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THE CURRENT STATE OF AND POSSIBLE FUTURE AVENUES FOR IT VALUE RESEARCH: A REVIEW OF THE PAST 10 YEARS

Complete Research

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Abstract

Since the ongoing proliferation of information technology (IT) in our private and professional lives, researchers have been concerned with the conceptualization and measurement of the "value" that technology brings us. To this end, researchers have based their assumptions and theories on the technological achievements and perceptions of technology at that time. Ever since the introduction of smart phones, broadband Internet, and social networks, much has changed in the way we perceive and appropriate IT value. In order to identify possible white spots for future research, we present a systematic literature review of the past 10 years of research in this area. In doing so, we develop a taxonomy for analyzing the IT value literature. The results of our analysis indicate that the majority of current work focuses on ex post measurement of the monetary value of IT for businesses. Only a few articles were found that employed an alternative lens in defining IT value. With the blurring boundaries between private and professional life, these approaches become increasingly more important. We discuss the general implications of our findings with a view to possible new themes for the next years of research.

Keywords: IT value research, systematic review, synthesis, taxonomy.

1 Introduction

Information technology (IT) or Information systems (IS) value research evaluates the worth, desirability or utility of artifacts under different circumstances and at various levels, such as the society, firm, organizational network, and individuals. In the quest for defining and conceptualizing *IT value*, researchers have used and related to different terms such as IS/IT effectiveness, IS/IT efficiency, IS success (DeLone & McLean, 2003), IS/IT impact (Gurbaxani & Whang, 1991), and IS benefits (Emery, 1971). Besides terminological differences, research on IT value generally presents a number of practical and theoretical difficulties to the researchers in the field. According to (Marthandan & Tang, 2010), such challenges include but are not limited to: determining contextual and temporal aspects, selecting the unit and level of analysis, understanding the phenomenological nature of value and its various perspectives and viewpoints, and developing the measures and the methods to carry out measurement of concepts and variables in the research process.

Nevertheless, research on IT value enjoys great popularity and is extremely topical these days. An indicator for that is, for example, the emergence of a series of special issues on value-related IS research in several renowned journals or dedicated tracks at major IS conferences. With this paper, it is not our primary intention to reconceptualize and explain IT value. Significantly, rather it is our goal to give an overview of the emphases of the past 10 years in this strand of research in order to identify underrepresented, respectively possible future research needs. By now, many new trends have led to a change in the way we perceive and appropriate IT value. For instance, technology has permeated every

walk of our life and has become almost a natural part in both leisure and work. With the blurring boundaries between private and professional life, potentially new theoretical assumptions and their corresponding research questions may emerge. For instance, is it still viable to explore IT value with either a lens on individuals or businesses without considering mixed usage scenarios (e.g. bring your own device)? How can «societal» value of IT be measured? However, to envision new research questions, we first need to understand the current state of enquiry, or as Webster and Watson (2002) put it, we need to "analyze the past to prepare for the future".

In what follows, we first describe our approach to conducting a literature review and the resulting sample of articles included in our analysis. In order for our literature review to be systematic, we develop a taxonomy for analyzing the identified articles. Based on the previous steps, we then present a synthesis of the reviewed articles. The paper concludes with a discussion of the implications and recommendations for future research.

2 Methodology

2.1 Sources and Keywords

We followed the guidelines suggested by Webster and Watson (2002) in order to conduct our study. In a systematic literature review, the researcher sets a number of criteria for the selection of the published material to be included in the literature review. These criteria can pertain to the impact factor of the journal in which the article has been published, the thematic relevance of the article to the topic of research (e.g. measured by the appearance of certain keywords in the title, abstract of the body of the article), the date of publishing, and so forth.

In order to include high impact and seminal work, we restricted the scope of our analysis by searching amongst the Association for Information Systems (AIS) basket of eight top IS journals: European Journal of Information Systems (EJIS), Information Systems Journal (ISJ), Information Systems Research (ISR), Journal of Information Technology (JIT), Journal of Management Information Systems (JMIS), Journal of Strategic Information Systems (JSIS), Journal of the Association for Information Systems (JAIS) and MIS Quarterly (MISQ). To perform the searches we used the EBSCO and the ProQuest scientific databases. Our search term were ('information systems' OR 'information technology'; and its various abbreviations and combinations) AND ('value').

2.2 Exclusion and Inclusion Criteria

We focused our attention on the recent work by searching amongst the articles that were published in the past ten years, i.e. between 2004 and 2014. We limited our choices to the articles where the author(s) use the keywords mentioned above, regardless of the specific objectives of the paper. Given the numerous definitions and conceptualizations used to describe IT value, a first challenge in identifying and including the relevant articles, which are aligned with the goal of this study, was to arrive at an understanding of what "value" in the literature means. It is important to note that our treatment of value is not to be confused with that of business value of IT (Kohli and Grover, 2008). Beyond the business view, three main perspectives to value are adopted in this review: (i) the values hold by individuals that are based on their beliefs about what is important to them; (ii) the values embedded in a specific artifact respectively the values that are assumed an IT artifact is designed to achieve; and (iii) overall value refer a group or community ascribes in general to IT (Leidner and Kayworth, 2006).

A total of 72 papers were found at the end of the search process. The articles in which the authors primarily focused on measuring the value of a specific system based on defining the specific characteristics of these system (such as decision support systems and social networks evaluation , etc.) without referring explicitly to one of the three above mentioned perspectives were excluded from the scope of analysis. We also excluded editorials from our analysis. It should be mentioned that in each

of the eight journals the proportion of the publications on IT value to the total number of articles published in the journal is below 5%. This ensures homogeneity in the sample (i.e., in all the journals the same emphasis has been put on IT value). Figure 1 shows the number of the published articles in the ten-year period between 2004 and 2014 in the selected journals. As illustrated, in the recent years, research on IT value is gaining momentum. This is particularly true considering the fact that the 11 articles (i.e. maximum number of articles) have been published only in the first half of 2014. We expect this trend to continue in the future years resulting in a higher number of journals publishing articles with their primary focus on IT value.
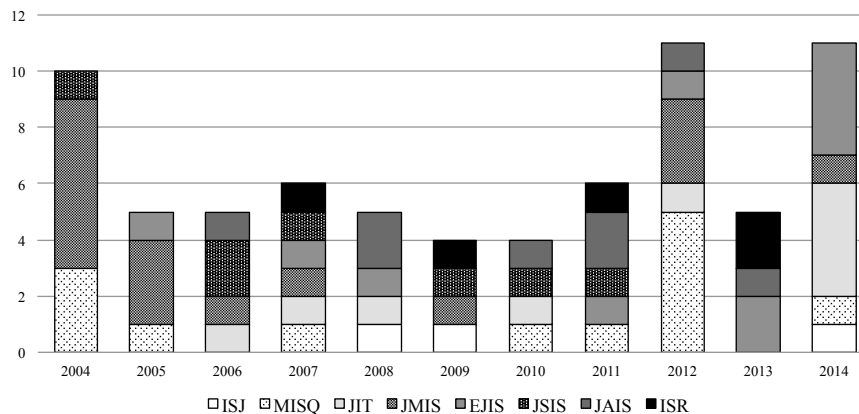

Figure 1. *Identified IT value research papers between 2004-2014 in AIS basket of 8 journals.*

3 Data Analysis: The Need for a Taxonomy

The IT value literature can be broken down into a series of studies aiming at (i) developing an understanding of IT value or value creation and appropriation or (ii) studies assessing the value created by particular IT-systems. In order to have a common basis to contrast these distinct studies, a taxonomy as "a specific classification scheme that expresses the overall similarity between organisms in a hierarchical fashion" (Rich, 1992) is certainly a helpful approach in classifying and structuring a multi-faceted and broad phenomenon such as IT value.

To develop such a taxonomy for classifying and mapping the literature, we followed the method proposed by Nickerson et al. (2013) in the information systems literature, which provides guidance for researchers in the design process of taxonomies. A first step in developing the taxonomy is to identify the meta-characteristic, which in our case is the IT value focus. The second step is to determine the conditions that end the process of taxonomy development. We defined but one ending condition, which is the fact that our taxonomy purposefully covers all the 72 articles that were selected to be included in our systematic literature review. The next step is to decide how to populate the taxonomy. Following Nickerson et al. (2013) two approaches exist: inductive (empirical-to-conceptual in case if the researchers have little understanding of the domain of interest but significant data is available) and deductive (in case of little available data but significant understanding of the concept; conceptual-to-empirical). Although there are enormous numbers of articles studying value concept in IT literature, we chose the inductive approach because there are only few studies adopting a broader sense beyond the business value of IT. It is our aim to better understand different views on value concept and have a big picture of value concept in IT literature based on the extant literature. Consequently, based on an iterative process each article was reviewed to determine the structure of the taxonomy (domains and characteristics). After each iteration, the articles, which have been already reviewed, are selectively mapped to the new structure (note that an ambiguous mapping was not always possible). Inter-coder reliability of both, the identification of structure and the mapping of papers, was assured through the

involvement of two independent researchers. In the subsequent paragraphs, we present the taxonomy structure, which we will further employ for systematically analyzing the identified IT value literature.

3.1   Level of Analysis in IT Value Research

Researchers have favored different levels of analyses to study IT value. Davidsson and Wiklund (2001) refer to this difference regarding the examination perspectives as "the hierarchy of aggregation in terms of micro and aggregate level". At a micro level, researchers focus on the *individual* and *organization* level. The *network* and *society* level constitute the two main categories on the aggregate level of analysis. Moreover, at each level of analysis, different units of analyses are defined and selected by the researcher. These units of analyses are mainly selected to reflect the impact of IT. On firm level, the IT value can be referred to the impacts of IT on the performance of employees, business processes, or the organization as a whole. On network level, the customers, business partners or suppliers become the central units of analysis. On society level, the impact of IT on the overall society is studied.

The distinction between levels and units of analysis is important when it comes to invoking different theories. IS theories and theoretical insights from other disciplines have been specifically developed to address, for instance, organizational or individual issues are therefore not equally well suited for all levels of analyses. For more than two decades the center of attention in IT value research is on micro level (how to create value), but with the diffusion of Internet networking technologies the attention may shift to the aggregate level (how to co-create value). This expansion results in so many new and untouched issues in this field of research (Grover & Kohli, 2012; Kohli & Grover, 2008).

3.2   Purpose of IT Value Research

Research on IT value has different intents and purposes. First, the aim of one strand of IT value research is to improve *IT design and implementation* through better understanding the ways IT affects behavior by and creates utility for users both internal and external to the firm. To this end, IT value research has frequently focused on understanding users' motivations in order to improve the IS design for rendering more useful and easy to use IT artifacts.

A second strand of IT value research is concerned with the difficulties of transforming billions of dollar IT investments into effective and consistent benefits. Consequently, research with this intent has therefore aimed at exploring the *impact of IT* on the entities in the universe of discourse, including employees, processes, customers, society and so forth (Chau et al., 2007). This research stream has attempted to predict and manage the impacts of IT on the so-called «value receiver» (Ashurst & Hodges, 2010).

A third research strand follows the assumption that IT value cannot be realized only by having a look at IT investments, but also needs to consider how value is created and appropriated by users (Muhanna & Stoel, 2010). Only when IT assets (or resources) are used in combination with other resources, IT capabilities can be built that are valuable. IT capabilities have been defined as "the ability to implement and use IT assets (IT functionalities) in combination with other resources to execute business processes" (Rai et al., 2012). Although the primary attention of research on IT value has been measuring IT impact, one step forward in this research process would be to understand how IT capabilities *create value* (Davamanirajan et al., 2006). This understanding results in prescriptive insights into how IT should be managed and used. This normative mode of analysis can result in explicit lessons from IT success and failure rather than, concentrating on what technology can do (the means), or aligning IT use to the objectives and ends (Peppard et al., 2007; Peppard & Ward, 2004).

3.3   Value Type

The value type determines the way, how IT value is operationalized. One lens is to investigate the *monetary value*, seeing IT as tangible assets. An alternative lens is to study IT value using *non-*

monetary measures. This could include, for example, measures with respect to agility, flexibility, and first-to-market advantages in organizational and aggregated levels (Kohli & Grover, 2008; Gable et al., 2008) or measures regarding the usefulness, easy to use or enjoyment on the individual level (Chiu et al., 2014). Adopting this lens, frequently also infers to perceiving IT as intangible assets (Nevo & Wade, 2010).

3.4 Value Domain

The value domain determines under which consideration IT value is studied. Kohli and Grover (2008) defined value of IT as a concept, which deals with economic impacts of IT and its manifestations. More precisely, Cronk and Fitzgerald (1997) characterized it as "sustainable value added to the business by IT, either collectively or by individual systems, considered from an organizational perspective, relative to the resource expenditure required." Based on this conception, Lee and Menon (2000) circumscribed IT business value research as scientific work, which seeks to understand productivity impacts of IT in order to determine the direct or indirect contribution of technology in increasing the output of the firm. Melville et al. (2004) delineated it as "any conceptual, theoretical, analytical, or empirical study that examines the organizational performance impacts of IT". Lastly, for Gregor et al. (2006) business value of IT is an "encompassing term to refer to the multiple dimensions of IT benefits" such as on strategic, informational, transactional and transformational level. Together, these definitions outline that *IT business value* stands for the organizational performance and productivity impacts of IT at both, the intermediate process level and the organizational-wide level, which comprise efficiency and effectiveness and competitive impacts, such as productivity gains, increased profitability, cost reduction, and competitive advantage (Gregor et al., 2006; Nevo & Wade, 2010; Peppard & Ward, 2004; Lee & Menon, 2000).

The relational value of IT is used to describe the role of IT resources in co-creating the mutual benefits by a robust inter-firm relationship (Rai et al., 2012; Kohli & Grover, 2008). This inter-firm relationship is a configuration of relationships among suppliers, customers, or channel partners (Saraf et al., 2007). Following Saraf et al. (2007), IT creates *relational value* when it helps entities to overcome collaboration or network challenges. Rai et al. (2012) points out that relational value can often be observed in inter-firm relationships, which implement and use a set of IT functionalities in combination with other business resources to execute their inter-firm business processes. A special form of relational value, beyond the firm context, might be *social value* of IT. Social value has been defined as the user's assessment of the system regarding its capability to facilitate his or her interaction and association with others (Junglas et al., 2013).

Finally, another way to consider value is to differentiate among *hedonic* and *utilitarian* IT value. Following van der Heijden (2004), the term 'hedonic' is used to denote IT artifacts (or functionalities thereof) that 'aim to provide self-fulfilling value to the user' whereas 'utilitarian' components of a system rather refer to features which 'aim to provide instrumental value to the user'. In this sense, the hedonic value of IT refers to the user's assessment of the self-fulfilling and enjoyment of the system and in contrast the utilitarian value to the user's beliefs regarding productivity improvements (Wu & Lu, 2013).

3.5 Context

Avgerou (2001) argues that in IS research, technology is always linked with context. Thus it is not advisable to study IT without the context, which it is embedded in. However, as the results of our analysis will show, the impact of contextual factors is addressed rarely in IT value research (Schryen, 2013). In order to circumscribe the context, we followed the proposition by Ploesser (2013) and differentiated immediate, internal, external, and macro environment.

Immediate context describes the characteristics of the task, technology and people. For instance, the type of IT system (utilitarian, hedonic, and dual-purposed) has an impact on IT value. In the context of utilitarian systems, utilitarian value are more important than hedonic value for users, whereas, in the

context of hedonic systems, hedonic value play a more critical role than utilitarian value (Wu & Lu, 2013). (Karahanna et al., 2006) have argued that the existing work practices (the task) have an impact on perceived utilitarian value of IT.

Internal context relates to an entity's main characteristics. In case of a company, for instance, firm size, level of centralization, formalization, and complexity of its managerial structure, the quality of its human resources, and the amount of slack resources available internally. External context captures extrinsic variables within the external environment of an entity and their impact on the entity. For instance, the industry a company acts in, competitors, access to resources supplied by others, and dealings with government (Zhu et al., 2004). The macro environment relate to the country- and meta-country characteristics, including the level of development, basic infrastructure, education, research and development investment, population growth rate, culture, and so forth (Melville et al., 2004).

3.6 Time frame

IT value research can focus on different points in time of an IT artifact's implementation process. *Pre-adoption* research aims at defining the potential value, which fits with IT use preferences and goals. *Post-adoption* research analyses the outcome of IT investments as the realized value (Kohli & Grover, 2008). In addition, Davern and Kauffman (2000) suggest that to measure the IT outcome in post-adoption research to compare the potential value of an IT project and its realized value.

3.7 Research Genre

Finally, we have mapped each article to one research genre as suggested by Rowe (2012): *literature reviews* as a type of research to reveal research gaps, operating theories, frameworks and unrecognized assumptions in order to identify new research avenues. Another type of research can be *theory development,* which produce pure theory papers (i.e., without data). *Empirical research* includes experiments, case studies, questionnaire surveys, interviews, secondary data, field study and design oriented or action research. Finally *opinion and issue* papers try to discuss and provide a solution to a disciplinary challenge.

4 Results

In this section, we describe the findings, which we derived from the review of the literature. Table 1 shows the mapped articles to our IT value research taxonomy. A more detailed discussion is followed in the subsequent paragraphs.

4.1 Level and Unit of Analysis in IT Value Research

Figure 2 aggregates the level of analysis in the articles we reviewed. Except for the year 2010, in all the nine remaining years, organization and network comprise most (i.e. over 80%) of the levels of analyses chosen by researchers. This reflects the fact that the researchers in the field have been consistently paying little attention to individuals and the society level issues when studying IT value. It should be noted that the heterogeneity of the articles published in 2010 (50% of the articles have individual and society levels of analysis) makes this year an outlier in our analysis.

As shown in Table 1, a tendency of the past ten years of IT value research is to focus on organization level issues, such as financial performance improvement. In more recent years, however, there has been an increasing amount of authors dealing with IT value on network level. Even though the crucial role of supplier is not negligible, the focus mostly has been on business partner networks and customers. The literature analysis also revealed that little attention has been given to conceptualizing and studying value of IT from a user perspective, both inside and outside an organization. Lastly, although there have been many calls to expand the IS research lens beyond organizational and individual level (e.g. as implied by the ICIS conference themes of the past years "Reshaping Society Through Information Systems Design" or "Building a Better World through Information Systems"),

almost none of the identified literature discussed the research question what value can IT create for society.
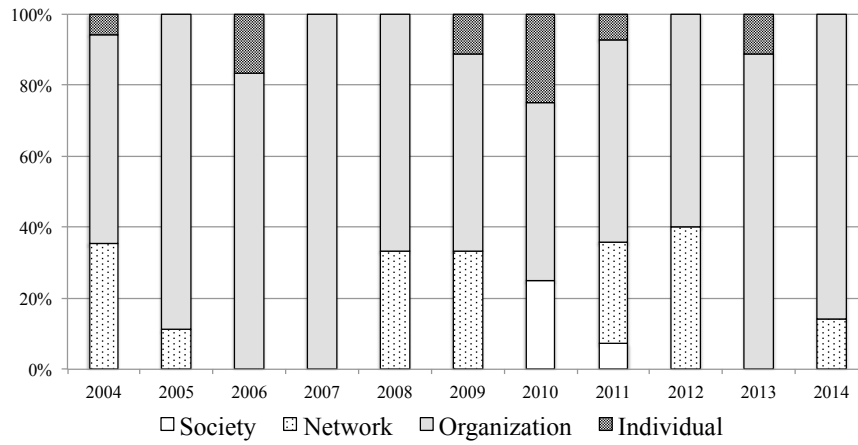

Figure 2.   Level and unit of analysis of 2004-2014 IT value research.

Table column structure:

Category	Sub-columns
Level of analysis	Society; Network (Business Partner, Supplier, Customer); Organization (Firm, Process, Employee); Individual
Purpose	Design; Impact; Creation
Value Type	Non-monetary; Monetary
Value Domain	Hedonic; Social; Utilitarian; Business; Relational
Context	Immediate; Internal; External; Macro Environment
Time Frame	Pre-Adoption; Post-Adoption
Research Genre	Literature Review; Empirical Research; Issues And Opinions; Theory Development

Rows (references):

- (Ågerfalk & Eriksson, 2006)
- (Ashurst et al., 2008)
- (Avital & Te'eni, 2009)
- (Ayal & Seidman, 2009)
- (Bardhan et al., 2013)
- (Barua et al., 2004)
- (Benitez-Amado & Walczuch, 2012)
- (Bharadwaj et al., 2009)
- (Bhatt & Grover, 2005)
- (Buchwald et al., 2014)
- (Bulchand-Gidumal & Melián González, 2011)
- (Bunker et al., 2007)
- (Ceccagnoli et al., 2012)
- (Chae et al., 2014)
- (Chakravarty et al., 2013)
- (Chan, 2010)
- (Chen et al., 2014)
- (Chiu et al., 2014)
- (Davamanirajan et al., 2006)
- (Dewan & Ren, 2011)
- (Doherty et al., 2012)
- (Dong et al., 2009)
- (Fink, 2011)
- (Francalanci & Morabito, 2008)
- (Frisk et al., 2014)
- (Gable et al., 2008)
- (Gebauer & Schober, 2006)
- (Gorla et al., 2010)
- (Gregor et al., 2006)
- (Han et al., 2012)
- (Irani et al., 2005)
- (Junglas et al., 2013)
- (Karahanna & Preston, 2013)
- (Khan et al., 2013)
- (Kim et al., 2011)
- (Kohli & Grover, 2008)
- (Kohli et al., 2012)
- (Kumar, 2004)
- (Kwon & Watts, 2006)
- (Lempinen & Rajala, 2014)
- (Lopes & Galletta, 2006)
- (Melville et al., 2004)
- (Mithas et al., 2011)
- (Mithas et al., 2012)
- (Mitra, 2005)
- (Nazir, 2012)
- (Nevo & Wade, 2010)
- (Oh & Pinsonneault, 2007)
- (Otim et al., 2012)
- (Peppard & Ward, 2004)
- (Peppard et al., 2007)
- (Petter et al., 2012)
- (Quaadgras et al., 2014)
- (Rai et al., 2012)
- (Roberts & Grover, 2012)
- (Schryen, 2013)
- (Straub et al., 2004)
- (Tallon & Kraemer, 2007)
- (Tallon et al., 2014)
- (Tallon, 2007)
- (Tanriverdi, 2005)
- (Thatcher & Pingry, 2004)
- (Turel & Bart, 2014)
- (van den Hooff et al., 2010)
- (Van der Heijden, 2004)
- (Wang et al., 2012)
- (Wang, 2008)
- (Zhu & Kraemer, 2005)
- (Zhu et al., 2004)
- (Zhu, 2004)
- (Zolper et al., 2014)

Table 1.   IT value research taxonomy

4.2 Purpose of IT Value Research

According to (Schryen, 2013), not enough attention is paid to researching IT value creation. We partially disagree, since a large proportion of research between 2004 and 2014 in the field was centered on this particular topic as Figure 3 illsutrates, Another large proportion was focused on demonstrating the impact of IT. In this sense, there was a balance in research efforts when it comes to these two distinctive categories of research objectives. Considerably less work, however, was concerned with improving the understanding of how IT systems must be designed in order to generate value.
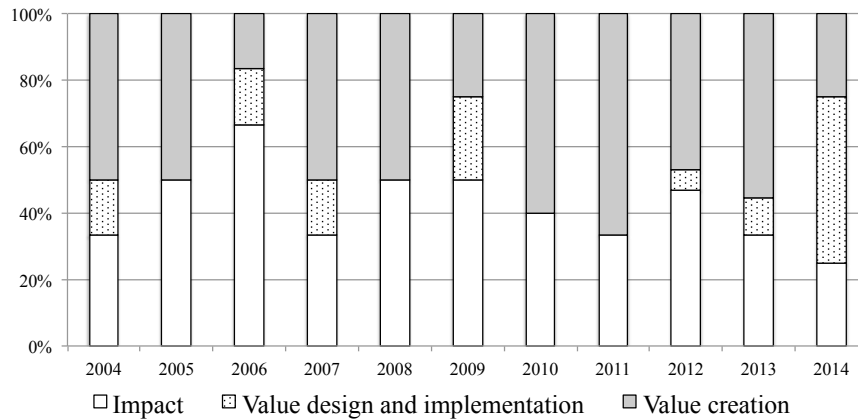

Figure 3.   Main research emphasis of 2004-2014 IT value research.

4.3 Value Type

As shown in Figure 4, IT value is largely operationalized by means of monetary metrics, such as revenue growth, cost reduction, market capitalization, or return on investment. This approach remained stable during the surveyed time frame with the exception of year 2010. We may only speculate why the monetary perspective is dominant. A reason could be that researchers encounter more difficulties in measuring the implicit and intangible nature of non-monetary IT value. But as said before, the review did not provide any firm conclusions concerning this matter.

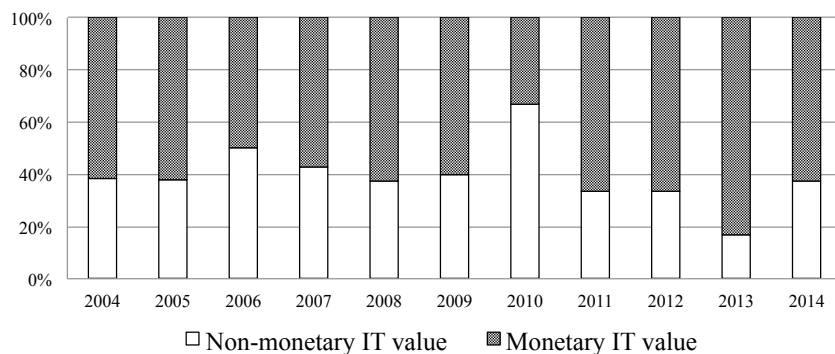*Figure 4.   Chosen measurement operationalization in 2004-2014 IT value research.*

4.4 Value Domain

Figure 5 illustrates the relative distribution of value domains, respectively under which consideration IT value was studied over the ten-year time period. It is apparent that studying IT value with a business lens is significantly higher than the other domains. However, the number of article in

business value domain gradually decreased from 2004 to 2010. In 2010, there was almost one paper in each domain. Still the business value perspective increased over the following four years with an exception of a slight fall in year 2013.
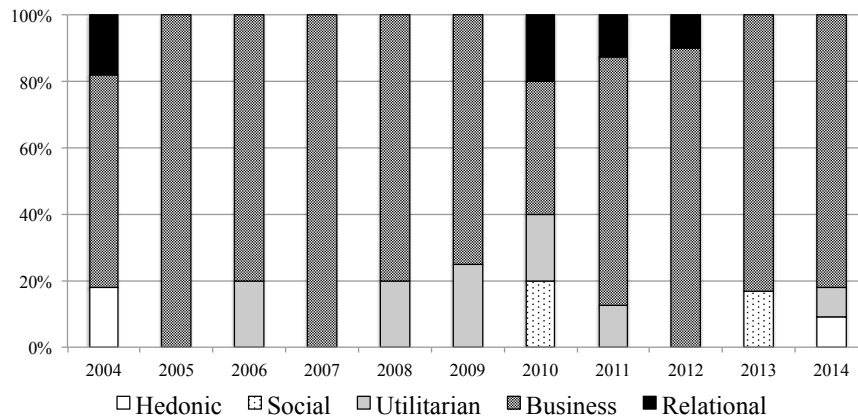

Figure 5.   Chosen value domain in 2004-2014 IT value research.

4.5   Context

Figure 6 portrays information with respect to the four types of IT value context—immediate, internal, external, and micro environment. We found that quite a large proportion of studies between 2004 and 2014 did not sufficiently provide contextual information. The graph shows a decline in the number of articles describing the context (in way or another) between 2004 and 2007. This number then remained more or less stable until 2011 at which point the contextual descriptions began to increase again. It is also apparent that authors of IT value papers largely used external and macro context factors to outline the context of their study.
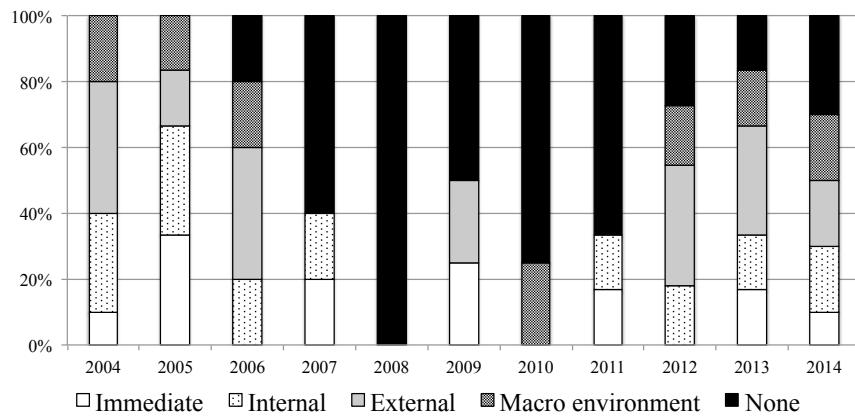
Figure 6.   Consideration of context in 2004-2014 IT value research.

4.6   Time Frame

As can be observed from Table 1, the majority of identified articles adopt a post-adoption view to study IT value. Apart from a few papers that focus on the pre-adoption phase, we could not find any articles that employ a longitudinal study approach combining both the pre- and post-adoption phase.

A further analysis revealed that there is a link between the research purpose and the research time frame. The articles in which the purpose was to design and implement an IT system were mainly in the

pre-adoption phase, whereas the post-adoption view was selected by authors, who aimed at researching the impact and creation of IT value.

4.7 Research Genre

Table 1 also indicates that empirical work was the dominant research approach when exploring IT value. Although not specific to IT value research, Rowe (2012) pointed out that other research genres, such as literature reviews, opinion and issue papers, or conceptual papers seem to be less emphasized by IS researchers. In this sense, we see great potential to increase diversity in both the content of IT value research and the way in which new insights are presented.

5 Discussion

By categorizing IT value literature using the taxonomy we found that the largest number of articles studied ex-post measurement of the monetary value of IT for businesses. This appears to reveal several underrepresented topics or research gaps in IT value literature. Therefore, we offer the following recommendations that might be worth noticing when conducting research about IT value.

5.1 Level and Unit of Analysis in IT Value Research

This review shows that most studies in IT value covered only one level of analysis or even one unit of analysis. This narrow and simplistic view which ignores the complementary interactions among different levels might cause problems when it comes to societal value of IT. In view of the fact that these units have interaction, the value of IT for society as a whole is clearly more than the sum of IT value for different involved stakeholders in different levels (e.g. government, organizations, and citizen) (Heylighen, 1992). Nowadays many large IT infrastructure projects exist (e.g. national electronic health records, customs handling, road user charging) that involve different stakeholders from different levels and that heavily interact and influence each other (e.g. for the electronic health records case example, physicians and citizens on individual level; hospitals and pharmaceutical companies on organization levels, and society as whole). In order to study IT value of such a project, we also need to take into consideration possible (direct and indirect) value conflicts and interference. Thus it is not feasible to simply study value of IT for different units on distinct levels and simply sum up the benefits as the societal value of IT.

Another important finding was that IT value on individual level has been rarely addressed in the literature. However, it is not possible to neglect the fact that the value to businesses or society as a whole is affected by the actual use of IT by individuals (Barua, 2010). Therefore we see great potential for researchers to improve the understanding of IT value creation and appropriation on the individual level (e.g. study of reutilization and how habits impact value appropriation or how to deal with conflicting value perceptions within an organization).

5.2 Purpose of IT Value Research

Although the path to realizing IT value starts with the right design decisions with respect to both, the IT artifact and the IT implementation process, only a handful of articles dealt with this topic. Certainly there is much more to learn about value creation, but we believe that there is also room for research dealing with problems related to the design of valuable IT artifacts and useful implementations (e.g. visualizing and modelling value of IT artefacts).

5.3 Value Type

When examining those IT value measures used in academic research, we found that non-monetary measures are less frequently used by researchers. In order to study IT value in most domains (e.g. social, utilitarian, hedonic) monetary measurements are not enough and appropriate. Thus, further studies, which take these non-monetary measures into account, will be of great importance.

5.4 Value Domain

As mentioned in section 4.4, the business value of IT is the dominant domain of study in the extant literature. However, we see many opportunities for also doing research on other domains like relational value or hedonic value of IT. As we already described, better understanding of societal value of IT could become a worthwhile research theme since it has remained rather untouched by the IT value literature.

5.5 Context

From our literature review we have the impression that there is a lack of consensus with respect to contextual factors, which have an impact on IT value. Accordingly, we believe it could be valuable to generally emphasize a clear and systematic description of contextual factors.

5.6 Time Frame

In reviewing the literature, very little was found on pre-adoption or long-term studies. It can be thus suggested that more work will need to be done to determine value shifts during the different IT implementation phases. Therefore, there is a wide space for pre- and post-combined; longitudinal studies; long-term ethnographic studies or case in IT value literature.

5.7 Research Genre

The relative lack of articles that aim at theory development (e.g. explanatory, predictive or design theories for value-added IT services) explains the fact that IT value research is frequently dependent on theories outside of the core IS literature. Most of the empirical papers in IT value have invoked diverse theoretical perspectives such as transaction cost economic theory (Williamson, 1981), resource-based view of the firm (Wernerfelt, 1984), the relational view (Dyer & Singh, 1998), or contingency theory (Drazin & Van de Ven, 1985). A possible future research avenue could be the development of IT value theories, which are rooted on the knowledge base of our own discipline.

6 Final Remarks

Although, IT value is a topic of considerable interest, unfortunately, the field remains largely unstructured and biased to IT business value. This paper has attempted to provide an overview of the emphases of the past 10 years in IT value research. To organize existing IT value research, a taxonomy has been proposed that categorizes IT value literature according to the level of analysis, unit of analysis, purpose of IT value research, IT value type, IT value domain, context, time frame and research genre.

With our research we hope that the identification of possibly under-researched themes and perspectives in this review would be a good starting point for developing and refining IT value research. However, the taxonomy is only a first proposition; it was not validated in a broader sense.

Future research should be designed to overcome some of the limitations of this analysis. A clear limitation is the narrow focus on AIS basket of eight top IS journals and the limited time frame of analysis. Future research might therefore be directed towards extending the literature basis of the review. Another limitation is that the selection of search terms was limited to a set of key terms. Our systematic literature review could further be extended by employing additional search terms or using more advanced analysis techniques (e.g. citation network analysis), in particular to better understand impact of influencing papers.

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