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Factors for Effective Communication of IT Costs and IT Business Value

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***Abstract*—Nowadays, organizations must invest strategically in information technology (IT) and choose the right digital initiatives to maximize their benefit. Nevertheless, Chief Information Officers still struggle to communicate IT costs and demonstrate the business value of IT. The goal of this paper is to support their effective communication. In focus groups, we analyzed how different stakeholders perceive IT costs and the business value of IT as the basis of communication. We identified 16 success factors to establish effective communication. Hence, this paper enables a better understanding of the perception and the operationalization of effective communication.**

***Index Terms*— Effective Communication, Perception, Success Factors, IT Costs, IT Business Value, Business-IT Alignment, COBIT.**

I. Introduction

FOR DECADES, organizations face pressure to operate efficiently and manage resources and spendings strategically and in times of inflation and war this pressure even increases [1]. To remain competitive and mitigate security risks, those organizations raise their expenditures in information technology (IT) [2] and strive to choose the right digital initiatives [3]. Therefore, they require strategic cost management [4] and successful communication about IT costs and the benefit they generate through their IT investments [5]. However, for 63% of 166 interviewed Chief Information Officers (CIOs), it is still a challenge to communicate this business value of IT [6], which is also confirmed by other studies [7] [8]. Similarly, decision-makers struggle to foster transparent cost discussions [8]. This is why in this paper we aim to understand how IT costs and the business value of IT are perceived and communicated effectively.

Effective communication describes the "bidirectional exchange" [9] of information resulting in common grounds [10]. The foundation of effective communication and the premise to achieve business value from IT is the alignment between business and IT department [11]. Researchers extensively investigate the success factors for business-IT alignment (BITA) and the resulting impacts of better communication on their relationship [12–14]. This relationship also influences the effective communication of IT cost and the business value of IT itself [15–17]. Besides BITA, studies highlight further aspects of business value communication such as common language [15] or appropriate methods and metrics [16]. Furthermore, the perception of the stakeholders plays a decisive role in communication [18]. However, research does not examine the perception of IT costs and business value in connection with their successful communication in detail. Furthermore, a comprehensive overview of success factors for communication following an established framework [15] that supports the operationalization of conceptual models [19] is missing. Our study aims to fill these research gaps: we conduct focus group interviews to get practical insights and generate an overview using the established governance framework *COBIT* [20]. Thereby, we contribute to scientific research by shedding light on the current perception of IT cost and business value of IT and their communication. Furthermore, we present the success factors and support the operationalization of effective communication. Additionally, this study has practical implications: practitioners can use the results to recognize symptoms of non-constructive communication in their organizations and to gain awareness on how to develop an effective communication of cost and IT business value.

This paper is structured as follows: First, we introduce our theoretical foundation related to the communication between business and IT department. We thereby focus on enterprise governance of IT, business-IT alignment, and aspects of cost and value communication. We then show our research method, which comprises focus groups followed by a qualitative analysis. Finally, we present our findings, discuss them, and draw a conclusion.

II. Theoretical Background for the Communication between Business and IT

Collaboration between business and IT department is the baseline for achieving IT business value [21]. The basic elements for this collaboration are structures, processes, and relational mechanisms defined and implemented as enterprise governance of IT (EGIT) [22]. Business-IT Alignment (BITA) thereby acts as a "mediating mechanism" between EGIT and IT business value [22]. It builds the base for effective communication between the business and IT departments [23]. The conceptual model in Fig. 1 presents this relationship. In the following, we describe the mentioned three elements for effective communication. In this paper, we refer to effective communication as "bidirectional exchange" [9] of the interlocutors to develop a "similar representation" [10] of the conversation content.

Fig. 1. EGIT-Alignment-Value Conceptual Model following [22]

A. Enterprise Governance of IT

A successful EGIT leads to better controllability of IT and consequently to greater business impact [24]. In order to achieve this successful governance, research intensively investigates determinants leading to an "integrated model of IT governance success and its impact" [25]: success factors analyzed in this context are e.g. the understanding of the IT value chain, top management commitment, IT's business orientation, and the persuasiveness of communication. To establish successful governance and management of IT, the *Information Systems Audit & Control Association* (ISACA) presents COBIT as a "good-practice framework" with guidelines for organizations [19]. Following the core model of the most recent ***C**ontrol **OB**jectives for **I**nformation and Related **T**echnology 2019* framework, organizations should establish a governance system built from several components [22]: (1) Organizational Structures, (2) Processes, (3) People, Skills, and Competencies, (4) Information, (5) Culture, Ethics, and Behavior, (6) Services, Infrastructure, Applications, (7) Principles, Policies, and Frameworks. Those components lead to a comprehensive and functioning governance system and influence effective IT management [20]. Therefore, earlier studies apply the components to ensure comprehensiveness [8] or use the COBIT framework to transfer the practical functioning to a conceptual framework [19]. COBIT highlights that open and transparent communication about performance enables establishing trust and "a good relationship between IT and enterprise" [20]. It thereby recommends organizations involving and aligning all relevant stakeholders from business and IT departments to overcome communication gaps [20].

B. Business-IT Alignment

The alignment between business units and IT departments is a construct that has been intensively studied for several decades [26] [27]. An established model to describe this relationship between business and IT [28] is the Strategic Alignment Model (SAM) presented by [11]: thus, alignment is based on the strategic fit between external and internal domains as well as the functional integration between business and IT domains. This leads to multivariate relationships between business and IT, always considering the linkage of three of those four domains as presented in Fig. 2. The first perspective *Strategy Execution* (1) is the most common alignment perspective. In this case, the business strategy operates as a driver for organizational decisions and then influences the design of the IT infrastructure. Alignment through *Technology Transformation* (2) also originates from the business strategy followed by an appropriate IT strategy. This then leads to the required IT infrastructure and processes. The third and fourth perspectives are driven by the IT strategy. For the *Competitive Potential* (3) perspective, emerging IT capabilities lead to new strategic orientations of the business such as new products and services. Their implementation follows through the adaption of the operational business processes. The *Service Level* (4) perspective describes how IT builds up infrastructure and processes to then better support business operations.

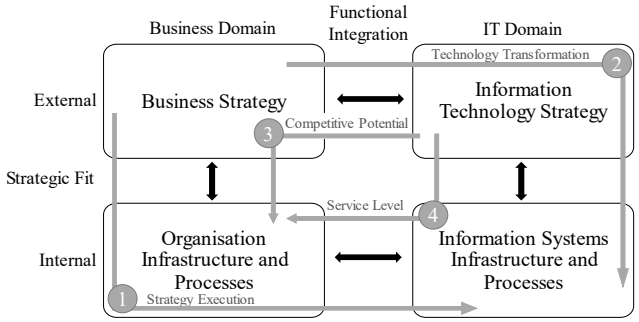

Fig. 2. Strategic Alignment Model following [11]

The alignment between business and IT is a communication and understanding-intensive continuous process [12] [11]. It is not a final state but rather described as "dynamic and evolutionary" [29]. To improve BITA, organizations need to consider six criteria including governance, partnership, scope and architecture, skills, value measurement as well as communication [29]. Depending on the maturity level of the alignment, the communication between business units and IT departments can be optimized and ideally lead to informal and pervasive communication [29]. Various enablers and inhibitors influence the maturity level of BITA and thereby also the effectiveness of communication and value measurement [14]. A literature review on such critical success factors of BITA presents those factors in three dimensions [13]: the human, the social, and the intellectual dimension. Success factors in the human dimension are IT skills & knowledge of business executives and vice versa as well as top management commitment, leadership skills of IT executives, and technical skills & knowledge of IT employees. The social dimension refers to a shared understanding of business

& IT executives, mutual trust & respect between business & IT executives, as well as business-IT partnership. On the intellectual dimension the alignment of business & IT strategy, goals & plans, as well as IT success, are critical for BITA. Those success factors indirectly influence effective communication regarding the costs and value of IT, since earlier studies highlight BITA itself an important factor for their effective communication [15].

C. IT Costs and Business Value of IT

In organizational communication of IT costs and business value, a shared perception often remains that "IT costs too much" [30]. Therefore, executives strive to determine the impact that IT has on the business. To measure this IT performance, research proposes diverse catalogs of key performance indicators (KPIs) [15]. For a variety of those KPIs, e.g. return on investment (ROI) [21], IT costs build the foundation [16]. Therefore, researchers develop conceptual frameworks to enable executives measuring the IT performance and thereby considering all IT-related costs as valid calculation basis [31]. They emphasize that not only the direct expenditures for development and implementation but also a variety of indirect costs related to human and organizational factors also count as IT costs [32]. However, organizations often still lack a clear understanding of the term "IT costs" and CIOs therefore face the challenge to transform non-constructive discussions about IT costs into a discussion about the business value contributed by IT investments [8]. "IT business value" is a concept that has been discussed in literature since the uprising of IT [33]. In line with former studies, we follow the understanding that IT business value is "measured by performance metrics on dimensions that stakeholders find important" [16]. As the perception of the stakeholders plays a decisive role in communication [18], they first need to have a common understanding of cost and value to achieve effective communication [16]. We address this current perception of the stakeholders in our first research question (RQ): *(1) What is the perception of business and IT stakeholders of "IT costs" and "IT business value"?*

Besides BITA and the common perception and understanding of the terms [16], further aspects influence the communication of IT costs and business value [15]. Transparency on IT cost information and the awareness of IT cost and cost drivers are a baseline to communicate IT costs and demonstrate the value of IT [8]. From this cost information, KPIs formulated in business language are an important factor for the effective communication of IT business value [16]. Furthermore, [29] mentions metric portfolios and dashboards to visualize value in communication. Business-IT structures that evaluate IT investments together also count as a success factor [34]. The value communication throughout the organization should then be audience-oriented using different channels [23]. To summarize relevant aspects of value communication, [15] conduct a literature review and investigate how to conceptualize value communication: They present different categories, e.g. transparency, understanding, collaboration, methods, transparent communication, and common language. However, research shows that especially establishing a common language and implementing collaboration on an equal footing is still difficult [8]. Therefore, CIOs still face the challenges of implementing successful communication [5] and demonstrating the business value of IT investments in their organizations [8]. They miss practicable success factors that operationalize the successful communication between business and IT on IT costs and IT business value. This gap leads to our second RQ: *(2) What factors do organizations need to consider for implementing an effective communication of IT costs and business value?*

III. Methodology

We follow the research method of focus groups because it enables academics to study specific topics in groups using focused interviews with a determined direction [35]. Earlier studies in IS make use of focus groups to evaluate design science artifacts [36], to develop a research agenda based on issues of merger & acquisition [37] or to identify factors related to the choice of students to study IT [38]. In small groups with an optimal size of 5 to 8 participants, specific topics may be studied in depth [39]. The direct feedback and the group interaction challenge interviewees' views and can inspire them to new ways of thinking which provide researchers with an in-depth view and innovative ideas [35]. It, therefore, enables researchers to get a wide variety of opinions or perceptions concerning an issue, behavior, or practice and thereby uncover factors that influence those opinions [39]. This is why focus groups support the aim of our study to understand the perception of IT costs and IT business value and get a broad view of the success factors of their communication. We divide our focus group study into two phases [37]: first, the planning phase, including the participant selection [39], and second, the sessions and the analysis.

A. Planning and Participant Selection

In order to achieve our research goal, we chose a single-category design for our focus groups and developed questions to guide the facilitation of the discussion [39]. The questions were open-ended to motivate participants to answer according to their specific situation [39]. The guiding questions are:

- What are we talking about when we talk about IT costs? Which costs belong to the total IT costs?
- What are we talking about when we talk about IT value? What is IT value for you?
- How do you communicate IT costs and the business value of IT within your organization?
- What are the challenges in those discussions?
- What is required to effectively communicate IT costs and IT business value in organizations?

To discuss these questions, we included a broad spectrum of people coming from different industries to cover a variety of perspectives. As a decisive criterion for the selection of the focus group participants, we specified that each of them must have a relevant responsibility and expertise in the communication of IT costs and IT business value. We followed the recommendation by [39] of 5 to 8 participants per focus group.

All participants were already part of the network of the research team. Table I provides an overview of the participants in the two focus groups.

TABLE I. PARTICIPANTS OF THE FOCUS GROUP SESSIONS

ID	Function	Industry (#Employees (EMP))
FG1-1	Head of IT Governance	Transportation (30.000 EMP)
FG1-2	CIO	Service Industry (600 EMP)
FG1-3	CIO	Electronics Manufacturing (1.000 EMP)
FG1-4	CIO	Pharmaceutical Industry (78.500 EMP)
FG1-5	CIO Office	Insurance (3.000 EMP)
FG1-6	Head of Value Mgmt.	Energy (91.000 EMP)
FG1-7	CIO	Infrastructure (1.000 EMP)
FG1-8	IT Controller	Energy and Agriculture (22.300 EMP)
FG2-1	Head of IT Governance	Transportation (2.700 EMP)
FG2-2	IT Controlling	Insurance (3.000 EMP)
FG2-3	IT Controlling	Retail (35.000 EMP)
FG2-4	Controlling	Electronics Manufacturing (1.000 EMP)
FG2-5	Controlling	Banking (2.500 EMP)
FG2-6	Controlling	Electronics Manufacturing (1.000 EMP)
FG2-7	IT Portfolio Management	Energy (91.000 EMP)
FG2-8	IT Controlling	Transportation (30.000 EMP)

B. Focus Group Sessions and Data Analysis

The focus group sessions were executed in September and October 2022. We facilitated the focus groups following the leading questions. We audio-recorded the sessions and took field notes during the discussions. We then conducted qualitative coding [40] across the group results to answer our research questions. The resulted figures for RQ1 were rediscussed in a second session with the focus groups. The coded factors for effective communication to respond to RQ2 were reviewed and adjusted in two further iterations by the research team, consisting of three researchers. We further applied selective coding to assign the 16 identified success factors to the COBIT components as displayed in earlier research [8]. Through the alignment of the factors to the categories, we ensure a holistic approach and the link to an existing framework [41] [8]. Following earlier research on success factors [42] [43], we chose the Ishikawa diagram to visualize the relationship between the identified factors. It further allows structuring the problem and the determining factors [43].

IV. FINDINGS

In the following, we outline our findings from the focus group sessions and thereby answer our research questions. To do so, we present the perception of IT costs and value and describe the factors for effective communication of IT costs and IT business value.

A. The perception of IT costs and IT business value

In this subsection, we describe the results for our first research question: *What is the perception of business and IT stakeholders of "IT costs" and "IT business value"?* We start with the perception of IT costs followed by IT business value.

IT cost perception

The interpretation of IT costs varies among the participants of the focus groups, ranging from *only the costs allocated to the IT department* to *all input factors related to information technology independent of the place of origin*. But even if they perceive all input factors related to IT as IT costs, shadow IT and new technologies such as Low Code Development Platforms, which are largely based in the business, are difficult to identify and capture. One interviewee therefore says that in their organization they estimate a proportion of IT costs for shadow IT to calculate the overall IT costs and proceed with their allocation to the business units (FG1-5). The participants further mention that product IT and operations IT are mainly neglected in their organizations' understanding and consequently management of IT costs. The perception of IT costs often differs from the employees in IT departments to business departments: while the IT department distinguishes between service development and operations or project implementation and management, business departments mainly realize total project or service costs. Furthermore, business stakeholders focus on charged costs such as managed workplace, IT management or overhead fees, service packages, or application licenses. One participant outlines that due to regular exchange and a clear corporate guideline concerning the definition of IT costs, stakeholders in his organization achieve a consensus on how to proceed with IT cost management even if their personal perception differs (FG1-2).

In collaboration with the participants, we develop a layer model on different perceptions of IT costs. Fig. 3 presents these different distinctions and levels of detail.

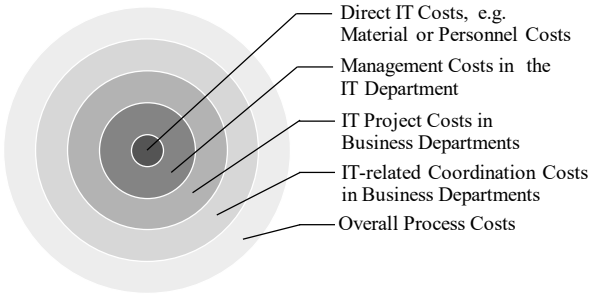

Fig. 3. Layers of IT cost perception

Direct IT costs related to activities assigned to the IT department are displayed in the first layer. With this commonly agreed inner layer, the focus group participants follow definitions of direct costs propagated by [31] and consider costs for the development and operation of hardware and software, personnel costs, external services, and shared services as general IT costs. The next layer comprises *management costs in the IT department*. They include the planning functions of IT, such as governance or enterprise architecture management, which only indirectly contribute to value creation. Most participants perceive these overhead costs as part of the overall IT costs that are "charged to the business units as overhead fee (FG2-1)". However, *IT project costs* that arise within *business departments* are often no longer fully attributed to IT costs. Those costs, displayed in the third layer, are related to activities such as process definition or testing within the business departments. The fourth layer comprises *IT-related coordination costs in business departments*. They primarily include the time spent by business departments on IT tasks such

as training, key user activities, or committees for process and project portfolio coordination. Most focus group participants perceive these costs as IT costs but highlight, that they are only partially or not at all accounted as IT costs in their organizations. The consideration of *overall process costs* is only occasionally used for highly automated processes. However, the "effort of a holistic end-to-end consideration of all IT costs in a process does often not pay off" (FG1-3). Therefore, the interviews show that organizations rarely apply an integral approach such as activity-based costing and thereby perceive all costs related to IT throughout a whole process as IT costs.

IT business value perception

During the group interviews on perception, the participants acknowledge that measuring and presenting the business value of IT is a significant challenge. For most of them, the term "business value of IT" refers to the contribution of IT activities to the overall value of a company and perceived by the business. However, this perception varies between the stakeholders in the companies: especially the top management often only perceives value as financial benefits of IT. Therefore, the initial categorization of IT business value perception follows two dimensions: monetary and non-monetary. Typically, the monetary value contribution of IT is measured through revenue. The non-monetary value contribution, by contrast, is reflected by other features: the focus can be on enhancing business capabilities. Likewise, the added value can lie in the optimization of existing processes or capabilities. The external perception of customers or partners regarding new business fields or security risks can also determine the non-monetary added value of IT.

The collaboration between business and IT can also determine different perceptions of the business value of IT. The dimensions discussed in the focus group sessions relate to the SAM model and its alignment perspectives [11] displayed in Fig. 4: In terms of strategy execution (1), IT's added value lies in maintaining operational capability and sustaining the business. IT is an integral part of the business. It provides basic services and meets technical requirements to keep operations running. The alignment between business and IT, following the technology transformation perspective (2), ensures the business value of IT through the IT support for strategic differentiation. Here, the IT department functions as a strategic sparring partner in the development and implementation of the business strategy. IT builds strategic competencies and thereby supports the strategic differentiation of the organization. The participants mention IT's value through the provision of data, which enables better decisions to be made, e.g., for predictive maintenance or risk modeling. Besides that, IT can deliver value by enabling the growth of new business areas or the repositioning of the strategic product market combination through innovation. This can be achieved through an alignment on the competitive potential perspective (3) within SAM. Finally, with alignment on a service level perspective (4), IT's value lies in continuous improvement. The focus groups perceive this perspective of the business value of IT in the development of tools and processes that enable automation and process optimization. Here, the IT department builds new IT capabilities and through them offers opportunities to reduce costs and increase efficiency and effectiveness, as well as to support business capabilities.

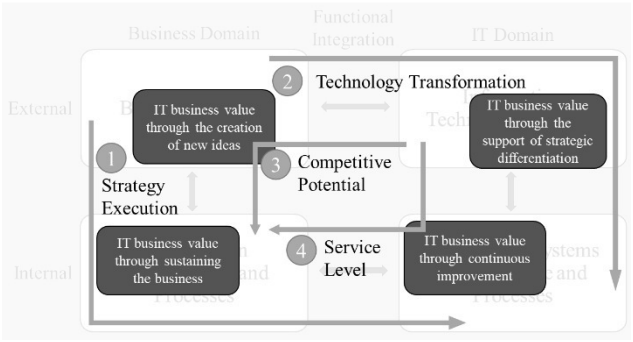

Fig. 4. Differing perceptions of business value of IT related to SAM

B. Factors for Successful Communication

Next, we consider the findings that answer our second research question: *(2) What factors do organizations need to consider for implementing an effective communication of IT costs and business value?* Our findings show that organizations need to take into account various factors to operationalize a effective communication of IT costs and the business value of IT. The Ishikawa diagram in Fig. 5 illustrates those factors. In the following, we outline and describe the identified factors based on the seven components of the COBIT 2019 framework.

Organizational Structure

COBIT 2019 presents organizational structures as "key-decision making entities in organizations" [20]. For the effective communication of IT costs and business value, organizations require interface functions and cooperative governance as structural elements:

- **Interface functions:** establish key functions for the dialogue between the business and IT department.
- **Cooperative governance:** ensure responsibility and decision competencies of both business and IT communication part.

For the focus group, an important success factor are interface functions that communicate information on IT cost and business value between the IT department and the business. A key function should be situated within the IT department. However, a collaboration also requires a determined counterpart on the business side to become the "voice of IT within the business" (FG1-1). Those interface functions further request responsibilities for decision-making. Decisions then should be taken in cooperation to foster involvement and commitment on both sides. This cooperative governance enables a strategic discussion on IT investments and final metrics and leads to effective communication of the business value of IT. Additionally, top management should be involved in strategic discussions through boards and commit to decisions.

Processes

The component processes describes "activities to achieve certain objectives and […] overall IT-related goals" [20]. Effective communication requires activities such as regular dialogues and a uniform approach to the discussion between

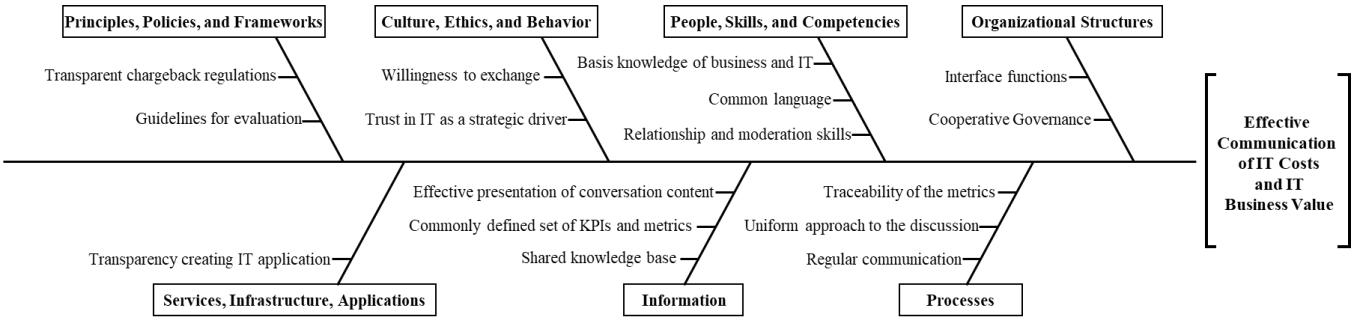

Fig. 5. Success Factors for Effective Communication of IT Costs and IT Business Value

business and IT. Furthermore, the tracking activity of metrics and committed tasks accounts for a success factor.

- **Regular communication:** establish a dialogue format between business and IT counterparts for regular communication.
- **Uniform approach to the discussion:** foster a defined approach to the evaluation and discussion of value.
- **Traceability of the metrics:** track the defined metrics and ensure commitments and consistency.

The participants stress the regularity of communication. They, therefore, propose a dialogue format to discuss the strategic use of IT and occurring costs. This dialogue should be integrated into the annual planning processes to ensure that the topics are incorporated into the budget plan. The frequency may vary depending on the business requirements. Secondly, a uniform approach to this discussion is crucial as it enables comparability and fairness. Furthermore, uniformity in the evaluation of IT investments ensures a clear methodology and transparency for all stakeholders. The participants highlight procedures such as the calculation and evaluation of business cases that require a consistent procedure. Finally, tracking the metrics and the communicated commitments is another important factor. It includes measuring business improvement against the business case and maintaining the business cases to demonstrate value over time. This requires not only a process responsible, but also all parties involved should have assigned tasks and be accountable for them. The liability of the stakeholders to those tasks then increases with a clear tracking activity.

People, skills, and competencies

Effective communication of IT cost and business value involve people with skills and competencies "for good decisions, execution of corrective action and successful completion of all activities" [20]. According to the focus groups, communication about IT costs and value often fails due to a lack of knowledge and know-how, both in the business and in the IT department, as well as a lack of efficiency in implementation. The involved stakeholders, therefore, require a basic knowledge of the business and IT domain, the competency to communicate about the costs and value associated with IT, as well as soft skills that enable effective communication and problem-solving.

- **Basic knowledge of business and IT:** build knowledge in business and IT departments to understand the specialization of the conversation partner.
- **Common language:** establish the competency to develop a common language to communicate IT costs and IT business value.
- **Relationship and moderation skills:** ensure effective communication tailored to the target group through relationship and moderation skills.

The development of knowledge is relevant for the interlocutors. Business employees require technical knowledge and awareness of challenges. They should understand the processes and workings of the IT department. Furthermore, they need skills to describe their requirements concerning IT or the problems and deficiencies they experience. IT employees, in contrast, need business knowledge about the capabilities and processes as well as methodical know-how on cost accounting. Furthermore, both conversation partners should establish a common language. This competency not only includes the common definition of IT costs and value but particularly understanding where the value of IT can be realized in the respective business units and for the whole organization. Business and IT counterparts should understand how to generate value and what drives the thereby occurring IT costs. For this conversation, soft skills are essential to build trust and communicate audience-oriented. The IT counterpart should "take a pragmatic approach and build a relationship through honesty" (FG1-3). Thereby, a "structured way of moderation" (FG2-8) strengthens the credibility and leads to an efficient conversation.

Information

The COBIT 2019 framework states that information is omnipresent throughout any organization [20]. The effective communication of IT costs and business value requires information to build a shared knowledge base. Additional success factors are a commonly defined set of KPIs and metrics and the effective presentation of the conversation content.

- **Shared knowledge base:** report basic information necessary to understand counterparts and find common ground.
- **Commonly defined set of KPIs and metrics:** agree on a set of metrics to measure IT performance quantitatively and qualitatively.

- **Effective presentation of conversation content:** visualize the information on IT cost and business value of IT appropriate for the respective stakeholders.

For the focus group participants, a shared knowledge base enables effective communication. It relates to a structured approach beginning with the alignment of the IT strategy with business objectives and financial constraints. This information leads to a common understanding in all interlocutors of how IT can contribute to the business and the complexity that may hamper the contribution of IT to business objectives. The focus of communication should be on the impact of IT use instead of purely cost-based discussions. This involves asking questions such as where IT can deliver value, what the costs are, and how they can be optimized, highlighting the strategic significance of IT. To communicate this business value, the stakeholders should come up with an agreed set of KPIs and metrics to measure IT performance. However, defining and implementing these KPIs is often a challenge. The participants, therefore, see an important factor in defining the KPIs in cooperation between business and IT. Moreover, they propose to use business capabilities as a baseline and to develop metrics that capture IT's contribution, both in terms of euro value and soft factors. Lastly, successful communication of IT cost and value requires an effective presentation. This entails the creation of a management-ready consolidation of the outcomes adapted to the communication standards of the organization. One participant also mentions a "portfolio visualization that enables better understanding in the business and that allows stakeholders to measure progress through the agreed targets" (FG1-6).

Culture, ethics, and behavior

The factors concerning culture, ethics, and behavior "are often underestimated" [20], however, for the focus groups, corporate culture plays an essential role in the effective communication of IT costs and business value of IT. They highlight the willingness to exchange information as well as the trust in IT to deliver value and drive the business strategically:

- **Willingness to exchange:** foster acceptance of IT as a discussion partner and the commitment to exchange information.
- **Trust in IT as a strategic driver:** foster awareness of the qualitative value proposition of IT instead of rather number-driven management.

The participants mention that they often face a "transparent wall" (FG2-5) between business and IT that hinders effective communication and the perception of the business value of IT. The commitment to exchange at all levels and the acceptance of the IT department as a "discussion partner at eye level" (FG1-1) counts as a success factor. Business and IT should commit together to savings and their consequences because a "successful exchange is also about putting the same intentions – the overall success of the company – in the center of attention" (FG2-7). Thereby, especially business employees should trust that IT may drive business development strategically. A shared worldview on the strategic importance of IT then enables effective communication with a common understanding and acceptance of possible value contribution of IT. The interlocutors should accept that besides the quantitative performance measures, IT's contribution may also be qualitative. The success of communication, therefore, requires a cultural shift from numbers-driven management to the acceptance of qualitative arguments, also on the business side.

Services, infrastructure, and applications

For the support of processing and management in organizations with information technology, COBIT 2019 mentions services, infrastructure, and applications [20]. Also, effective communication necessitates technology support to create transparency.

- **Transparency creating IT application:** provide technical support for illustration of IT costs and metrics as well as tracking mechanisms for communicated targets.

For the participants, transparency of IT costs is crucial for honest communication. Therefore, IT applications are required to integrate cost information of different databases and illustrate relevant numbers. The communication of business value should then be supported by applications comparing actual and target figures as well as the budget plan and the actual project portfolio. This enables comparability and traceability of IT investments and their generated impact.

Principles, policies, and frameworks

For "practical guidance for day-to-day management" [20], organizations apply principles, policies, and frameworks. The participants mention tense discussions in day-to-day management about cost allocation and service delivery. They, therefore, highlight practical guidance through transparent chargeback regulations and guidelines for IT investment evaluation as success factors in communication.

- **Transparent chargeback regulations:** set up agreed rules for the allocation of IT costs.
- **Guidelines for evaluation:** set up transparent guidelines for decision-making and if required business case calculation for IT investments.

A prerequisite for the setup of cost allocation rules is a comprehensible service offer of IT. Then business requires transparency on what they will be charged for. Preselected chargeback regulations foster the acceptance of IT costs in the business. Thereby, the participants mention that e.g. in the case of cost allocation with planned prices, the decision on how these allocated costs are compared with the actual amounts at the end of the fiscal year should be announced transparently (true up or true down). Furthermore, organizations need clear guidelines on how to decide on IT investments and if business case calculation is valuable. If a business case is required there should be clear calculation specifications and evaluation mechanisms. The participants however stress that not for every decision a business case is needed, especially if "projects are business critical or legally necessary" (FG1-6).

V. Discussion

The findings show that the perception of IT costs and business value differs among the stakeholders. In the following, we discuss the significance of these differing perceptions and their relevance to communication. Furthermore, we examine the identified success factors, compare them to previous research and outline how they can contribute to more effective communication.

A. Differing perceptions of IT costs and business value of IT

The costs of IT "appear more tangible in nature" [31] than the value and therefore are "often perceived to be easier to estimate" [31]. The findings stress that business and IT departments however rely on different understandings of IT costs. This lack of a clear definition and a common understanding hampers transparency and leads to difficulties in cost management [8]. The developed layer model visualizes the complexity and multidimensional nature of IT costs for the participants. It stresses that the stakeholders generally agree on the core IT costs, referred to as *direct IT costs* [31], and the *management cost in the IT department*. However, indirect costs, i.e., the outer layers, are often not treated or perceived as IT costs within organizations. We identified those "human and organizational factors" [31], especially outside the IT department. In a detailed study, [32] present various characteristics of indirect costs and emphasize the importance of recognizing these costs as IT costs to enable a holistic evaluation. Therefore, the perception of what IT costs are and to what extent they should be included in metric calculations must follow a clear process and be "determined by a clear cost structure" (FG2-3). Besides, a lack of standardization also leads to challenges in comparing IT costs externally [8]. One focus group participant also mentions that "benchmarks, therefore, create false expectations" (FG1-3) as comparison with other companies is very difficult. The layer model displays those different possibilities of perception and creates awareness of the multifaceted complexity of IT cost. Therefore, it builds a basis for a common understanding of how to define IT costs within the organization as a basis for performance metrics and how to compare them beyond.

The inconsistent perception of IT costs and resulting difficulties in IT evaluation hampers the communication of value. Especially if the "business value of IT is equated with revenue and the non-monetary contribution of IT is not acknowledged" (FG2-2). One common contrast, also highlighted by the participants is the differentiation between monetary and non-monetary contribution: business cases are calculated to express the monetary contribution in comparison to IT costs. The non-monetary contribution of IT, however, is challenging to communicate and "misunderstandings about the definition of value can lead to feelings that value was not delivered" [34]. Alignment between business and IT is therefore indispensable for their mutual understanding and the perception of value [29]. To highlight this, we align the different perceptions of value in Fig. 4 to the SAM and thereby display that the value contribution of IT and its perception differs related to the alignment perspective. The participants stress that IT is mainly perceived as an enabler, sustaining the business. This follows the most common alignment perspective [11] Strategy Execution (1). However, if business and IT foster alignment on different perspectives, it can also improve the perceived value contribution of IT [22]. The results show that IT therefore should take the initiative and empower also the other perspectives to amplify value contribution and perception in the business.

B. Communication as the basis of perception and vice versa

The findings show that organizations with regular exchange and clear definitions struggle less to adopt a shared perception of IT costs and business value. An earlier study investigates how executives achieve consensus on the perception of business value and identifies communication as one supportive factor for this consensus [9]. The focus groups highlight that a lack of constructive communication between business and IT departments leads to "accusations that the IT department is too expensive" (FG1-1). This sentiment reinforces a previous study mentioning that communication shortfall results in different perceptions and limited comprehensibility of expectations on the business side [33]. Also, non-constructive discussions about the costs and value contribution of IT provoke cultural differences [33] [44]. The participant describes this as a lack of trust in the IT department and in IT to be a strategic driver for the business. For this, the ability to develop a "common language is indispensable" (FG1-6). This common language should ideally be expressed in business terms to ensure consistent perception across stakeholders [16]. Thus, our findings stress that for a shared perception of IT costs and business value, business and IT require effective communication.

Effective communication of IT costs and business value, however, also necessitates a shared understanding of the relevant topics. The stakeholders' perception, therefore, is decisive so that both sender and receiver within a bidirectional exchange feel satisfied and consider the communication effective [18]. Several identified success factors foster the development of this "similar representation in the interlocutors" [10]: Besides the ability to develop a **common language**, the skill to have a **basic knowledge** about the domain of the interlocutor supports a common ground in the conversation. For this also the given information should serve as a **shared knowledge basis**. The **effective presentation of the conversation content** then assists communication through visualization. In conclusion, shared perception and understanding are necessary for effective communication, and establishing these requires active efforts from all participants. The interdependence of perception and communication reinforces that besides the common language, a shared knowledge base, and effective presentation, regularity is decisive for effective communication of IT costs and business value. The success factor of **regular communication** supports this required continuous communication process.

C. Success Factors for communication

The effective communication of IT costs and business value is based on successful governance and alignment [22]. Our findings support this interrelation by addressing the

success factors mentioned in the EGIT and BITA literature: Especially the factors identified in the categories *people, skills, and competencies* as well as *culture, ethics, and behavior* incorporate the success factors of EGIT and BITA mentioned in the theoretical background section. The outlined cultural aspects include factors such as mutual trust and respect [14], business-IT partnership [14], or IT's business orientation [25]. Success factors identified in the category people, skills, and competencies comprise BITA prerequisites such as various skills and knowledge of both business and IT executives [13] as well as the understanding of the IT value chain and persuasiveness of communication [25] required for EGIT success. Our study indicates that the effective communication of IT costs and business value requires further aspects. Therefore, organizations necessitate successful EGIT as a basis and need to drive BITA as a continuous process [12] but additionally, they should consider specific factors for the communication of IT costs and business value of IT.

Earlier studies in the business value context already mention shortfalls in communicating IT costs and business value and highlight relevant aspects for effective communication [15]. The developed factors in our study are in line with these factors of previous studies: e.g. the required **interface function** represents "business-IT structures to recognize and evaluate opportunities" [34]. The processual factor of **regular communication** mentions regular collaboration [15] and a **uniform approach to the discussion** includes "a clearly defined portfolio value management process" [34]. Earlier studies further establish metric portfolios [15][16] as a prerequisite for effective measurement and communication of business value or balanced dashboards to "demonstrate the value" [29]. In this study factors related to information such as a **commonly defined set of KPIs and metrics** and the **effective presentation of conversation content** include those aspects. This close connection with individual aspects investigated in other studies validates our findings. In contrast to these individual mentions of success factors in previous research, our study develops a comprehensive overview. It thereby includes not only existing aspects but expands them including factors in the category of *principles, policies, and frameworks* neglected in previous studies. The developed overview of success factors, therefore, provides an extension of existing literature as well as a focused, summarized view aligned with the factors for business value communication identified in earlier studies.

The mapping of relevant success factors onto the COBIT 2019 framework provides an overview from different perspectives. With the seven components, referred to as "enablers" [22] in earlier COBIT versions, our categorization enables the implementation leading to successful IT management [19]. However, as organizations face difficulties in the implementation of effective communication [5, 6, 8], they require in addition to the aforementioned success factors further practical guidance for the operationalization of effective communication. Research could, therefore, propose a detailed design of **regular communication** based on the other identified factors. As outlined, the main focus thereby needs to be on the unified understanding and perception. Earlier studies emphasize the importance of a common language [15] based on "terms that the business understands" [29]. In addition, proven approaches to communication plans [15] [16] should be considered. With the success factors presented, we provide a basis for future research on the operationalization of effective communication between the business and IT department regarding IT costs and the business value of IT.

VI. Conclusion

Increasing inflation and security risks urge organizations to manage IT costs effectively and efficiently. Thereby, the communication of IT costs and the impact generated through IT is crucial to remain competitive and to strategically plan investments. However, CIOs face challenges to create a common understanding of IT costs and the business value of IT and furthermore, effectively communicate them. A current view on the perception as well as a holistic overview of success factors to operationalize effective communication does not yet exist in academia. Therefore, the goal of this publication is to identify how business and IT stakeholders perceive IT costs and IT business value. With this understanding, we further aim to give an overview of the success factors that organizations need to consider for the effective communication of costs and business value of IT. To reach this goal, we conduct a focus group study and discuss the findings. In summary, the investigation of the perception shows that it differs between the stakeholders for IT costs as well as for the business value of IT. We conclude that to create a common understanding in organizations, they require communication about the perception and a common ground to discuss IT costs and IT business value. The result of the mapping to the seven COBIT components ensures a holistic perspective and enables transparency on the 16 identified factors for successful communication. It thereby offers a structured representation as a basis for the operationalization of effective communication between the business and IT department about IT costs and IT business value. Furthermore, the paper highlights that this interchange is based on the stakeholder's competency to communicate in a common language. This common language then should enable the transparent demonstration of the value of IT for the organization.

This paper makes a theoretical contribution by providing an insight into the current perception and communication of IT costs and business value of IT, and thus by identifying the relevant factors to operationalize an effective communication. Moreover, practice gains awareness about possible reasons for non-constructive IT cost communication and guidelines on how to turn it into effective communication with a focus on the business value of IT.

However, the study itself has limitations. First, the focus groups were conducted only with organizations situated in Germany. We mitigated these limitations by including participants with diverse backgrounds and from different industries and company sizes. Although we cover as broad a spectrum as possible with these participants, further focus groups

around the world could enrich our research findings and add even more validity. Second, the study does not distinguish the perceptions and success factors by company size or industry which could provide a more differentiated view. Focus group design concentrating on organization sizes or industries would enable comparison and stakeholder-specific success factor analysis. Third, the study lacks proof that the identified success factors facilitate the operationalization of IT cost and value communication. To overcome this limitation, researchers could in the next step provide a case study implementing the success factors and evaluating whether considering these factors leads to more positive perception and successful communication. Furthermore, future research should seek to conceptualize how communication of IT costs and business value should look like considering the identified success factors.

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