2010

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UNDERSTANDING THE SUCCESS OF STRATEGIC IT/IS BENCHMARKING:
RESULTS FROM A MULTIPLE-CASE STUDY

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Abstract

IT organizations use strategic IT/IS benchmarking to assess their performance and identify starting points to improve IT strategy, processes, or operations. However, recent studies report that they are often unable to translate benchmarking results into action and therefore do not gain performance improvements. Research has not yet offered explanations for this discrepancy. Consequently, this study has two objectives: First, we want to understand what factors impact a successful strategic IT/IS benchmarking. Second, we want to determine how knowledge of these factors can be translated into a model for explaining the success of IT/IS benchmarking. We use a qualitative research design, analyzing three cases from different industries. We found that trust, participatory leadership style, methodological transparency, and top management support are causal for stakeholder commitment. The latter, together with management support, generates willingness to act. In turn, willingness to act and the benchmarking's integration into the strategic planning process are factors explaining the success of benchmarking. We show that for benchmarking instruments, databases, and processes, methodological excellence is a necessary but not sufficient condition for benchmarking success. Therefore, we recommend that executives establish a systemic environment assuring management support and a high level of stakeholder participation fostered by a participatory leadership.

Keywords: strategic IS management, IS performance assessment, strategic value of IT, senior management support.

1   INTRODUCTION

Owing to the global economic crisis, many corporations' IT management is confronted with an adverse environment. In these difficult times, budgets tend to be cut back and IT management is required to focus on efficiently running the systems needed to execute or support business processes. In this context, corporate executives often require their IT managers to compare their cost and services to external reference points in order to generate information on their own IT's performance. The industrialization and commoditization of IT is a trend that supports this development (Gartner 2008). In order to provide such information for comparison, IT managers need key performance indicators (KPIs) that are relative to their own data over time (longitudinal studies), to data of others (cross-sectional studies), or to both (panel studies). Especially comparisons between companies are beneficial to IT managers, as such information enable them to capture and account for their competitive environment. In their search for this kind of information many IT executives are following a benchmarking approach.

As an established approach for organizations seeking information beyond their organizational boundaries, benchmarking has evolved from product reverse engineering (as in the much noted Xerox case described by Jacobson and Hillkirk 1986) to capture almost every aspect relevant to corporate management: from simple KPIs to complex strategies (Ahmed and Rafiq 1998). Our experience of working with a strategic IT/IS benchmarking initiative's participants, however, shows that benchmarking's sustainable effects are rather limited. Practitioners often find it difficult to relate studies' results back to their own organization: an observation that is also supported by recent studies (Braadbaart 2007; Moffett et al. 2008). Some companies attribute these difficulties to the limited comparability of data (Hinton et al. 2000). This seems contradictory, especially in the light of the above-mentioned strong trend towards standardization and commoditization of IT in corporations.

Despite its popularity in practice, there is little scientific coverage of benchmarking as an approach to generate data and information on IT and its management in corporations (Cragg 2002). This calls for a more detailed investigation of approaches, analyses, and the application of benchmarking in a corporate context. Especially strategic benchmarking needs more scrutiny. Although its importance is widely accepted, many companies seem to regard benchmarking as a new approach. Moffet et al. (2008) revealed that only 29% of all their study participants used benchmarking at a strategic level.

This paper addresses two research questions: (1) understanding what factors impact a successful strategic IT/IS benchmarking, that offers sustainable benefits for an organization, and (2) determining how these factors can be translated into a model for explaining the success of IT/IS benchmarking to foster our understanding of the phenomenon at hand and to guide benchmarking efforts in practice.

To present our research, we structure this paper as follows: the next section briefly reviews the most important theoretical concepts that inform our research. We then present our methodological approach for answering the research questions. After introducing the case studies on how benchmarking impacts the management of IT organizations, we synthesize the cases into a model that explains how benchmarking works and how it is impacted. We then discuss our limitations and research contributions.

2   THEORETICAL BACKGROUND

2.1   Benchmarking

Benchmarking in general can be defined as a continuous search for, and application of, significantly better practices that lead to superior competitive performance (Watson 1993). As an important prerequisite for this, data needs to be captured by measuring meaningful KPIs which, in our case, cover all ITM related domains (Alshawi et al. 2003) relevant in a specific context. However, in ITM, benchmarking has mainly focused on products and services – particularly cost and other quantitative

measures – and has only shifted towards processes in recent years. Benchmarking for strategy has not yet been fully embraced within IT (Cragg 2002).

While there is no consistent theoretical determination of benchmarking as of yet (Moriarty and Smallman 2009), there are many different classifications of benchmarking approaches. According to Carpinetti and Melo (2002), benchmarking can be classified according to its object. Consequently, they distinguish between product, process, and strategic benchmarking. Furthermore, referring to Camp (1989), they classify benchmarking approaches according to the benchmarking partner, i.e. internal, competitive, functional, and generic benchmarking. The latter three can be subsumed as external benchmarking. A wide spectrum of methods is available for benchmarking (Francis and Holloway 2007). Although their approaches differ slightly, they have several fundamental characteristics in common. Drew (1997) identified five key activities: (1) determine what to benchmark, (2) form a benchmarking team, (3) identify benchmark partners, (4) collect and analyze benchmark data, and (5) take action. This process makes benchmarking a tool well suited for capturing rich datasets and relevant KPIs, even in strategic settings.

These data form the heart of any benchmarking approach. We believe that the various characteristics of benchmarking approaches mentioned above influence which data are needed and where they come from. A solid benchmarking setup that incorporates these characteristics will, in turn, lead to more meaningful results, i.e. produce a higher quality of the data a benchmarking project produces.

2.2   IT Management

IT management (ITM) provides the context in which benchmarking is applied. It influences benchmarking as a management tool for ITM since it has to cover its contents. In addition, we believe that the ITM process impacts how benchmarking can be applied and how it supplies information.

When examining the ITM *content*, its different domains should be taken into consideration, as well as the relations and interdependencies between these domains. Various researchers have tried to identify the domains of ITM, i.e. the fields of action that a holistic approach to managing IT/IS in a corporate context needs to cover. Examples of such domains range from the management of a company's portfolio of computer-based applications (Segars et al. 1998) and its IT infrastructure (Mocker and Teubner 2005) to organizational considerations (Boddy et al. 2005). Some authors (e.g., Riempp et al. 2008) bring those domains together and outline their relationships. This helps IT decision makers to assure their approach's comprehensiveness and accounts for the effects that management decisions in one domain may have on others. ITM-related performance measurement needs to capture all these domains and especially their relations in order to assure a thorough assessment of an IT organization's strengths and weaknesses and to account for potential inter-dependencies.

Looking at the ITM *process*, the questions of where and how benchmarking can be used to support ITM arise. Building on studies that examine the strategy process specific to strategic ITM (e.g., Galliers and Sutherland 1994), Müller et al. (2009a) argue that ITM should be able to address the entire cycle of strategic management specific to IT, i.e. strategic planning, strategy implementation, and strategic positioning. Regarding the latter, they argue that an analysis of KPIs, contextual, and competitive information is an important foundation for ITM and suggest benchmarking as a good source of data. Following Müller et al. (2009a), a benchmark project can therefore very well feed data into the strategic positioning process if it does account for these additional factors. This will increase the fit of a benchmarking instrument to a particular context and provide important context information that is needed to transfer insights back to a company's specific environment.

2.3   Systemic Environment

Since ITM is a complex decisional, technical, and social task in a corporate environment, a systemic perspective seems particularly relevant for understanding, describing, and prescribing in this domain

(Boynton and Zmud 1987). Such a systemic perspective should also look at a system's context. This is especially true for strategic planning in IT. Based on the idea that IT management should incorporate an analysis of the internal and external context into their strategizing (Kovacevic and Majluf 1993), Müller et al. (2009a) suggest that this specifically applies to contextual factors in the firm (e.g., the role of IT, organizational structures, governance approaches to IT) and the competitive environment (e.g., market structure). With regard to benchmarking, Elnathan et al. (1996) also adopt this notion by stressing the importance of enriching data with contextual information.

In addition to the ITM context, the immediate context in which a benchmarking project is undertaken should also be considered. Research on group processes and decision-making suggests that this pertains particularly to social factors. Rowland and Parry (2009) show that commitment to outcomes within teams depends on a positive climate for dissent and the team's ability to resolve dissent. Similar results are revealed by Dooley and Fryxell (1999). In addition, many studies have been done on an active and open-minded leadership style's positive influence on decision commitment and team performance (Dionne et al. 2004; Kirkman and Rosen 1999; Skordoulis and Dawson 2007). The importance of consensus among the relevant actors of ITM to ensure the success of strategic positioning (Müller et al. 2009b) is also a systemic factor that is of importance in the benchmarking context. Furthermore, Parayitam and Dooley (2009) emphasize that, in strategic decision making teams, executives' trustworthiness is strongly linked to decision quality and commitment. In the general context of performance measurement systems, Bourne et al. (2002) identify two factors that support the success of such a system: a reasonable cost/benefit ratio and top management's commitment. We expect all these factors to play an important role in explaining benchmarking's success in practice.

3 METHODOLOGY

To address our research questions, we observed companies that conducted a benchmarking initiative to generate information comparing their IT department to external references. Consequently, we partnered with three companies to learn how they use benchmarking as a source of information to improve their ITM. Moreover, we investigated how they approached the task of generating data and information through benchmarking and how they transferred these to their ITM processes.

During this investigation, we followed Yin's (2002) methodology, since case studies are an established approach for analyzing ITM issues in practice (Wu et al. 2006). Furthermore, a case study would enable us to examine the context of these issues in an organizational setting (Benbasat et al. 1987). In addition, we used existing guidelines for conducting case studies to guide our empirical work (Dubé and Paré 2003; Gibbert et al. 2008; Klein and Myers 1999). Our selection of cases is a convenience sample, since only a small number of companies allowed us access to their confidential planning data. Applying the logic of theoretical replication (Benbasat et al. 1987; Yin 2002), we emphasized variation in the cases to obtain results from a variety of different settings. We believe that patterns found across the cases are results that help us answer our research questions.

As a multi-methodological approach (Mingers 2001) within the case studies, we collected data through common field note protocols, interviews, workshops, surveys, observations, and document analysis techniques. The interviewees were project team members as well as key IT stakeholders. Team members generally comprised the IT management team, covering all relevant domains of ITM. Stakeholders ranged from company employees to senior executives, also representing both internal and external customers. This multi-methodological approach was found to be especially valuable in the complex context of ITM as a social phenomenon (Kaplan and Duchon 1988). Consequently it allowed us to focus our observations, thus increasing their validity (Mayring 2001). All the material we gathered through these various instruments was collected in a case study database and jointly analyzed by at least two of the authors. Each case led to a detailed write-up of our field observations. We relied on process theory (Langley 1999; Pentland 1999) to analyze the cases, and on guidelines for case-based theory building (Dooley 2002; Eisenhardt 1989; 1991). In the within-case analysis, we focused on identifying the concepts that either contributed to the benchmarking initiative's success or caused

problems that the companies had to overcome. The cross-case analysis was based on a detailed search for similarities and differences between the three cases. The patterns we found were considered promising elements for a model explaining the success of strategic IT/IS benchmarking and were subsequently considered for inclusion in our framework. Consequently, the cases helped us to gradually identify the framework's constituent elements. On the whole, each case refined our understanding of these constituents, while individual case stories contained the narratives that showed the underlying mechanisms of how benchmarking contributes to strategic planning in IT.

4 CASE STUDIES

The studies took place between July 2007 and December 2008. Each took between two and five months to complete. The companies' profile and benchmarking approach are depicted in Table 1.

Characteristics	Case 1	Case 2	Case 3
Industry	Property management	Steel	Auditing & Advisory
Turnover / IT Budget [€]	947 m / 44.2 m	6,319 m / 51.5 m	1,470 m / 76.5 m
Employees [FTE]	6,851	23,288 FTEs	8,870 FTEs
IT employees [FTE]	33 int., 40 ext.	219 int., 0 ext.	243 int., 24 ext.
IT structure	centralized	both centralized and decentralized IT units	centralized
Initial situation	company in pre-merger due diligence, IT had to show value contribution and strategic alignment	company initiative to strengthen central IT resulted in a strategy development project for the central IT	assessment of current strategic position was needed to develop an action plan to revise the IT strategy
Benchmark	participation in large panel study of various industries	consulting project using data from an external benchmarking provider	direct access to benchmarking provider

Table 1.   Profiles of the case study companies.

4.1   Case 1 – Property Management Company

The goal of the project was to derive KPIs to compare internal cost and service levels to those of peers. The company's project manager for the benchmarking study evaluated the benchmarking approach, subsequently stating that he did not believe that an approach merely based on numbers would produce a sufficiently reliable and comparable dataset. Together with the benchmarking's project manager, he included a document analysis in the data analysis. General data were gathered by means of questionnaires; individual experts in the company filled out the parts related to their work. Many of the experts had specific questions regarding definitions of the data and how the respective KPIs were operationalized. Hence, each expert was telephonically briefed on the questionnaire. On receiving the first data, the project managers noticed inconsistencies in the data. They conducted an internal workshop to discuss the discrepancies. While the workshop resolved most of the discrepancies right away, it also served another unintended purpose: one of the participants observed that the workshop had been the first opportunity to fully grasp what his colleagues did and how their various activities relate to the overall IT management. Based on another participant's observation, this allowed for a better definition of the data needs and indicated what information was necessary to improve ITM.

After the data had been gathered, the study's project manager analyzed the questionnaires. Subsequently, the company's project manager and senior IT executive responsible for the benchmarking project reviewed the report. Together with the study's project manager, they identified areas that dif-

fered noticeably from the peer group. Afterwards, the study's project manager prepared a presentation for a final group workshop in which the company's entire project team, as well as its corporate IT executives participated. At this workshop, the project team tried to find explanations for the abovementioned discrepancies. A very skeptical project team member stated that he didn't believe in their company's comparability to the peer group. The project team, however, provided arguments for the discrepancies, which were based on their workshop experience and the document analysis. While not all of the differences could be explained, some could be disregarded, since the document analysis of the corporate IT strategy revealed that they were strategically irrelevant. Other areas, especially those of high strategic importance, were analyzed in detail. This analysis was also the basis for designing a set of actions translated into a project program after the benchmarking project had been concluded.

A difficulty of this benchmarking project was revealed during the final workshop. Initially, not all the IT management domains were included in the project. This particularly applied to the IT/IS project perspective. While data were gathered as part of the benchmarking effort, no context information covered this domain. On data analysis, the company's project management practice seemed underdeveloped in respect of KPIs. Contrary to the initial interpretation, however, the IT/IS project management was strong, since the company only employed certified and experienced project professionals. The executive responsible for the project management later observed that, if she had been included in the project earlier, a more complete picture of the corporate IT would have been captured.

4.2   Case 2 – Steel Company

In the second case, the company did not pursue a stand-alone benchmarking project. The benchmarking was included as part of a consulting project aiming at designing an IT strategy for the group's central IT unit. While benchmarking's suggested primary contribution to the project was the derivation of target levels for KPIs, the consultants also pointed out that benchmarking has secondary effects. The two most prominent secondary contributions were, first, ensuring that no important aspect had been forgotten in the strategy formulation and, second, ensuring that the process of data gathering would produce internal transparency regarding the IT department's current strategic position. Compared to Case 1, the project team in Case 2 chose a more passive approach. The senior executive responsible for IT attributed this to the fact that consultants had been appointed to do the job. Her staff focused on their day-to-day business. Therefore, they only supplied data that the consultants specified. Besides a briefing on the data required, no additional workshops or data analyses were conducted.

Once the final results of the data analysis were presented, the project team had expressed mixed feelings about the project's success. They stated that no surprising issues had been discovered during the benchmarking and that it might not have been worth the while, highlighting their skepticism regarding the data's comparability. Since no additional context was analyzed during this project, a great deal of information relating to the consultants' interpretation of the data only surfaced during the final workshop. Subsequently, the project team members blamed the consultants for not considering this earlier.

While this project seemed less successful, the project revealed some important aspects about IT benchmarking. First, the secondary effects the consultants had described initially were actually observed during the project, e.g., that no fields requiring action were accidentally omitted. Second, we observed that the project team became more self-aware during the project. While they could only contribute isolated facts from their respective domains to the initial discussions about corporate IT, all of them had gained a far more holistic understanding after the benchmarking. Third, the analysis of the benchmarking data allowed for a definition and operationalization of the KPIs as well as a conscious and well grounded decision of their intended target level (e.g., a cost level of less than 1% IT cost / turnover).

4.3   Case 3 – Auditing and Advisory Company

After switching benchmarking providers, the team required the company's new provider to present its approach at length. The team was not only interested in the process, but also in the content. Conse-

quently, this project started with a presentation of the provider's approach. The presentation quickly took on a more workshop-like format when the project team engaged in intense discussions with the provider. The project team decided to extend the data gathering and analysis to include less codified information. The results of this first workshop were a frame of reference structuring the ITM domains, a model of the responsibilities in the project, and a process model used as a basis for the project plan. Corporate standards required the project team to provide a monthly report on the project's progress as well as on problems and changes. In addition to gaining top management's attention, this guaranteed the support of the company's CIO. Not only had he assigned a total of 10 people to the project team (each responsible for one of the domains of the company's ITM), but he and his deputy also actively participated in the workshops and interviews.

The data gathering followed a similar pattern to that of Case 1. The project team assigned responsibilities for certain parts of the questionnaires to project team members from the respective domains. Once the data gathering was complete, a series of small workshops was conducted internally to eliminate inconsistencies in the data and gain a consolidated overview. The benchmarking provider compiled the analysis results, but its interpretation was done by the team in a second workshop. During this workshop, the project team uncovered several issues. These either originated from observable discrepancies between the company and the peer group, or were apparent in the differences between the team's perception and the benchmarking results. The team designed an approach to gather richer and deeper data in order to clarify all the issues revealed in the workshop. Based on a suggestion of the company's deputy CIO, the team involved several stakeholders in the project by means of interviews.

Once the additional data gathering had been concluded, the project team held a third workshop to relate the new information to the interpretations made during the second workshop. One project participant noted that this was the first attempt to create a complete and holistic picture of their company's ITM. Since he was the company's IT architect, this allowed for a better integration of all related issues into the company's enterprise architecture management approach. Owing to the third workshop's results, the company conducted a fourth workshop in which they used the final and shared interpretation of their data to initiate an overall IT strategy revision project. The company in Case 3 exemplified a comprehensive approach to IT benchmarking. This is not only due to the process selected, but also refers to the systematic integration of benchmarking into their overall IT strategy process.

5   INTERPRETATION

Aggregating what we learned during the case studies, we propose a model that describes how the various observed constructs are interrelated and how they contribute to benchmarking success (Figure 1).
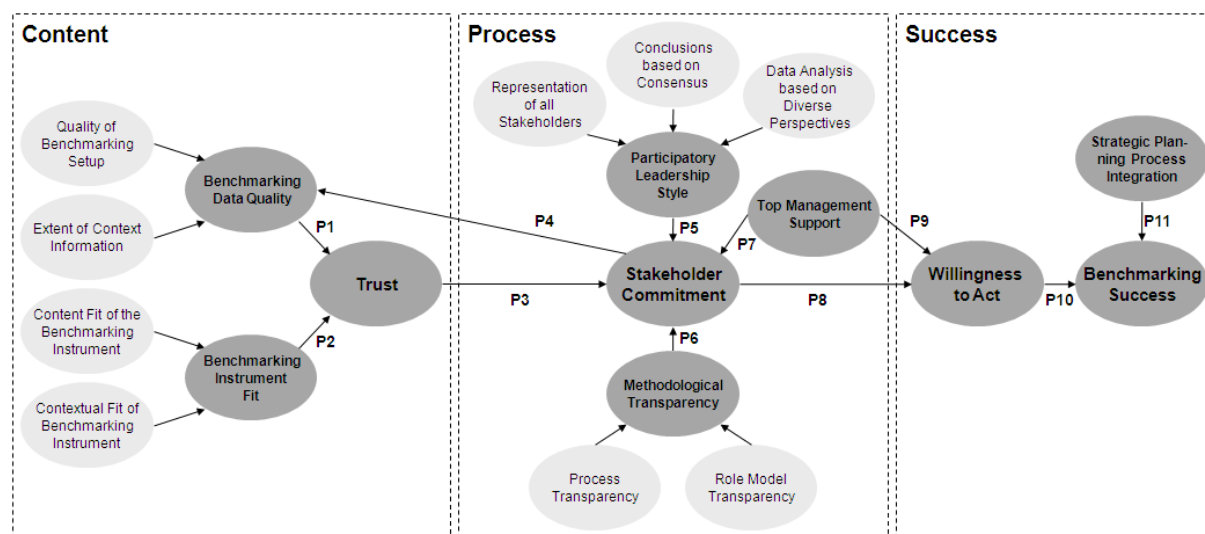

Figure 1.   Strategic IT/IS benchmarking success model

When analyzing the case studies in light of the theoretical foundations introduced above, we find that the constructs that play an important role in the context of describing and understanding the way strategic IT/IS benchmarking is conducted and impacts an IT organization can be structured into three perspectives: (1) content, (2) process, and (3) success.

Constructs	Description	Case	Related Literature
Benchmarking Data Quality	Quality of the data on one's organization and the peer group in terms of significance, validity and contextualization. Depends on the size of the benchmarking database and the extent to which data are complemented by context information.	1, 2, 3	(Elnathan et al. 1996)
Benchmarking Instrument Fit	The extent to which the benchmarking instrument fits the needs of an organization, e.g., degree of centralization, degree of external value generation or the organizational structure.	1, 2, 3	(Müller et al. 2009a), (Hinton et al. 2000)
Trust	Trust the benchmarking team members have in the benchmarking initiative (e.g., instruments, data definitions, clearing center).	1, 2, 3	(Mayer et al. 1995), (Parayitam and Dooley 2009)

Table 2.   Constructs of the content perspective.

Table 2 depicts the constructs of the content perspective. Benchmarking data quality and benchmarking instrument fit will create trust in the benchmarking initiative. A good benchmarking setup (i.e. a clear definition of the approach along the relevant dimensions and a sufficiently large and meaningful peer group) and the extent of context information available will increase the data quality. The instrument fit is increased through content fit, i.e. the definition of meaningful and relevant KPIs that actually address the data needs of ITM in a specific context. It is also important that the initiative fits into the overall context of ITM, i.e. that the internal IT organization can relate the data and information generated by the benchmarking approach back to its own internal structures easily.

Constructs	Description	Case	Related Literature
Participatory Leadership Style	Extent to which the benchmarking endeavor is led based on participatory understanding of leadership. This includes representing all relevant stakeholders in the benchmarking team, considering all stakeholders' perspectives, permitting dissent and conflicts, and drawing conclusions based on consensus.	1, 3	(Kirkman and Rosen 1999), (Korsgaard et al. 1995), (Rowland and Parry 2009), (Raman 2009), (Skordoulis and Dawson 2007), (Parayitam and Dooley 2009), (Dionne et al. 2004)
Methodological Transparency	Extent to which all benchmarking team members are aware of the benchmarking process and their respective roles therein, including their tasks and responsibilities.	1, 3	(Korsgaard et al. 1995), (Love et al. 1998)
Top Management Support	Extent to which the top management (a) supports the project with resources and high priorities and (b) is actively involved in data collection and data analysis.	1, 3	(Kirkman and Rosen 1999), (Bourne et al. 2002), (Holloway et al. 1998)
Stakeholder Commitment	Extent to which the stakeholders are willing to play an active role during the process of data collection, data analysis, and definition of actions to be taken.	1, 2, 3	(Kirkman and Rosen 1999), (Parayitam and Dooley 2009), (Dionne et al. 2004)

Table 3.   Constructs of the process perspective.

Table 3 introduces and defines the constructs of the process perspective, which focuses around stakeholder commitment. While the trust built up in the content perspective is an important antecedent of this commitment, our cases have shown that also participatory leadership style as well as methodological transparency play an important role in fostering commitment. Figure 1 briefly introduces the

sources of these two constructs that we observed in our empirical work. Moreover, analysis of the mechanisms underlying benchmarking success, along with our theoretical considerations, has also revealed top management support as an important supporting factor.

Constructs	Description	Case	Related Literature
Willingness to Act	Extent to which the stakeholders are willing to execute the actions that the benchmarking team has defined during the benchmarking process.	1, 2, 3	(Kirkman and Rosen 1999), (Hinton et al. 2000), (Korsgaard et al. 1995)
Strategic Planning Process Integration	Degree to which the top management feeds back the benchmarking results (especially the action plan) to the strategic planning process so that the actions are part of the normal strategy implementation process.	2, 3	
Benchmarking Success	Net benefits of benchmarking endeavor, e.g. better strategic positioning of the IT organization.	1, 2, 3	

Table 4.   *Constructs of the success perspective.*

The relevant constructs of the success perspective are defined in Table 4. Building on the content and process perspective of strategic IT/IS benchmarking, the success perspective explains the mechanisms that ultimately lead to benchmarking success. Stakeholder commitment and top management support will lead to a willingness to act based on the results of the benchmarking initiative. In the presence of a high integration into an organization's strategic planning processes in ITM, the observations we made in the field strongly suggest that this will lead to a sustainable success of the benchmarking initiative.

Carefully evaluating the narratives from the studies reveals a set of relations among these constructs that highlight the mechanisms that generate benchmarking success. Using the relationships between the constructs, we suggest a set of propositions that illustrate the mechanisms of the success of strategic IT/IS benchmarking. Table 5 highlights these propositions along with their foundations.

	Proposition	Case	Related Literature
P1	The greater the benchmarking data quality, the greater the trust.	1, 3	
P2	The greater the benchmarking instrument fit, the greater the trust.	1, 3	
P3	The greater the trust, the greater the stakeholder commitment.	1, 2, 3	(Parayitam and Dooley 2009)
P4	The greater stakeholder commitment, the greater the benchmarking data quality.	1, 2, 3	(Skordoulis and Dawson 2007)
P5	The greater the level of participatory leadership, the greater the stakeholder commitment.	1, 3	(Dooley and Fryxell 1999), (Korsgaard et al. 1995), (Rowland and Parry 2009), (Skordoulis and Dawson 2007), (Parayitam and Dooley 2009), (Dionne et al. 2004)
P6	The greater the methodological transparency, the greater the stakeholder commitment.	1, 3	(Korsgaard et al. 1995)
P7	The greater the top management support, the greater the stakeholder commitment.	3	(Kirkman and Rosen 1999), (Bourne et al. 2002)
P8	The greater the stakeholder commitment, the greater the willingness to act.	1, 3	(Dooley and Fryxell 1999)
P9	The greater the management support, the greater the willingness to act.	1, 3	(Kirkman and Rosen 1999), (Bourne et al. 2002)
P10	The greater the willingness to act, the greater the benchmarking success.	1, 3	
P11	The greater the integration into the strategic planning process, the greater the benchmarking success.	2, 3	

Table 5.   *Propositions explaining the success of strategic IT/IS benchmarking.*

6   DISCUSSION AND OUTLOOK

Before we discuss our research contributions, some limitations need to be taken into account. First, the generalizability of our results is limited due to convenience sampling. However, and despite the variation in the cases, we found stable elements and relations. Whilst acknowledging that our results have to be tested using a larger sample, we believe that the model is a promising approach to explain how benchmarking impacts ITM. Second, the presence of researchers in the field can be a source of bias. We tried to counter these effects by using common principles for conducting rigorous case studies (Dubé and Paré 2003; Gibbert et al. 2008; Klein and Myers 1999). Third, since our model is based on qualitative data analysis, the external validity of our constructs could be limited. We tried to address this by making observation, data analysis, and model construction a joint process to increase their reliability. Moreover, we emphasized deep immersion into the manifold observations made to create a shared understanding of the actual observed constructs (Kaplan and Duchon 1988).

Bearing these limitations in mind, this paper contributes to the research on IT/IS benchmarking by providing a model that explains how benchmarking approaches should be designed to enable sustainable benchmarking projects, i.e. projects that do not just generate output, but outcome. Practitioners benefit from this model, as it enables them to better deploy benchmarking as a tool to generate meaningful data. Researchers profit by understanding how a comparison across time and/or entities helps IT executives improve their decision-making. We provide suggestions for an extended approach to benchmarking aiming at ensuring that the results are "anchored" in the organization. Furthermore, our model is not necessarily limited to IT benchmarking, but can be used for reflecting on how information contributes to the overall success of strategic planning in ITM.

These contributions can inform future research on benchmarking in ITM. A first approach should test our inductive propositions by means of a large-scale quantitative study. While we acknowledge the substantial work that remains to be done in the context of operationalizing our constructs, testing the propositions we made will produce a deeper understanding of how the various concepts relate to one another. Following a qualitative approach, our model can be translated into recommendations for designing a benchmarking study. Using this to generate further case studies, research can observe how a revised approach to benchmarking accounting for the constructs and propositions we suggested impacts benchmarking projects' success in practice.

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