# EXAMINING THE BUSINESS-IS RELATIONSHIP: A LITERATURE OVERVIEW AND ITS IMPACT (34)

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# EXAMINING THE BUSINESS-IS RELATIONSHIP: A LITERATURE OVERVIEW AND ITS IMPACT

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## Abstract

*The relationship between the top management and IS has been the subject of several research studies for over 50 years since this relationship is often inefficient and prevents the effective use of IS in many organisations. This inefficient relationship is often denoted as a gap between both sides. Despite significant efforts to bridge this gap, it is still present in many organisations and several of them are not sufficiently aware of its consequences. The aim of this paper is thus to present an overview of this important research topic and to examine the research impact and its relevance. The business-IS relationship was selected since this topic has been one of the core IS research areas in the last decades; and therefore, it is reasonably to expect that the research had an important impact among wider audience. Unfortunately, it is not the case. The paper thus presents a literature overview of the business-IS gap, a preliminary impact analysis, its possible implications and the future research possibilities.*

**Keywords**: business-IS gap, business-IS alignment, research impact, research dissemination

## 1.0    Introduction

The relationship between IS and top managers has been the subject of research in the last decades. This relationship thus presents a topic that deserves a brief review at a special occasion like when UKAIS comes of age. It also presents a topic enabling us to look back for 21 years and even more; and also to look forward in order to shed light on the IS research and possibly to reshape it.

The relationship was one of the core IS research areas in the past, since this relationship has often been inefficient, preventing the effective use of IS in many companies. This inefficient relationship is often denoted as a gap between IS and the business. The gap is generally defined as a lack of understanding between management and IS personnel in any organisation (Coughlan, Lycett, & Macredie, 2005; Peppard & Ward, 1999). In the academic and professional literature it is usually claimed that the relationship between business and IS spheres has been problematic since the emergence of computer applications for general business use in the 1960s (Doll & Ahmed, 1983; Ward & Peppard, 1996). The gap is a consequence of different views and expectations on both business and IS sides, and thus prevents the company developing competitive advantages based on IS. This gap has negative

consequences for the company as it makes difficult to invest in IS successfully; and therefore, causes several failed IS implementation projects. Despite considerable efforts to bridge the business-IS gap, it is still present in many organisations; yet, several of them are still not sufficiently aware of its consequences.

The aim of this paper is thus to present an overview of this important research topic in the last decades and to examine its research impact. Due to numerous studies examining the business-IS relationship it may be reasonably to expect that all the research had and is still having an important impact among wider audience.

The paper is divided into four parts. First, the theoretical background on the business-IS relationship with a particular focus on the business-IS gap and business-IS alignment is reviewed. Second, the problems with academic research are outlined together with preliminary analysis on the research impact. Finally, limitations and some directions for future research are outlined.

## 2.0    Literature review

### 2.1 Business-IS gap

By using software applications intended for wide business use, companies have become more dependent on IS (Peppard, 2001) and therefore the importance of the relationship between IS personnel and business personnel has grown strongly. Since that relationship is often problematic, it is referred to in the literature as a gap between the two sides (Coughlan, et al., 2005; Grindley, 1992; Peppard & Ward, 1999). This problematic relationship is in some research also denoted as a 'cultural' gap between IS personnel and top management (Ward & Peppard, 1996).

The term 'cultural' gap has come to represent a situation that is both causing a problem and also a situation that companies are either unable or unwilling to address (Peppard & Ward, 1999). Yet it has been claimed that the culture argument is often an excuse, and not a cause, for ineffective working relationships between the IS side and the rest of the business (Peppard & Ward, 1999).

The gap is defined as a lack of understanding between the management side and the IS side in the company (Coughlan, et al., 2005; Peppard & Ward, 1999). It arises from poor understanding of knowledge in organisations and a holistic approach to relationship management should therefore be implemented to bridge the gap (Martin, Hatzakis, Lycett, &

Macredie, 2004). Further, the gap generally represents the problematic relationship between the business and IS spheres as a consequence of the differences between them (Ward & Peppard, 1996).

These differences mainly involve varying views concerning the role of the IS department. Top management namely often considers the IS department to merely have a supporting function where automating the business processes is its sole purpose (Dos Santos & Sussman, 2000). Companies thus often focus merely on the existing business processes and their automation, and do not take advantage of the IS department to completely redesign business processes (Kovačič, 2004). Thus, IS department is mainly viewed as a cost and not as an enabler of business value in many companies, which consequently even worsens the relationship between the top management and IS personnel.

The gap therefore causes different views and expectations from IS personnel and top management and hence prevents organisations from developing competitive advantages arising from IS (Grindley, 1992; Ward & Peppard, 1996). It was claimed that the gap would be bridged with the advent of new managers able to connect the business and IS sides (Grindley, 1992); however, it is still present as many companies report the insufficient coordination of work and knowledge sharing due to misunderstanding between the business and IS departments (Martin, et al., 2004). Despite several attempts to reduce the gap, business departments and IS departments in many companies still do not share identical views regarding the role of IS personnel (Nord, Nord, Cormack, & Cater-Steel, 2007). Although several studies confirm that the business-IS relationship is poor in many companies, there is still hardly any guidance on how to bridge the gap (Peppard, 2001).

Table 1 presents the main reasons for the business-IS gap based on the literature review adapted from the research by Nord (Nord, et al., 2007) and extended.

| Author | Problems in the business-IS relationship |
| --- | --- |
| (Smith & McKeen, 1992) | Disagreement about control of computerisation<br>Differences in goals and timeframes of managers<br>Lack of measurable benefits<br>Disagreement over roles and responsibilities during systems development |
| (Ward & Peppard, 1996) | Differences in perceptions, roles and metaphors |
| (Ward & Griffiths, 1996) | Lack of shared values<br>No agreed strategies<br>Failed projects and systems |
| (Martin, et al., 2004) | Lack of a common vision<br>Lack of a common understanding between business and IS personnel<br>Lack of knowledge sharing between business and IS personnel |

**Table 1.          Reasons for the business-IS gap**

It is evident from the table that the gap is chiefly a consequence of IS and business personnel having different perceptions of the role and responsibilities of IS and not sharing the same values.

## 2.2 Business-IS alignment

Business-IS alignment denotes applying IS in an appropriate and timely way in harmony with the business strategies, goals and needs (Luftman, 2004) and has been one of the foremost concerns of business and IS executives and IS practitioners for almost two decades (Luftman, 2005).

Business-IS alignment is important for companies since it enables a company to maximise its IS investments and achieve consonance with its business strategies and plans, and consequently greater profitability. It namely eases the development and implementation of efficient IS strategies, thus enabling that company to focus on the IS implementation to improve the business (Papp, 1999).

The importance of an alignment between business and IS increased when companies attempted to achieve a competitive advantage in changing and diverse markets (Cardinali, 1992). With the rising importance of alignment, extensive research was done on the links between business and IS (Chan & Huff, 1993; Luftman, Lewis, & Oldach, 1993). However, Henderson and Venkatraman were some of the first to present the relations between business strategies and IS in a model (De Haes & Van Grembergen, 2004) which is today probably the most widely cited alignment model (Chan & Reich, 2007).

The model is widely used in the business-IS alignment theories (Coleman & Papp, 2006) since the model's main emphasis is very clear, namely in order to become a successful company the IS strategy should be fully aligned with the business strategy.

Strategic alignment is one of the key focus areas among business managers since integration of the business and IS strategy enables a greater competitive advantage to be achieved (Papp, 1999). The model has also been empirically tested with several companies that successfully used it to assess their level of alignment (Dong, Liu, & Yin, 2008; Papp, 2004) and applied it to strategy formulation for sustainable development in cities and regions (Diaz, 2011). The model was extended by focusing on technical requirements (Luftman, et al., 1993), providing practical ways to achieve alignment (Avison, Jones, Powell, & Wilson, 2004), including additional functional and strategic layers, namely information providers (Maes, Rijsenbrij, Truijens, & Goedvolk, 2000), adding strategic, tactical, and operational levels (Chen, 2010), including the learning process concept (Baihareth & Liu, 2011). However, the strategic model proposed by Henderson and Venkatraman remains the base model in the business-alignment area.

Strategic alignment presented a new view on IS and its role in the development of business strategies (Papp, 1999) since it deals with both strategy and infrastructure concerns to achieve an alignment between the business and IS. Companies started to recognise that IS has an important role to play in obtaining a competitive advantage; thus several frameworks were proposed to consider this strategic issue regarding the role of IS as a source of competitive advantage (Boynton, Victor, & Pine, 1993; Chan & Huff, 1993; Luftman, et al., 1993).

It was also shown that strategic alignment has a positive influence on managing enterprise resource planning (ERP) projects, namely enabling shorter and more cost-efficient ERP projects, faster reaction times to business events, and a positive influence on the benefits of ERP systems (Velcu, 2010).

**2.3 Literature overview**

Table 2 presents an overview of the literature regarding various topics concerning the business-IS relationship, namely technical skills, communication skills, business and managerial skills, role of IS personnel, top management support, the business-IS gap, strategic alignment and a partnership relation, based on the brief literature review presented above.

Various studies that were performed regarding these topics are classified in different periods of time.

It is evident from the table that the main focus of research before the 1990s was on the technical perspective of the relationship, namely emphasising the importance of technological knowledge and skills. Later, the focus shifted to emphasising a combination of various knowledge and skills as an important factor in the business-IS relationship.

Further, in the last ten years the research focus has been on the importance of top management support and strategic alignment between business and IS. In the last few years, the term partnership in the business-IS relationship has also been used in the research related to the business-IS gap.

| Period<br>Research topic | Before 1990 | 1990 - 2000 | 2000 - 2005 | 2005 - 2010 | After 2010 |
|---|---|---|---|---|---|
| Technical skills | (Vitalari, 1985; Watson, Young, Miranda, Robichaux, & Seerley, 1990) | (Clark, Cavanaugh, Brown, & Sambamurthy, 1997) | (Byrd & Turner, 2001; Caldeira & Ward, 2003) | | |
| Business and managerial skills | (Green, 1989; Jenkins, 1986) | (Armstrong & Sambamurthy, 1999) | (Chen, Miller, Jiang, & Klein, 2005) | | |
| A combination of skills | | (Mata, Fuerst, & Barney, 1995) | (Caldeira & Ward, 2003; Litecky, Arnett, & Prabhakar, 2004; Wade & Parent, 2001) (Melville, Kraemer, & Gurbaxani, 2004) | (Lerouge, Newton, & Blanton, 2005; Parolia, Goodman, Li, & Jiang, 2007) | (Alaceva & Rusu, 2015) |
| Role of IS personnel | (Doll & Ahmed, 1983; Keen, 1991) | (Venkatraman & Loh, 1994) | (Ward & Mitchell, 2004) | (Chun & Mooney, 2009; Nord, et al., 2007) | |
| Top management support | | (Earl & Feeney, 1994) | (Ragu-Nathan, Apigian, Ragu-Nathan, & Tu, 2004) (Ranganathan & Kannabiran, 2004) (Caldeira & Ward, 2002) | (Kappelman, McKeeman, & Zhang, 2006; Parolia, et al., 2007; Young & Jordan, 2008) | (Indihar Štemberger, Manfreda, & Kovačič, 2011) |
| Business-IS gap | | (Grindley, 1992; Peppard & Ward, 1999; Smith & McKeen, 1992; Ward & Griffiths, 1996) | (Coughlan, et al., 2005; Martin, et al., 2004) | (Nord, et al., 2007) | (Atafar, Akbari, & Bidmeshk, 2011; Frisk, Lindgren, & Mathiassen, 2014) |
| Strategic alignment | | (Cardinali, 1992; Chan & Huff, 1993; Henderson & Venkatraman, 1993; Luftman, et al., 1993; Papp, 1999) | (Luftman, 2004, 2005) | (Chan & Reich, 2007; Chang, Wang, & Chiu, 2008; Coleman & Papp, 2006; Dong, et al., 2008) | (Baihareth & Liu, 2011; Charoensuk, Wongsurawat, & Khang, 2014; Chen, 2010; Johnson & Lederer, 2010) |
| Partnership relation | | (Ives, Jarvenpaa, & Mason, 1993; Keen, 1993; Malena, 1995; Mohr & Spekman, 1994; Papp, 1999) | (Brinkerhoff, 2002; Chris, 2005) | (Ravichandran & Lertwongsatien, 2005) | (Chen, 2010; Siurdyban, 2014; Tian, Wang, Chen, & Johansson, 2010) |

**Table 2.**        **Research topics in different periods**

## 3.0 Academic research and its impact

### 3.1 Academic research threat

In the last years a new threat arises in the academic research with the advent of several hijacked journals or predatory publishers. These journals are presenting the possible fear that some of the research is not intended to upgrade the theory or improve business performance, but there may be other intentions to publish. It has even been claimed that the years 2012 and 2013 were flooded with fake journals, and 2014 with fake impact factors (Jalalian & Mahboobi, 2014).

Examining SSCI-ranked journals in the category of Information Science and Library Science revealed numerous published papers in the last years with a positive trend. Based on the data from the Table 3 the question whether all these papers achieved their purpose or whether these papers reached wider audience become even more important.

| Year | Total Cites | Number of Journals | Number of Articles | Number of Cites (top 20) | Number of Cites (top 20 excluded) | Top 20 as % of all cites |
|------|-------------|--------------------|--------------------|--------------------------|-----------------------------------|--------------------------|
| 2009 | 51,753 | 66 | 2,619 | 38,838 | 12,915 | 75% |
| 2010 | 54,967 | 77 | 2,965 | 40,266 | 14,701 | 73% |
| 2011 | 57,407 | 83 | 3,321 | 37,995 | 19,412 | 66% |
| 2012 | 62,790 | 85 | 3,276 | 43,038 | 19,752 | 69% |
| 2013 | 71,672 | 84 | 3,574 | 51,378 | 20,294 | 72% |
| 2014 | 78,386 | 85 | 3,702 | 56,838 | 21,548 | 73% |

**Table 3.** **The "Information Science and Library Science" category**

Due to the high number of published papers their impact and relevance may be debatable. Moreover, their dissemination between IS practitioners, experts or students may be even more questionable. Therefore, research question examining the research impact and its relevance among wider audience is proposed. Several hypotheses may be derived from the proposed research question, namely (1) wider audience is insufficiently aware of research topics related to IS; more precisely, (2) IS managers and IS practitioners are insufficiently aware of research topics related to IS; and (3) academics are not able to process important knowledge related to IS that is accumulated every year.

**3.2 Perceived impact – a preliminary analysis**

The research question will be empirically tested using data from different stakeholders. Since IS research is relevant to IS managers, IS practitioners, academics and students as future work labour, all these stakeholders have been invited to participate in the research.

Pretesting was done in March 2015 using semi-structured interviews with selected undergraduate students and two academics involved in IS research. With the intention to test the proposed hypotheses, an on-line questionnaire has been developed in June 2015 and delivered to the large group of students enrolled in the last year of their undergraduate study. At the end a total of 290 students participated in the research. Their profile is evident from the table below.

|  |  | Frequency | Percent |
|---|---|---|---|
| Gender | Female | 179 | 62% |
|  | Male | 111 | 38% |
| Interest in IS | Yes | 102 | 35% |
|  | No | 183 | 63% |
|  | N/A | 5 | 2% |

**Table 4.** **The "Information Science and Library Science" category**

As it is evident from the table 35% of the respondents have interest in IS or intend to work in the IS filed in the near future. Regardless their interest in IS, all students were asked to rank their knowledge about the top 20 journals in the Information Science and Library Science category. Besides merely knowing these journals each student was also asked to rank the frequency of reading them. The results are presented in the Figure 1.
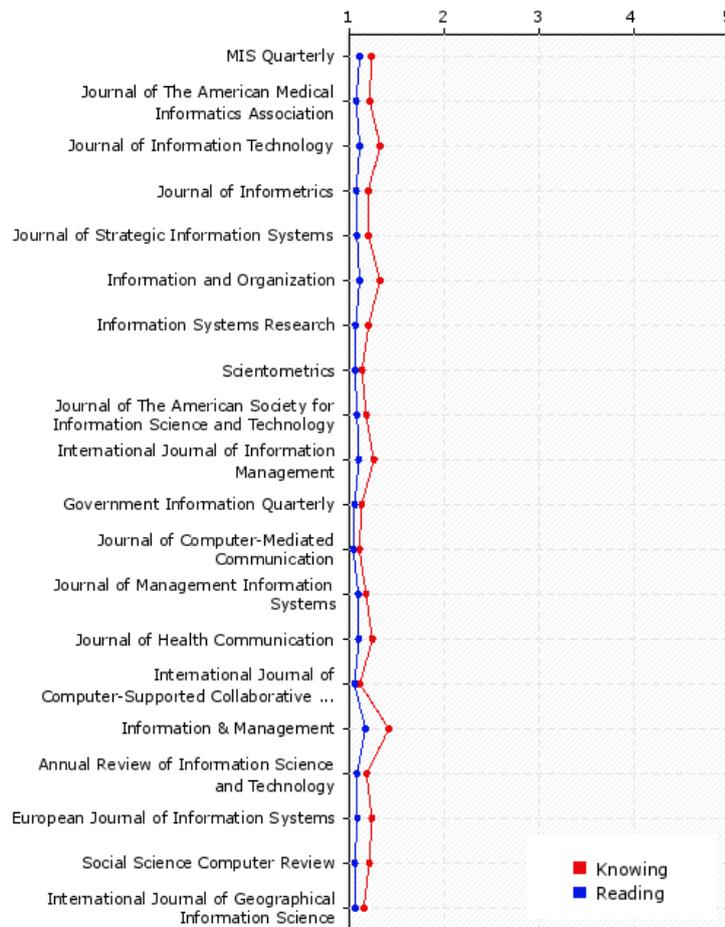
**Figure 1.**    **Knowing and reading academic journals (1=lowest score, 5=highest score)**

The figure clearly shows that interest between students for academic journals is at the low stage since merely few of them recognized the journals. The main reason for not reading these journals is their low recognition among students (score 4.3 out of 5), lack of practical advice (score 3.2) and over-emphasizing the theory (score 3.2).

The pretesting with the next focus group, namely IS academics, revealed an important issue dealing with observing the knowledge from these journals. The main emphasised concerns with these journals were their abundance (score 4 out of 5), the abundance of articles (score 4.0), inability to absorb all key findings (score 4.0) and quantity over quality (score 4.7). However, these are merely a preliminary results based on a pretesting and will be used to develop a more detailed questionnaire for other stakeholders.

### 3.3 Implications

This study, although with a limitation presented below, revealed an important issue dealing with the research impact and research dissemination. As it is evident from the

analysis above there is almost no interest among the selected participant for the research results even though they are published in the highly ranked journals. Indifference to these results may later result in accepting wrong business decisions or insufficient use of IS in the organisations.

The results may indicate that there is a need for either changing the journal ranking, changing the journal structures or simply changing the way of dissemination. The "old" fashion style starting with a long literature review comprising the majority of paper and a few words dealing with practical implications is not helpful in this situation. A flood of articles the discipline is contemporarily facing with is even worsening the situation. Although the established style of witting and flood of articles possibly serves well for the academia developing the IS filed. However, the arising question is how we can measure the development of a particular filed. Article abundance and never-ending theory upgrading that wider community is not interested in or never heard about it, is presumably not improving the research impact and its dissemination.

## 4.0 Limitations and future research

### 4.1 Research limitations

A very obvious limitation of this paper is that merely students were involved in the research. However, the aim of the paper was to provide a literature overview on the topic that is particularly important in the IS field. Examining the research impact is merely a logical step after different researchers devote several decades examining that topic. Research among students thus presents a first step and a starting point for examining the true impact.

The second limitation refers to the fact that the research was conducted in the single country. It is anticipated that the research results would not vary a lot among different countries; however, the research should be repeated in other countries in order to cross-validate it and make it even more relevant.

### 4.2 Future research

Future research should focus on empirically testing the research impact on various stakeholders. Since research in this paper includes students only, there is a strong need

to examine the impact and relevance among IS managers, top managers and academic researchers as well.

In order to examine the impact and relevance two different questionnaires should be used, namely one for IS managers and top management and one for academics involved in IS research. However, the main part of the questionnaires may remain the same for all stakeholders, namely examining the relevance of pre-selected highly ranked journals and the influence on their work (e.g. accepting decisions based on the research published in these journals).

T-test analyses should be used in order to identify the differences between involved stakeholders. The comparison of their answers may reveal differences and similarities between involved stakeholders and show the true impact of IS research.

## 5.0    Conclusion

The paper presents an overview of the business-IS relationship literature with a particular focus on the literature in the last 21 years. A special attention has been assigned to the business-IS gap since bridging that gap has been one of the main challenges in the IS literature in the last few decades. Despite numerous research papers on that topic the gap is still present in many companies; and therefore, the research impact may be questionable. The paper thus also examines the impact and relevance of that particular IS research and outlines problems related to IS research dissemination.

Examining the research impact presents an important insight to what should be done differently in the future. As it is evident from the short analysis a particular emphasis should be placed on the proper results' presentation. Nonetheless, only a research with an impact has a particular value. Therefore, should the researchers focus on producing merely new articles dealing with upgrading the existing knowledge or should the focus move toward research dissemination? The decision (not as straightforward and easy as the sentence possibly sounds) should also influence the style of writing and the way of publishing papers. Without reaching the targeted audience any research although published in the highly ranked journal remains only a paper - a paper that merely serves for producing another paper.

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