT consulting practices properly. Especially the topics strategic IT portfolio management and IT asset management are yet to be defined in the current literature. Furthermore, some IT consulting practices are accurately described but lack a view on benefits, challenges and methods for the specific practice area.

4.1 Limitations

The literature review is based on six different databases. Literature that cannot be found in the databases was not included in the review. Due to time and resource constraints, the review was conducted by only one researcher. This can lead to a bias in the results. The bias can be particularly significant when sorting the paper to determine whether its focus is on IT consulting rather than management consulting.

5 Conclusion

On the one hand, this literature provides a general overview for business managers to identify helpful IT consulting practices for their business. On the other hand, it gives an outlook for future IT consultants to better understand challenges and requirements in the IT consulting environment. The current trends of globalization and specialization due to market consolidation are investigated to put the other results into perspective. This review describes ten IT consulting practices and structures them in strategic and operational practices, building an easily accessible framework for managers. However, further research needs to be done to describe some practices in more detail and to analyze challenges and benefits alongside methods and frameworks for each practice area. This work can serve as an introduction to categorize practices and investigate IT consulting practices in greater detail.

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