Resource-based View in Empirical IT Business Value Research – An Evidence-based Literature Review

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Abstract

Recently, the Resource-based View (RBV) attracts more attention in IT business value research, as it serves as a theoretical framework for the identification of IT resources impacting firm performance. Although numerous empirical studies applying the RBV can be found, systematic research structuring the obtained knowledge is hardly available. Therefore, we conduct an evidence-based literature review to structure and consolidate empirical evidence from studies using the RBV as a theoretical foundation. We illustrate how different IT resources can be distinguished and classified by considering their operationalization. With the means of our research map we illustrate our findings and their evidence pointing out contradictory results of how different classes of IT resources affect the IT business value in terms of the competitive advantage. We discuss some direct effects of IT resources on the competitive advantage as well as research gaps. Finally, we present implications regarding the RBV in IT business value research.

1. Introduction

The discussion on IT business value continues as a complex and widely branched discourse in the discipline of information systems research (ISR). The state of knowledge shows highly complex interdependencies between the deployment of IT and its effects on the business value which is essentially influenced by IT governance [53]. However, nowadays it is quite evident that IT can deliver value to the business and that this value can be best observed indirectly [30, 43]. Nevertheless, there are only few approaches available explaining why IT and predicting whether a specific enterprise IT can create business value. This entails the challenge to find suitable explanations and appropriate theories to gather more comprehensive knowledge herein. Recently, the Resource-based View (RBV), stemming from the area of strategic management research, increasingly attracts attention as a suitable tool to examine the value delivered by IT resources [35, 51]. The RBV allows the identification of and prediction for IT resources which have the ability to create a competitive advantage1 for a specific firm. Regarding this Wade and Hulland [51] notice: “The resource-based view of the firm is a useful tool for researchers to understand if, and how, particular parts of the firm affect the firm at large. […], the RBV provides a way for IS researchers to understand the role of information systems within the firm“. Since IT governance is a complex “[…] organizational capacity exercised by the Board, executive management and IT management […] [13], which is responsible to steer, coordinate, and control IT resources efficiently and effectively to generate value to the business, the RBV seems to be a promising approach in IT business value research as an important part of IT governance research as well as in enterprise governance of IT [49] to get a deeper understanding how and why IT can generate a competitive advantage.

So far, several researchers have used the RBV to theorize about the IT business value, since it was developed and published by Barney in 1991. However, every good theory has to be empirically justified to show its usefulness [23]. While there are already numbers of quantitative empirical studies using the RBV as theoretical guidance, systematically consolidated evidence can hardly be found in this regard [43]. This is a major research gap, since a structured literature review concerning a certain domain, classifying its results, and compiling its evidence can be very valuable [50, 52]. First, such a review supports the progress of scientific knowledge, as it serves as a presentation of the latest state of the art

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1 We are aware of the fact that a competitive advantage is not necessarily the same as IT business value [30]. Nevertheless, in our population most empirical studies regarding RBV and the competitive advantage do not clearly differentiate between IT business value in terms of firm performance and the competitive advantage [35]. Thus, we use it also interchangeable.
in the corresponding field of knowledge and helps to easily identify research gaps. Second, structured reviews usually have a major impact on applied disciplines like medicine (evidence-based medicine), for instance, as they help transferring scientific knowledge into practice more effectively [16, 20]. Third, the compilation of empirical evidence can support and inform the design process and its results within the design science paradigm [16, 19, 21, 23].

Based on these arguments, our research objective is to structure and analyze empirical evidence in IT business value research which is theoretically guided by the RBV to find out how different IT resources affect the IT business value in terms of a competitive advantage. By doing so, we will show which IT resources effecting directly the competitive advantage are most investigated and where research gaps can be found. To identify the desired empirical evidence, we perform a structured literature review. Against this background our work can be distinguished from other important literature reviews in the domain of IT business value research [e.g., 30, 35, 43] for the following three reasons:

1. We use a theory, namely the RBV, as a guiding framework for our literature review.
2. Our approach goes beyond the analysis of IT resources serving as constructs, since we explicitly take the operationalization of all constructs into account to build classes of IT resources more accurately.
3. We use a structured review process adopted from evidence-based medicine as research approach to focus on available empirical evidence on the subject matter [20].

The paper is structured as follows: In the next section we give a brief overview on the RBV and its adoption in ISR. Subsequently, we proceed with the description of our research process and describe its instantiation as well as the classes of IT resources. In the fourth section we discuss our results as well as their implications and limitations by means of our research map.

2. The Resource-based View in IS

According to Barney [1], the RBV, which is a predictive theory, helps to understand why certain firms can create a competitive advantage. Usually, the RBV is best understood, as its key concepts are explained. Following Barney, every firm owns a bundle of individual resources, which account for the condition to participate successfully in a competitive environment. In this context, an analysis with the means of the RBV underlies two assumptions. First, resources are heterogeneous; in consequence, competing firms can own different bundles of resources. Second, resources are immobile; differences in resources can be subject to sustainability [1]. As a matter of fact, whether a resource can create a competitive advantage or a sustainable competitive advantage relies on the peculiarity of its attributes. In detail, these attributes are: valuable, rare, imperfectly imitable, and not substitutable.

Whereas in strategic management research the RBV is used at a rather holistic firm perspective, it seems to be suitable for our purpose to reduce the scope of observation to the level of IT resources [10, 34]. Thus, we refer to the definition of Wade and Hulland [51] who distinguish IT resources in intangible and tangible IT assets and IT capabilities. For example, hardware and software can be considered as IT assets serving as an input or output in a transformation process. In contrast, IT capabilities represent the transformation process which use IT assets (e.g. managerial capabilities could be termed as IT capabilities). In line with strategic management research, the resource attributes and their peculiarities are of high importance. An IT resource enabling a firm to create a competitive advantage needs to have the attributes rare and valuable. Wade and Hulland [51] complement these two by adding the attribute appropriable. Additionally, a sustainable competitive advantage requires having the two attributes not substitutable and imperfectly imitable.

As aforementioned, the RBV focuses on the firm level. In contrast, some authors conducting research on IT business value highlight different levels of observation in their analysis. For example, the IT business value is examined at process level [e.g., 47], at macroeconomic level [e.g., 6], or realized IT benefits are investigated on different levels in firms simultaneously [e.g., 45]. In comparison to the mentioned studies, the strengths of the RBV are grounded within the definition of resources and their attributes. Due to this, the RBV helps to predict whether IT resources will impact firm performance or not.

Even if the RBV is recognized as an appropriate theoretical lens to examine IT business value, the question of how the IT resources can be appropriately operationalized and thus effectively measured, remains unanswered. Herein, one of the toughest challenges in IT business value research can be [11]. To master this challenge, basically two different types of measures can be differentiated, objective (financial) and subjective (perceptual) measures [47]. Financial ratios as return on investment (ROI), return on assets (ROA), or return on sales (ROS) are typical objective measures which can be simply calculated [3] and are also often
used as a simplified measure for the competitive advantage. Subjective or so called perceptual measures can serve as a good proxy to operationalize and measure the impact of IT resources on firm performance. The advantages of perceptual measures reasons from the fact that these measures allow for the operationalization of constructs, which are difficult to measure (especially the competitive advantage). By providing questionnaires with a 5- or 7-point Likert scale these measures can also be quantified to a certain extent and thus the question whether certain IT resources have a positive impact on the competitive advantage can be analyzed by a variety of different items. Taking a close look at the items allows for a better understanding of the definition and meaning of IT resources [11, 47]. In this respect, we consider the operationalization of IT resources in our population of research papers we surveyed to get a deeper understanding of their meanings and to analyze how the RBV is adopted in IT business value research.

3. Methodological approach

3.1. Evidence-based research process

In general, structuring and analyzing empirical studies to extract evidence should be performed systematically. A comprehensive disclosure of the research process makes it traceable and adds more transparency as well as rigor to the research outcome. Thus, an adequate method has to be used to compile the empirical evidence found in the literature. Herein, methods such as meta analysis [52] or structured literature reviews [50] are usually considered. A recent and more comprehensive approach is adopted from evidence-based medicine (EbM) which helps to systematically structure literature and supports a systematic literature analysis [12, 20]. To apply the evidence-based method successfully, a functional infrastructure is needed that allows structuring the subject matter [20]. As we aim to structure constructs IT resources that are defined and used in empirical studies, we start with a set of distinguishable resource classes from the knowledge base. This approach helps us to scan the analyzed papers more efficiently and to classify similar resources more easily. Later, these classes can be extended, narrowed, or renamed depending on the IT resources found going beyond the scope of the present classes (Fig. 1).

Next, the literature has to be scanned to identify the desired evidence. A minimum level of quality and completeness of the considered literature should be guaranteed for the analysis. Usually, the required knowledge is highly distributed throughout different journals or databases and it is difficult to compile it. Therefore, two distinctive approaches seem to be adequate to cope with this challenge. On the one hand, a number of high quality journals and conferences have to be chosen and their volumes have to be scanned for relevant research papers. Additionally, this approach can be supplemented by a backward and forward search [50]. On the other hand, a relevant question can be formulated which has to be decomposed in keywords afterwards. These keywords serve as a starting point for queries on scientific databases searching for relevant studies and are used within a method that is called a structured literature review and that is heavily used within evidence-based medicine [20]. Subsequently, we will use the second approach in our research process to draw a comprehensive picture of the analyzed literature as much as possible.

![Figure 1. Evidence-based research process adapted from [20]](image)
different meanings. Awareness of homonyms, synonyms and overlapping constructs while sorting the constructs into the previously defined classes is therefore important. Alongside, the constructs can lead to a reclassification of the present classes or compel the addition of new ones.

Finally, the obtained findings have to be adequately represented to provide for a commensurable state of the art of evidence and to visualize existing gaps in research. A research map containing the effects relations of the IT resources (constructs) properly supports this [20]. In the following section we describe the instantiation and execution of our research process. This supports the claims for transparency and rigor in our research approach.

### 3.2. Instantiation of the research process

According to the previously described research process (Fig. 1) we start with a set of IT resource classes derived from the knowledge base. Only two papers derive classes of IT resources based on a literature review. First, Wade and Hulland [51] present a set of eight classes of IT resources which are further distinguished into three types: Outside-in, spanning, and inside-out. The disadvantage of their classification is due to the fact, that they do not clearly distinguish their IT resources into assets and capabilities although they give a theoretical distinction in their paper. Additionally, they mix up empirical and conceptual papers. Second, more recently Liang et al. [32] distinguish IT resources into:

- Technological resources: IT investment; IT infrastructure; IT assets; Software, systems, and applications.
- Organizational resources: Knowledge resource; Human resource; Financial resource.
- Internal organizational capabilities: Managing internal relationship; IS planning and changing management.
- External organizational capabilities: External relationship; Market responsiveness.

Although they differentiate between resources (=assets) and capabilities according to Wade and Hulland [51], a close look at their selected papers reveals that a reasonable amount of studies used for the distinction do not even refer to the RBV. However, we will use the classes as a starting point in our analysis and use to the definition of IT resources and their distinction into IT assets and IT capabilities according to [51].

Next, we defined our search strategy. For our research purpose we asked which evidence, related to the RBV, is available in ISR. We decided to perform a structured literature review according to vom Brocke et al. [50] by conducting a keyword search in literature databases. Hence, EBSCOHost and ScienceDirect were searched for the keywords ‘("Resource-based view" AND information) AND (technology OR systems)’. We found 1002 papers which we scanned for title, keywords, and abstract to filter the relevant ones. In this respect, all irrelevant articles were excluded. Furthermore, we took a close look at the content of all remaining articles to assure these comprise empirical findings which are related to the RBV and document the operationalization of their constructs; the documentation is essential for our analysis as already mentioned above. Most of the hits had no empirical research, no extensive use of the RBV, did not operationalize the constructs, did not stem from the area of ISR, etc. Finally we came up with 28 papers, which are the base for our final analysis.

In the next step, we analyzed all research models in detail. Every research model was explored for its operationalized constructs related to the RBV. Especially, the items used to operationalize the constructs were important to us since a classification at the construct level is likely to distort the classes due to the different semantics of syntactically identical constructs. Moreover, in several cases, constructs which are differently termed had very similar meanings (Tab. 1). Therefore, the measurement items are used in order to support the classification of the constructs by means of the classes taken from [32]. Additionally, every significant and insignificant relationship from the research models was documented to illustrate the obtained evidence.

As we started to structure the constructs by sorting them, we realized that we had to rename and extend the chosen classes. Due to the large amount of different constructs, we could derive the following list of classes: We distinguish between IT technological assets and IT technological capabilities to meet Liang et al. [32] proposal. We further consider the distinction of assets and capabilities according to Wade and Hulland [51] as resources of every IT organization. These IT resources comprise hardware [e.g., 57], software [e.g., 27] and IT skills [e.g., 40] to build (assets), to run the organization and to deploy IT assets as required in a certain context (capabilities). Additionally, we distinguish “core” IT technological assets and IT technological quality assets to emphasize the difference between assets (hardware and software) and their quality characteristics as IT infrastructure flexibility [e.g., 4] or connectivity and modularity [17]. To emphasize the importance of IT assets we do not solely group them in a “meta” class organizational resources as [32]. Instead we differentiate between financial [e.g., 24], human [e.g., 39], and knowledge
Table 1. Excerpt of constructs and operationalization Items for IT business alignment capabilities

<table>
<thead>
<tr>
<th>Construct</th>
<th>Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT Business Alignment [44]</td>
<td>Top management is committed to the strategic use of IS/IT; IT constitutes a competitive advantage</td>
</tr>
<tr>
<td>IT Business Partnership [55]</td>
<td>We have multi disciplinary teams to blend business and technology expertise; We have a good relationship between line management and IT service providers; We have a good line management sponsorship of IT initiatives, etc.</td>
</tr>
<tr>
<td>Managerial involvement [32]</td>
<td>The managers of the IT-related departments are involved in companywide strategic planning; the managers of other departments (operations, finance, human resource, etc.) are involved in companywide IT strategic planning</td>
</tr>
<tr>
<td>Top management commitment [37]</td>
<td>Our top executives have clearly indicated their commitment to IT; Our top executives have championed IT within the organization.</td>
</tr>
<tr>
<td>IS partnership quality [39]</td>
<td>Critical information and knowledge that affect IT projects are shared freely between our business units and IS departments; IS department and business units understand the working environment of each other very well; high degree of trust between IS department and BU; etc.</td>
</tr>
<tr>
<td>Relationship infrastructure [5]</td>
<td>Relationship infrastructure reflects the ability of the IT group to understand business needs and create a partnership with business groups to work together to meet them and exploit new business opportunities.</td>
</tr>
<tr>
<td>Organizational Relationship capability [22]</td>
<td>Our management reflects opinions from IT department in making decisions; Our management and IT department communicate well each other; IT department and end-users communicate well each other; IT department and business departments trust each other</td>
</tr>
</tbody>
</table>

assets [e.g., 17] since they relate to distinct classes which can be understood as an input into the transformation process (according to [51]).

IT external relationship assets deal with the relationship of external customers or suppliers and can be seen as an external IT-linkage [2]. They refer to inputs of the transformation process like technology-based links with suppliers and customers. In contrast, IT business alignment capabilities focus on the internal relationship with business [e.g., 44] and thus aim at the transformation process. Here, we use the class internal organizational capabilities from Liang et al. [32] and rename it to IT business alignment capabilities.

Business assets and capabilities refer to IT resources, which are not solely constrained to an internal or external relationship and that regard more or less core business activities such as measured by the constructs complementary business resources [59] or online commitment [25]. In comparison to the rather tightly defined class “market responsiveness” according to Liang et al. [32], business assets and capabilities occupy a broader scope. For example, business assets are constructs as complementary business resources [28] whereas business capabilities are market sensitivity or business work practices [25, 27]. Organizational capabilities deal with constructs as the ability to manage costs efficiently [25] or to support organizational learning [4], for instance. This class is more focused than the class organizational capabilities found in Liang et al. [32]. Additionally, it abstracts from external or internal factor as these constructs are occupied by other classes as mentioned before. Finally, IS/IT managerial capabilities “[…] refer to the firm’s ability to effectively implement IT project management practices, systems development practices and IT evaluation and control systems, among others” [55].

The resource classes and their references are shown in table 2. Due to space restrictions, we will discuss only the most significant results in the following section.

4. Deriving Empirical Evidence

4.1. Presentation and discussion of evidence

In this section, we represent the empirical evidence with the means of a research map and discuss our findings (Fig. 2). The research map contains all direct effects of classes on the business value in terms of competitive advantage which we could obtain from our literature analysis. The numbers attached indicate either a significant effect (statistically significant as defined in the respective paper) (+) on the competitive advantage or an insignificant one (-). All numbers represent single evidences. For instance, as shown in figure 2 we found evidence for technological capabilities positively influencing the competitive advantage in 18 cases. Conversely, we could only find evidence for an insignificant impact on the competitive advantage in 4 cases. We could also obtain a high amount of indirect effects on the competitive advantage (effects on the classes shown in table 2). However, to avoid further complexity, we focused on
Table 2. Classes of IT assets and capabilities

<table>
<thead>
<tr>
<th>Resource Class</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT Technological Assets</td>
<td>[7, 27, 28, 31, 36, 38, 44, 46, 58, 59]</td>
</tr>
<tr>
<td>Technological Quality Assets</td>
<td>[2, 4, 5, 7, 15, 17, 22, 24, 37, 39, 40, 42, 54, 58]</td>
</tr>
<tr>
<td>IT External Relationship Assets</td>
<td>[2, 7, 22, 38, 54, 55]</td>
</tr>
<tr>
<td>Financial Assets</td>
<td>[9, 24, 40]</td>
</tr>
<tr>
<td>Human Assets</td>
<td>[7, 24, 27, 36, 39, 59]</td>
</tr>
<tr>
<td>Knowledge Assets</td>
<td>[7, 18, 27, 28, 37, 42]</td>
</tr>
<tr>
<td>Business Assets</td>
<td>[2, 4, 15, 25, 28, 29, 36, 42, 59]</td>
</tr>
<tr>
<td>IT Technological Capabilities</td>
<td>[2, 7, 15, 17, 22, 25, 31, 38, 40, 41, 42, 44, 55, 56, 57]</td>
</tr>
<tr>
<td>IT Business Alignment Capabilities</td>
<td>[5, 9, 15, 22, 29, 31, 37, 39, 44, 55]</td>
</tr>
<tr>
<td>Organizational Capabilities</td>
<td>[4, 5, 15, 22, 24, 25, 37, 39]</td>
</tr>
<tr>
<td>Business Capabilities</td>
<td>[2, 9, 25, 27, 46, 54]</td>
</tr>
<tr>
<td>IS Managerial Capabilities</td>
<td>[15, 17, 28, 29, 31, 39, 55]</td>
</tr>
</tbody>
</table>

the direct effects and therefore do not depict and discuss indirect effects or any moderating variables in figure 2. could obtain from our literature analysis. The numbers attached indicate either a significant effect (statistically significant as defined in the respective paper) (+) on the competitive advantage or an insignificant one (-). All numbers represent single evidences. For instance, as shown in figure 2 we found evidence for technological capabilities positively influencing the competitive advantage in 18 cases. Conversely, we could only find evidence for an insignificant impact on the competitive advantage in 4 cases. We could also obtain a high amount of indirect effects on the competitive advantage (effects on the classes shown in table 2). However, to avoid further complexity, we focused on the direct effects and therefore do not depict and discuss indirect effects or any moderating variables in figure 2.

Limited evidence for classes with a significant effect on the competitive advantage was found. Netting insignificant and significant effects for each class, one can affiliate the following evidence: IT technological capabilities (14+), business capabilities (6+) knowledge assets (4+), business assets (4+) and IS managerial capabilities (3+). All other classes show lower evidence.

Surprisingly, IT technological capabilities (14+) turn out to be the most frequently used class, having a significant effect on the competitive advantage. It comprises “hard” technological skills, which are often understood as a commodity and not as a possible source for creating a competitive advantage. In contrast, the direct effect of IS managerial capabilities (3+) on competitive advantage is lower. It is noticeable, that our findings pinpoint less clear evidence of their positive effect on the competitive advantage. This is remarkable since literature on IT business value frequently emphasizes IS managerial capabilities as the most important resource within IT organizations whereas technological capabilities are rather neglected. For instance, in 1998 Brynjolfsson and Hitt [6] already noticed: “Today, the critical question facing IT managers is not ‘Does IT pay off?’ but ‘How can we best use computers?’” We conclude that IS managerial capabilities solely by itself do not play a crucial role in this context. It seems to be more likely that managerial capabilities depend heavily on existing IT assets and technological capabilities which shape the scope of action (Fig. 2).

Likewise, IT business alignment (1-) capabilities have no significant effect on the competitive advantage as depicted in our research map (Fig. 2). This also appears to be a contradictory finding as on the one hand IT business alignment is one of the most important topics in practice and on the other hand a lot of research is conducted in this area which reports a significant relationship between IT business alignment and firm’s performance [8]. We conclude carefully that either IT business alignment is not operationalized in an appropriate way or that its importance was not understand by the investigated units to its full extend. However, aligning IT and business appears to be a mandatory prerequisite for a successful firm as much research in this domain proves.

Evidence for business capabilities (6+) also shows a strong significant effect on the competitive advantage; the same applies for business assets. Therefore, we conclude that these classes play an important role in achieving a competitive advantage regarding the IT and should be of more interest in research and practice.

Another striking observation is the fact that knowledge assets (4+) also seem to have a significant impact in terms of building a competitive advantage. The oldest empirical work we could find regarding this class is dated back to 2007 [28, 42], which
implies a reasonable young discussion on knowledge assets in the domain of IS/IT and their impact on competitive advantage in the context of the RBV.

Technological assets (1+) are basically available to every organization and are not likely to be a source of competitive advantage as Carr’s famous paper “IT doesn’t matter” implicates. This also suits with the RBV that predicts technological assets rather being a commodity as they are imitable, not rare, or very mobile. In contrast, technological quality assets (1+) as IT infrastructure flexibility [39] or data consistency [38] cannot be considered as a resource “off the shelf”, because it is an issue in properly customizing and adjusting technological assets. Technological quality assets seem to have the potential to be a source for competitive advantage as promising rather new paradigms like service-oriented architectures suggest, for instance. Unfortunately we could not find enough evidence to make a clear statement in this regard. Thus, we recommend more research on this relationship. In addition, financial assets (1+) and human assets (1-) do not seem to be of high interest in empirical research guided by the RBV. Hence, not much evidence can be presented either. From a RBV we can derive that financial assets (1+) are not likely to be rare or valuable in the same sense as technological capabilities even as a proper investment in IT resources is essential, of course. The same should not hold true for human assets; well educated and trained staff is an important factor of production as well as of competition as the RBV promises.

Similar to the case of IT business alignment capabilities, the effect of organizational capabilities (1+) is not clear since evidence does not show a significant effect in total. There is only evidence for a weak significant direct effect on the competitive advantage. The evidence for the class IT external relationship assets (1+) found appears to be weak as well (1+).

4.2. Implications and limitations

With regard to our analysis of empirical studies, we can derive some implications for practice and research. For example, we cannot finally reason by evidence that managerial capabilities really are one of the most important capabilities to be taken into account creating a competitive advantage in terms of IT business value. Similar, IT business alignment capabilities tends to be not responsible for significant differences in performance between companies in each case. To investigate why there is no clear direction from the RBV indicating business alignment as a distinguishing resource a close look on its operationalization has to be contemplated to find conspicuous patterns. Rather, our analyses points out, that other IT assets need to be taken more into consideration than done so far (Fig. 2).

Research into the role of IT resources as knowledge assets, business assets, financial asset, or human assets seems to be disregarded up to now. It has to be questioned, as our analysis based on the RBV suggests, whether or not these IT resources have huge potential in delivering a competitive advantage. This could also have fruitful implications to IS practice as these resources could attract more attention. Additionally, our analysis implicates, even with the best managerial capabilities available, but an underdeveloped IT infrastructure in place, IT will hardly be able to create a competitive advantage. Nevertheless it still seems to be in no doubt that managerial capabilities play an important role in this context. Furthermore, our analysis shows that purely technological capabilities should be of higher interest in organizations and research, since contrary to our expectations a peculiar number of significant effects on competitive advantage could be identified. From our point of view, a closer look on the related reasons could reveal some very
insightful and interesting aspects to research and practice.

Regarding the operationalization of the RBV, it is usually conducted by using perceptual measures and a 5- or 7-point Likert scale. This measurement is certainly the most practical variant in coherence with the RBV, because it allows for an “easy way” of operationalizing IT resources. Unfortunately, only assumptions concerning attributes on the basis of the RBV are taken into account and are not represented by any item in any paper. An empirical validation of these attributes is not conducted in any case in our population as well. Hence, contradictory results can occur just like in the case of IT business alignment, because there is no empirical justification of a proper theoretical analysis related to the RBV. Therefore, we recommend incorporating attributes of IT resources into future empirical research to disclose such effects.

Additionally, we could not find a clear concept how to operationalize and measure the competitive advantage. As Kohli and Grover [30] remark, the competitive advantage should not be confounded with an IT business value. Competitive advantage and sustainable competitive advantage are only to be defined by the characteristics of resource attributes and therefore specific resources of an organization are distinguished. But in most quantitative empirical papers we analyzed, these are understood as the generic construct "firm performance" [e.g., 3, 4, 32] and are interchangeably used with IT business value. Thus, we advocate for a more structured and selective operationalization of the competitive advantage in conjunction with the RBV as done in [44] and discussed in [5]. This might also have a significant impact on our results.

Moreover, a closer analysis of the items used to operationalize constructs leads to the result that syntactically identical constructs have different semantics quite frequently (syntactically identical constructs are often used with a different meaning). As an example, communication quality stands for the communication with external suppliers in one case [22] whereas in another case it stands for the quality of information systems in terms of the technical connection [7]. As a result, it should be a standard activity to analyze the exact meaning of any term when interpreting empirical research. Some papers do not even show any transparency in terms of detailing the measurement of used constructs. For that reason we could not include those in our meta-analysis [e.g., 3, 26, 48]. The transparent explanation and detailing of any used constructs was enormously of interest, since more comprehensive results can possibly be valuable findings to research and practice. To solve this problem, a functional infrastructure consisting of ontologies, taxonomies, or thesauruses, can be of great help in finding a common understanding as suggest by [20].

5. Conclusion

In the context of our structured literature review we examined the application of the RBV in the domain of quantitative empirical IT business value research which is an important sub domain of IT governance. The evidence-based research process supported us identifying, structuring, and representing available empirical evidence on the subject matter. The classes of IT resources helped us to represent our findings by means of a research map. In this respect, some findings were contradicting. Moreover, we could obtain some insights into the deployment of the RBV in this research domain while adding our findings to the knowledge base [23] of our discipline.

However, the application of the RBV to generate new knowledge is a promising approach since we were able to find particularly contradicting evidence. Nevertheless, we also identified more or less neglected classes of IT resources such as human, business, or financial assets, for instance. Therefore, we recommend taking these classes stronger into account when conducting empirical research to appreciate their importance. Our future research will focus more intensively on the items used to operationalize the IT resources as we expect that a deeper analysis could reveal patterns which could help to explain some contradicting results. Here the question is if papers based upon the RBV operationalize IT business alignment different in comparison to papers without the RBV, for instance.

6. References


