E-HRM in MNCs
What can be learned from a review of IS literature?

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Abstract

The current status of E-HRM research is assessed from an IS perspective, as this is where the field of E-HRM (partly) originated. In contrast to most E-HRM research, which is founded in HR or Business Research, this paper presents a new scope to study E-HRM. This new scope can be used to complement existing research and offer additional understanding of the field of E-HRM. Based on a literature review on IS in MNCs, this paper presents a framework that represents the existing body of literature on E-HRM in MNCs. The paper demonstrates that general IS literature can be considered a valuable addition to E-HRM literature. The importance for more E-HRM research in earlier stages of the E-HRM lifecycle, i.e. pre-implementation and implementation, is supported by the findings. In addition, a comparison between 'Top Journals' and 'Other Journals was made, which reveals that 'Top Journals' tend to keep an organizational focus, while 'Other Journals' take on a more individual focus.

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1. Introduction

The topic of E-HRM is firmly placed at the cross-section of IS research and HR research, as such, it can be viewed from two different perspectives, i.e. an IS perspective and an HR perspective. A quick search with Google Scholar implies that most of the research on E-HRM systems, though they are a type of IS, is rooted in HR research. A more thorough read of literature reviews on E-HRM (e.g, (Bondarouk & Furtmueller-Ettinger, 2012; Ruël & Bondarouk, 2012; Strohmeier, 2007) supports this initial assumption.

Considering the size of the field of IS though, and its seniority over the more specific field of E-HRM, it would seem illogical to conclude that no added value for E-HRM research can be found in the field of IS. For this reason, this research will look at E-HRM systems from an IS perspective. To accomplish this, the general IS literature will be analyzed and applied to the field of E-HRM. And to provide some more focus, since the field of IS is quite large, this research will look at E-HRM in the context of multinational corporations (MNCs). This choice was made due to the increase in globalization, and its impact on the field of E-HRM. As the increase in global communication has led to an increase in global IS development and use, it becomes less and less relevant to look at E-HRM (or IS in general) on a local scale.

When working through the current body of literature on IS a few very popular models keep recurring, such as the IS success model of DeLone and McLean (2003), and the Technology Acceptance Model (Davis, 1986). Though these are both very popular models, they tend to remain quite generic models that do not look at E-HRM specifically. As no specific E-HRM models appear to be present in the field of IS, this research will aim to contribute to the literature on E-HRM by looking at general IS in MNCs, and extrapolate the acquired knowledge to an E-HRM context. To do so, the following research question will be used as a guideline:

"Which categorizations on information systems in multinational corporations can be derived from existing literature, and what does this categorization mean for research on E-HRM systems in multinational corporations?"

In reviewing literature, different approaches are possible, with potentially different outcomes. One of these possible differences will be tested throughout this research, partly to satisfy the curiosity of the researcher (and perhaps the reader as well), but in large part this is done with the expectation that the use of multiple approaches might teach us something extra. For this research, a distinction has been made between 'Top Journals', and 'Other Journals'. This distinction between the categories is made based on the journal's rankings in the 2010 Journal Citation Reports ("Journal Citation Reports," 2011).

The expectation is that through performing two separate literature analyses for 'Top Journals', and 'Other Journals', the main trends in IS, and thus E-HRM (derived from 'Top Journals'), as well as the emerging trends or innovations (derived from 'Other Journals') will become apparent. Congruent with the work of Christensen and Bower (1996) in the field of innovation, it is expected that journals will behave in the same manner as organizations, i.e. the top journals will use a more conservative approach to choosing their publishable topics, while the less prominent journals will take on a more daring, exploring approach in order to be competitive, thus already revealing some of the potential future trends.

2. Concepts and Methods

2.1 Main Concepts

E-HRM

To avoid confusion on the use of the concept of E-HRM this paper will use the understanding of the concept defined by Bondarouk and Ruël (2009) who consider it "an umbrella term covering all possible integration mechanisms and contents between HRM and Information Technologies, aiming at creating value within and across organizations for targeted employees and management" (p. 507).

Information Systems

An often used definition of the concept 'information system' is that of Laudon and Laudon (2002), who define it as "a set of interrelated components that collect (or retrieve), process, store, and distribute information to support decision making and control in an organization" (p.7). Nowhere does it say that this system needs to be a computer-based system, as information systems also exist in non-digital forms. However, for the purpose of this research, the term IS will mean 'a computer-based information system'.

Multi-National Corporation

Multi-National Corporation (MNC), Transnational Corporation, Global Corporation, International Corporation, Multi-Domestic Corporation. Many different types of international company exist, and all have some similar and some differing characteristics. For the purposes of this research, no distinction will be made among the different types of international company. The term MNC will be used as denominator for any type of commercial organization that operates in any type of international context.

2.2 Reviewing literature on literature reviewing

Hart (1998) defines a literature review as "the use of ideas in the literature to justify the particular approach to the topic, the selection of methods, and demonstration that this research contributes something new" (p.1). When looking at literature reviews as research papers themselves, and not as foundation for the rest of a paper, Webster and Watson (2002) state that "an effective review creates a firm foundation for advancing knowledge. It facilitates theory development, closes areas where a plethora of research exists, and uncovers areas where research is needed" (p.xiii). Building on these definitions, Levy and Ellis (2006) stated that "an effective literature review should include the following characteristics: a) methodologically analyze and synthesize quality literature, b) provide a firm foundation to a research topic, c) provide a firm foundation to the selection of research methodology, and d) demonstrate that the proposed research contributes something new to the overall body of knowledge or advances the research field's knowledge-base" (p.182).

In an attempt to motivate, and guide, researchers to write literature reviews, Webster and Watson (2002) provided guidelines on how to perform a literature review in the field of IS. They start by suggesting a format for the introduction, which in their eyes should hook the reader early on by motivating the topic, and the contribution it will make to the field, then continue by elaborating on the key variables and setting the boundaries on the work. Aside from that, the scope of the review needs to be identified and supported, and finally, the assumptions concerning the stakeholders need to be identified (Bacharach, 1989; Iivari, Hirschheim, & Klein, 1998; Webster & Watson, 2002). Webster and Watson (2002) recommend a structured approach for searching literature in three steps; (1) Start with leading journals, since they will most likely contain the major contributions to the field. Do not limit yourself to one discipline when reviewing interdisciplinary topics. (2) Perform a backward reference search based on the articles from step 1. (3) Perform a forward reference search to identify articles that cite the key articles identified in previous steps.

Additionally, "a review should identify critical knowledge gaps and thus motivate researchers to close this breach" (Webster & Watson, 2002). Though this is the most important part of a review, it is also generally the weakest part that needs the most elaboration (Webster & Watson, 2002).

In general, an effective literature review needs to address four major concerns, i.e. contribution, impact, logic, and thoroughness, in order to be eligible for publication (Webster & Watson, 2002; Whetten, 1989).

Levy and Ellis (2006) take a different approach, compared to Webster and Watson's guidelines, to literature reviewing in the field of IS. They see the literature review as a systematic process following the 'input-processing-output' approach, in which they define 'process' as sequential steps of activities (Sethi & King, 1998). Following their description of what describes an effective literature review, combined with the concept of process by Sethi and King (1998), which they adhere to, Levy and Ellis (2006) define the literature review process as "sequential steps to collect, know, comprehend, apply, analyze, synthesize, and evaluate quality literature in order to provide a firm foundation to a topic and research method" (p.182). In line with the work of Iivari, Hirschheim, and Klein (2004), Levy and Ellis (2006) propose a three-step literature review process as guidance for developing a sound and effective literature review, the three steps being: 1) inputs, 2) processing, and 3) outputs.

With Webster and Watson (2002) having more of a focus on the motivation and general structuring of the literature review, and Levy and Ellis (2006) looking more in-depth at how to find and process literature, the two blueprints for literature reviews in IS complement each other. The idea of performing a review in a systematic way is also supported by Tranfield, Denyer, and Smart (2003); Looking from a management research perspective, they divide the review into three stages, i.e. planning the review, conducting a review, and reporting and dissemination, which are then subdivided into different phases. Their scope of the literature review process differs from those previously mentioned, as where Levy and Ellis (2006) started with the input phase, i.e. the searching of the literature, continued with the process, i.e. the analysis of the literature, and concluded with the output, i.e. the writing of the review, Tranfield, Denyer, and Smart (2003) determine the first phase to be planning, and combine the search for literature with the analysis of literature in the second phase. Both parties do seem to agree on the third phase though.

Blumberg, Cooper, and Schindler (2008) provide the most generalized overview of how to conduct a literature review, by simply dividing it into three steps, i.e. searching literature, assessing the information, and synthesizing the assessment of information. They support the view of Saunders, Lewis, and Thornhill (2009) of the different approaches to literature review by stating that "there is no single best structure for a review" (Blumberg, et al., 2008).

Though the abovementioned authors show differences in their approaches to literature reviews, a general list of criteria that comprise effective literature reviews can be derived when combining their works (see table 1).

Table 1: Criteria for an effective literature review

Criterium	*Source*
Uses quality, relevant literature	(Blumberg, et al., 2008; Levy & Ellis, 2006; Saunders, et al., 2009; Webster & Watson, 2002)
Helps understand existing Body of Knowledge (BoK)	(Blumberg, et al., 2008; Levy & Ellis, 2006; Saunders, et al., 2009; Tranfield, et al., 2003)
Motivates the topic and explains the contribution to the existing BoK	(Blumberg, et al., 2008; Levy & Ellis, 2006; Saunders, et al., 2009; Webster & Watson, 2002)
Describes key concepts	(Webster & Watson, 2002)
Delineates boundaries	(Levy & Ellis, 2006; Webster & Watson, 2002)
Guides future research	(Webster & Watson, 2002)
Presents concluding implications	(Webster & Watson, 2002)
Is systematic	(Levy & Ellis, 2006; Tranfield, et al., 2003)
Does not plagiarize	(Blumberg, et al., 2008; Levy & Ellis, 2006; Saunders, et al., 2009; Tranfield, et al., 2003; Webster & Watson, 2002)

When looking at some examples of literature reviews (e.g, (Chan & Thong, 2009; Chen, Mocker, Preston, & Teubner, 2010; Clark, Jones, & Armstrong, 2007; Joseph, Ng, Koh, & Ang, 2007; King & He, 2006; Leidner & Kayworth, 2006; Ngai, Hu, Wong, Chen, & Sun, 2011), a general concept of what a literature review in the field of IS consists of in order to meet the abovementioned criteria can be derived:

1. Introduction
2. Defining the topic
3. Outlining the literature and current debates
4. Methodology
5. Creating, deriving, testing, or implementing a model or framework
6. Implications of the model of framework
7. Discussion or limitations
8. Conclusion
9. Suggestions for future research

Table 2: Criteria for an effective literature review vs. literature review chapters

Criteria	*Literature review part*
Uses quality, relevant literature	Methodology
Helps understand existing Body of Knowledge (BoK)	Outlining current literature and debates, Identifying gaps in literature
Motivates the topic and explains the contribution to the existing BoK	Introduction, Outlining current literature and debates, Identifying gaps in literature, Conclusion
Describes key concepts	Introduction, Defining the topic
Delineates boundaries	Outlining current literature and debates, Methodology
Guides future research	Suggestions for future research
Presents concluding implications	Discussing the implications of the model or framework, Conclusion
Is systematic	Methodology
Does not plagiarize	

As can be seen, all criteria are met through the parts of the literature review, with the exception of the golden rule, "Do not plagiarize!". Considering its importance in academic research though, this should be reflected in every word in the paper, and thus it seems superfluous to create a specific section in a paper to cope with this "challenge". This approach will mainly be applied in this paper as well; with the slight modification that chapter 5 is incorporated in chapter 3 since this allowed for a more logical storyline in this case.

2.3 Literature search

As explained earlier, this paper uses an approach to reviewing the literature by separating 'Top Journals' from 'Other Journals' (see appendix C). Therefore, two separate searches have been conducted; one focusing on top IS journals, and another one broadening the scope to all other journals.

In the first literature search ten top journals in the field of IS were used, these journals were selected based on their impact factor in the 2010 Journal Citation Ranking ("Journal Citation Reports," 2011) and are presented in table 3. The journals under study were limited to issues that were published between 2006 and 2011.

Table 3: Top 10 IS journals based on JCR 2010 impact factor

#	Journal
1	*MIS Quarterly*
2	*Journal of Information Technology*
3	*Journal of Strategic Information Systems*
4	*Information Sciences*
5	*Journal of Management Information Systems*
6	*Information & Management*
7	*Journal of the Association of Information Systems*
8	*Journal of the American Society for Information Science and Technology*
9	*Decision Support Systems*
10	*Knowledge and Information Systems*

To find articles that are suitable for this review, all titles and abstracts of articles in the journals were manually checked. All articles that incorporated any form of "multinational corporation", based on the title and abstract, were included in the initial sample. This led to an initial sample of 34 articles.

The second literature search was done with three databases, i.e. Google Scholar, Web of Science, and Scopus. In each of these databases the search was limited to the same time frame as the first search. Keywords for these queries were: "information system", and "Multi-national Corporation". To prevent the oversight of potentially valid articles, variations of these terms were also used. "Information system" was alternated with "information technology", and "Multi-national Corporation" was substituted with "international corporation", "transnational corporation", "multi-domestic corporation", and "global corporation". Furthermore, the word company was substituted for corporation, and the terms "cross-border", and "cross-cultural" were also used in combination with "information system", and "information technology" to complete the search. This led to an initial 191 articles. By doing so, the results of this review are ensured to be up-to-date, and the thoroughness of the search is improved due to the constrained scope.

2.4 Article selection

After the initial search, the articles were coded to determine whether they should be included in the final sample based on the abstracts and titles, by three people on an individual basis. The criterium used for the coding was whether or not the article was about IS in MNCs. Articles were coded with yes, no, or maybe. Using the three resulting lists of articles as a basis, a group session was organized in which all codings were compared and discussed. A triple yes automatically led to acceptance of the article, while a triple no would lead to exclusion of the article. When unanimity on an article was not the case, the acceptance of the article was discussed. The criteria used in these discussions were as follows:

- The article needed to be about IS in an MNC
- Benchmark studies were excluded
- Unpublished work was excluded
- (Master / PhD) Theses were excluded

In total, four disagreements on articles required a two versus one decision, on all other articles consensus was reached. Some articles, based on their abstracts, suggested they might be appropriate, but due to lack of clarity in those abstracts they had to be excluded as well. The final count left 24 articles from top journals, and 30 articles from other journals (See appendix D for the complete list of articles).

2.5 The Reviewing Process

During the actual reviewing process, one more article proved irrelevant to this research and was removed from the sample, resulting in 24 'Top Journal' articles, and 29 'Other Journal' articles.

All remaining articles were carefully read, and all topics related to IS were listed (See appendices A and B). After creating this list, a categorization of topics was used to create a clearer overview of the field of IS in MNC. This categorization was based on the commonly used approach of pre-implementation, implementation, and post-implementation. Although this method was not cast in stone, the categorization encompassed most topics that resulted from the review,, thus proving the relevance of the categorization for literature on IS in MNCs. In creating this categorization all topics were considered of equal importance, as the purpose of this paper is to provide as complete an overview as possible, rather than determining the order of importance of different topics. In case of doubt on where to put a topic, a second researcher was called upon for a second opinion.

The initial results of this categorization were the two tables (Appendices E and F) that divided the topics found in the review over the three aforementioned categories. The contents of these tables were then re-examined in order to create a more specific subcategorization within the three main categories, which led to the creation of 12 subcategories and the addition of two more separate main categories, i.e. "motivation", and "contextual influences". A second researcher checked these subcategories before finalization of the categorization, resulting in the framework described in the next chapter.

3. Review of Literature on IS in MNCs

Throughout this chapter, the MNC-specific view of the IS will not be stressed further, as this has already been applied through the selection of literature. This means that the resulting analysis is not MNC-specific in the sense that it only applies to MNCs, but MNC-specific in the sense that it at least applies to MNCs. Whether or not the analysis can be useful for other types of organizations, such as SME's, is outside the scope of this research, therefore no conclusions will be drawn on that.

3.1 Top Journals: Topics

As Sammon and Adam (2010) state, an organization should be aware of its goals and the key processes that affect its business. If the use of an IS then seems the smart thing to do, it is important to choose correctly so that the characteristics of the IS are in line with the organizational goals. Fashion effect of the IS could play a large role in this equation, as going along with the latest trends provides an organization with more organizational legitimacy and a better performance (Wang, 2010). However, basing the choice purely on the organizational goals creates the risk of failure in the adoption process, as this could leave other important factors, such as cultural compatability (Martinsons & Davison, 2007), ignored.

The fashion effect of an IS (Wang, 2010) does not only apply to the organization buying the IS. In developing an IS, this is an important consideration as well, as using the latest trends in development will increase demand for the IS. In the current global climate, especially in the western cultures where corporate social responsibility becomes increasingly important, so-called green IS development (Butler, 2011), i.e. environmentally friendly, can thus be considered 'in fashion'. Of course not just the fasion effect determines how successful an IS can be. When using flexible standards during development, an IS becomes more marketable (Braa, Hanseth, Heywood, Mohammed, & Shaw, 2007), regardless of its fashion-status. Looking at the development itself though, these factors should not be the sole focus, as they represent the final product. In order to get to that final product though, an important topic pops up in literature, i.e. people. This topic is considered from multiple angles in literature, both as the users that will be working with the IS (He & King, 2008), and as the developers of the IS (Kotlarsky, Van Fenema, & Willcocks, 2008; Oshri, Kotlarsky, & Willcocks, 2007). The focus of these researches though, is completely different, as the research that focuses on the users only considers the IS as a final product that needs to comply with the needs of the users (He & King, 2008), while the research that focuses on the developers only considers the process of development by looking at the coordination of the IS development (Kotlarsky, et al., 2008), and the social factors involved in the development process (Oshri, et al., 2007).

When the actual implementation of the IS approaches, a topic discussed by multiple authors is the alignment between the IS and (parts of) the organization (Mehta & Hirschheim, 2007; Sen & Sinha, 2011; Tallon, 2008). The type of IS determines which parts of the organization need to be aligned with it. Interesting to note here is that in many cases, the organization adapts to the needs of the IS by redesigning business processes (Lu, Huang, & Heng, 2006; Sammon & Adam, 2010), and not the other way around. This seems to contradict the idea of a high integration of the new IS with the existing IT infrastructure and existing ISs (Lu, et al., 2006), which appears to be the easier and more logical approach, as it would seem to require less effort from the organization. Of course, this could potentially be the result of shared industry standards (Lu, et al., 2006) the organization needs to comply with, or in the case of MNC subsidiaries, certain standards or demands set by headquarters (Rao, Brown, & Perkins, 2007). The degree of influence by headquarters partly depends on where the responsibility for planning of the IS selection and implementation is located (Mohdzain & Ward, 2007). This is one of the choices that require attention when developing an implementation methodology for the IS (Sammon & Adam, 2010).

Where Rao et al. (2007) consider the support of headquarters to subsidiaries when it comes to resources, the importance of this support is put in a more general manner by Dong, Neufeld, and Higgins (2009). They distinguish between three types of Top Management Support (TMS); TMS – resource provision, which includes providing the proper personnel (Sammon & Adam, 2010), the right training facilities (Sammon &

Adam, 2010), financial means (Mohdzain & Ward, 2007), and allowing for a cross-organizational implementation team (Lu, et al., 2006), TMS – change management, and TMS – vision sharing, which is needed to stimulate a shared motivation and vision throughout the organization (Lu, et al., 2006). A resource that mainly falls outside of the locus of control for management is the presence of an advanced legacy IS and infrastructure (Lu, et al., 2006), as this is dependent on choices that were made in the past. Interesting to note here is the purely organizational focus when considering all the abovementioned topics. The one exception to this rule is the research by Lu et al. (2006), who use a double perspective by also stressing the importance of a strong motivation within the individual employee.

While the abovementioned topics related to alignment and (lack of) resource provision appear sound on paper, in reality the fit between an IS and an organization, or the needed resources to implement the IS may not always be present, thus requiring a certain degree of improvisation during the implementation phase of an IS (Elbanna, 2006). Though limited to the implementation phase in the research of Elbanna (2006), common sense would lead to the expectation that the improvisation argument can be valid for every situation related to an IS, as planning is hardly ever perfect.

After the actual implementation of an IS, the first obstacle that needs to be conquered is the adoption of the IS. Though some researchers consider this to be dependent on many variables, such as the type of IS or IT innovation, the type of organization, the stage of the adoption, the scope of the size, and the type of size measure (Lee & Xia, 2006), the more popular idea appears to be that adoption of an IS is mainly dependent on the level of end-user computer satisfaction (Au, Ngai, & Cheng, 2008; Deng, Doll, Al-Gahtani, & Larsen, 2008). The difference in views here quite resemble differences in focus discussed earlier, namely that of an individual view (end-user computing satisfaction) versus that of an organizational view.

Where the adoption of an IS as a topic seems to favour the individual focus over the organizational focus, the reverse is true for the results delivered by an IS. Though the individual impact is considered an important result (Urbach, Smolnik, & Riempp, 2010), the emphasis in research is put on the organizational view. Remarkably though, opposed to the author's expectations, financial results, though considered through monetary indicators (Urbach, et al., 2010), appear to form only a minor part of the research. The majority of research into the results of an IS is focused on non-financial results, such as organizational legitimacy (Wang, 2010), organizational impact (Urbach, et al., 2010), increase in social capital (Sherif, Hoffman, & Thomas, 2006), improved order-lead time (Cotteleer & Bendoly, 2006), or other increases in organizational performance (Wang, 2010).

Finally, Furneaux and Wade (2011) explore the discontinuance intentions of an IS, in which they stress the impact of a factor that is present throughout the lifecycle of an IS, i.e. institutional pressures (Liang, Saraf, Hu, & Xue, 2007).

3.2 Top Journals: Use of theories

Over half of the 'Top Journal' papers use some type of theory as a foundation for their research. Whether or not the theory they use is considered valid, or respected, is not taken into consideration for the purposes of this review. Below, a brief overview of the theories used, and their purposes in the respective papers, is provided.

Elbanna (2006) investigates the validity of the improvisation argument, developed by Ciborra (1996), and Orlikowsky (1996), in the case of ERP systems. Using Actor Network Theory, this research "extends the discussion on improvisation and contributes to an already illuminating argument. It invites practitioners to reflect on ERP implementation practice and review their evaluation methods" (p.165).

Rao, Brown, and Perkins (2007) perform an empirical test of the Resource Dependence Theory (Pfeffer & Salancik, 1978). Their test of the theory's validity in the context of IS management in the relation between headquarters and subsidiaries shows some interesting results. "While the theory holds up well in the case of dependence, the expected relationship with IS resource availability was not observed. Although there was a significant relationship with the use of informal mechanisms of control and coordination, it was in the opposite direction to what was expected" (p.26).

A seemingly popular theory, as it is used by multiple authors, is institutional theory (Meyer & Rowan, 1977). Liang, Saraf, Hu, and Xue (2007) combine it with the concept of top management support to develop and test a theoretical model to investigate the adoption of an IS. Butler (2011) combines it with organizational theory in order to explain the motivation for choosing "green" IS.

Au, Ngai, and Cheng (2008) combine three well-known theories of motivation, i.e. expectation theory (Porter & Lawler, 1968; Vroom, 1964), needs theory (Maslow, 1943), and equity theory (Adams, 1965), to extend the understanding of end user satisfaction. Their work results in a new model that incorporates the previously mentioned theories, thus providing a more complete understanding of end user satisfaction.

Having their focus in the same area, i.e. end user satisfaction, Deng, Doll, Al-Gahtani, Larsen, Pearson, and Raghunathan (2008) test the end-user computing satisfaction instrument developed by Doll and Torkzadeh (1988) in a cross-cultural analysis. Their results show that the instrument held up throughout different cultures.

Wang (2010) uses the theory of management fashion (Abrahamson, 1996) as a basis to transfer the effect of management fashion to an IT setting, creating a theory of IT fashion.

Finally, the theoretical model that is most mentioned in literature on IS success is that of DeLone and MacLean (2003). This is perhaps the most popular model of measuring IS success, using six dimensions for testing IS success, i.e. information quality, system quality, service quality, intention to use, user satisfaction (Au, et al., 2008; Deng, et al., 2008), net benefits (Urbach, et al., 2010; Wang, 2010). This model is consistently used as a basis for papers focussing on whether or not IS are successful (Urbach, et al., 2010).

What can be seen in the abovementioned examples is that the use of theory is not exactly monopolistic, or even oligopolistic, in nature. A wide variety in theories has been used as a foundation for research. Surprisingly though, only four out of the eleven theories used originate from the IS research field, i.e. the improvisation argument, actor-network theory, the end-user computing satisfaction instrument, and the DeLone and MacLean model for IS success, while seven have their roots in management research, i.e. resource dependency theory, institutional theory, organizational theory, expectation theory, needs theory, equity theory, and management fashion theory. Considering that the topics are IS related, and the papers were published in top IS journals, the balance between IS theories and management theories is different than expected.

3.3 Other Journals: Topics

Min and Shujuan (2010) keep a focus on the MNC view by stating the motivation for choosing and implementing an IS as the need to participate in international competition better. This view on the motivation for an IS is very general, and thus not very useful when considering why an IS should be implemented. After all, every MNC has the desire to participate in international competition better; this does not mean that every MNC will do so as long as they keep implementing new ISs. To realize an improvement with a new IS, the first important step is to select the appropriate IS considering the goals to be achieved by using the IS (Wenrich & Ahmad, 2009). In this selection process several variables need to be considered, such as standardization versus localization (Shin & Huh, 2009), the level of information that is needed (Feng, 2006; Pop, 2009), where the responsibility for data collection should lie (Pop, 2009), where the information provided by the IS is needed (Pop, 2009), what critical success factors need consideration (Nathan, 2011), the quality of information (Häkkinen & Hilmola, 2008), the professional culture in which the IS is to be placed (Feng, 2006), and the level of data accuracy of the IS input data (Biehl, 2007). As the abovementioned examples suggest, the 'Other Journal' category has a much stronger focus on the specific characteristics of an IS compared to the 'Top Journal' category, which only addressed a few general notions that need consideration in choosing an IS.

In considering the topic of IS development though, the 'Other Journal' category only has a single paper that covers the topic, as opposed to the 5 papers in the 'Top Journal' category. Interesting to note here is the difference in focus again. Where the 'Top Journal' category had its focus mostly on the process of development, the 'Other Journal' category is maintaining a more product-specific view, by stressing the importance of focusing on the fundamental characteristics required of the IS (Bull, 2010).

Closing in on the actual implementation of the IS, the 'Top Journal' category provided several papers on the alignment between the IS and (parts of) the organization. This is not the case with the 'Other Journal' category, where no papers discuss this topic. When it comes to the topic of alignment, this category of journals appears to value the alignment between headquarters and the subsidiary the most, with three papers discussing this topic (Avison & Malaurent, 2007; Haug, Pedersen, & Arlbjørn, 2010; Rao, 2006). Adding to this two papers discussing business process redesign (Hawking, 2007; Wenrich & Ahmad, 2009), and one more discussing the impact of the economical climate the organization operates in, leads to the conclusion that papers in the 'Other Journal' category tend to have a more outward focus, as they discuss alignment in view of adapting to other parties, e.g. headquarters, developers, or governments. In both journal categories, a passive attitude towards the alignment of the IS is taken, as the organizations appear to merely manage what comes their way instead of determining what type of IS fits their needs. Taking this approach to implementing a new IS will of course result in barriers, such as communication issues (Avison & Malaurent, 2007; Biehl, 2007; Carton & Adam, 2010), structural issues (Avison & Malaurent, 2007), problems with the comprehensiveness (Alaranta & Henningsson, 2007), or integrating the IS into the daily routine (Wei Li, Downey, & Wentling, 2007), that need to be overcome, which perhaps would not have been there if taken a more assertive approach by taking control early on and fitting the IS to the organization, instead of the other way around.

Where the 'Top Journal' category had a strong organizational focus on the topics that can be assessed as resources, the 'Other Journal' category maintains a more distributed view on resources. Though with three papers utilizing an organizational focus versus seven that make use of an individual view of resources, this category does favour the individual view. Among the papers with the organizational view of resources, no new topics surfaced compared to the 'Top Journal' category, in which the resources of time (Pop, 2009), financial resources (Biehl, 2007), and the one needed to realize these resources, TMS (Biehl, 2007), have all been covered already. More interesting are the new topics provided by the 'Other Journal' category. In general, this is described by Hilaricus (2010), who discusses individual user characteristics, which basically covers all other individual resources found in the literature sample, i.e. user autonomy (Mirchandani & Lederer, 2008), user IS skills (Häkkinen & Hilmola, 2008; Zaidman, Schwartz, & Te'eni, 2008), IS staff capability (Biehl, 2007), intercultural social knowledge (Phang, Zheng, & Zhong, 2007), and user attitude (Alaranta & Henningsson, 2007).

Of the abovementioned resources, one appears to fall out of line with the rest, namely the intercultural social knowledge. This resource has its focus varying from the others, in that it is less about the IS and more about the people working with it. When needing to adapt to certain contextual influences though, such as culture (Feng, 2006), this resource should be highly valued, as it could prove essential in an intercultural context. Besides culture, there are other factors that are more closely related to the organization, such as the organization's power relations (Zaidman, et al., 2008), or the individual within the organization, such as the user's perception of the IS' characteristics (Hilaricus, 2010). These factors, though not (necessarily) related to the IS, affect the implementation of the IS, and therefore need to be considered during the implementation of the IS. In order to allow for easier adaptation to these factors, Sannarnes (2010) suggests a built-in flexibility for IS. In addition to this, Sannarnes (2010) also stresses the importance of establishing an IS governance model beforehand, to prevent any confusion as to who is responsible, and thus allowing for a more smooth implementation of the IS, as well as an easier adoption afterwards. This notion is in line with the need for formalizing the IS implementation beforehand (Alaranta & Henningsson, 2007; Wenrich & Ahmad, 2009).

Looking at the adoption of the IS, the 'Other Journal' category offers a more varied view compared to the 'Top Journal' category. Where the 'Top Journal' category revealed a mostly individual focus in the area of IS adoption, the 'Other Journal' category shows an even division between topics with an organizational focus and topics with an individual focus. As was to be expected, the level of user satisfaction (Larsen, 2009) is considered of influence on the adoption of the IS. More interesting in this sample of literature though, are the topics that were not present in the 'Top Journal' category. Topics with a more individual focus, i.e. online communities of practice (W. Li, 2010), user feedback (Häkkinen & Hilmola, 2008), user IS skills (Häkkinen & Hilmola, 2008), user attitude (Biehl, 2007), and the development of patterned behaviours (Hilaricus, 2010), but especially the previously overlooked group of organizationally focused topics, i.e. the development of symbolic properties attached to behaviours (Hilaricus, 2010), the task characteristics (Hilaricus, 2010), the maintenance required for the IS (Wenrich & Ahmad, 2009), the quality of information (Häkkinen & Hilmola, 2008), the communication between organizational levels (Häkkinen & Hilmola, 2008), and diverse other organizational issues (W. Li, 2010). This variety of topics paints a completely different picture than derived from the 'Top Journal' category, where end-user satisfaction appeared the main driver for IS adoption. Based on this list of topics, it can be concluded that many factors affect the adoption of the IS, but more importantly, that the organization can influence the adoption relatively easy, instead of going through great difficulties in attempting to influence the individuals in their employment.

In considering the results after IS implementation, Rangan and Sengul (2009) in essence provide an extension to the results from the 'Top Journal' category by discussing the reduced coordination costs, and the increase in observability and contractability. A more refreshing look at the results is provided by Yamin and Sinkovics (2007), who not only discuss advantages of an IS, i.e. improvement of control capabilities, and improved exploitation capability, but also reveal potential disadvantages, i.e. the potential damage to the organization's explorative potential.

3.4 Other Journals: Use of theories

Less than one fifth of the 'Other Journal' papers make use of a theory as a foundation for their research. In comparing the 'Top Journals' and 'Other Journals' on the use of theories, it immediately shows that the 'Top Journals' heavily outmatch the 'Other Journals' in their use of theoretical foundations. As it turns out, the 'Other Journals' publish a lot more case studies in this field of research, which do not often use one or more existing theories to base their research on. The 'Top Journals' on the other hand, appear to publish much more papers that test the validity of a theory, or attempt to extend an existing theory. Below, an overview of the theories that have been used is provided.

Rao (2006) performs an empirical test of the Resource Dependence Theory (Pfeffer & Salancik, 1978). The test of the theory's validity in the context of IS management in the relation between headquarters and subsidiaries shows some interesting results. "While the theory holds up well in the case of dependence, the expected relationship with IS resource availability was not observed. Though there was a significant relationship with the use of informal mechanisms of control and coordination, it was in the opposite direction to what was expected" (p.1).

Li, Downey, and Wentling (2007) conducted in-depth interviews in order to identify what factors influence knowledge sharing. In creating the interview questions, they made use of the Unified Theory of Acceptance and Use of Technology (2003).

Mirchandani and Lederer (2008) apply Theory Y (McGregor, 1960) to a situation of IS planning. Their findings extend the theory to a new domain, i.e. IS planning in MNCs.

Finally, Hilaricus (2010) assesses the adoption of technology by subsidiaries of an MNC by viewing it through the perspective of the Actor-Network Theory (Callon, 1991).

The division of management theories versus IS theories is more in balance here, if the Unified Theory of Acceptance and Use of Technology is counted for the field of IS (though technically, it is a more general technological theory). Again, no clear favourite surfaces, as four different theories are used. However, what is interesting to note is that both resource dependency theory, and actor-network theory overlap with the theory usage found in the 'Top Journals', suggesting that these theories might be slightly more popular. This argument is weakened when considering the authors, as the research utilizing resource dependency theory is done by the same author in both journal categories, and is based on the same dataset.

The main conclusion to be drawn from this mosaic of theories used in research in the field of IS in MNCs is that the utilization of theories is not limited to the specific field, but authors can draw on a wide range of theory to apply to their 'IS in MNC' research.

3.5 Framework

From the above sections multiple categories have been derived in order to create a framework representing the literature in the field of IS in MNCs. This framework is depicted in figure 1. The framework depicts the topics derived from the 'Top Journals' in a regular font, and the topics derived from the 'Other Journals' in *italic*.

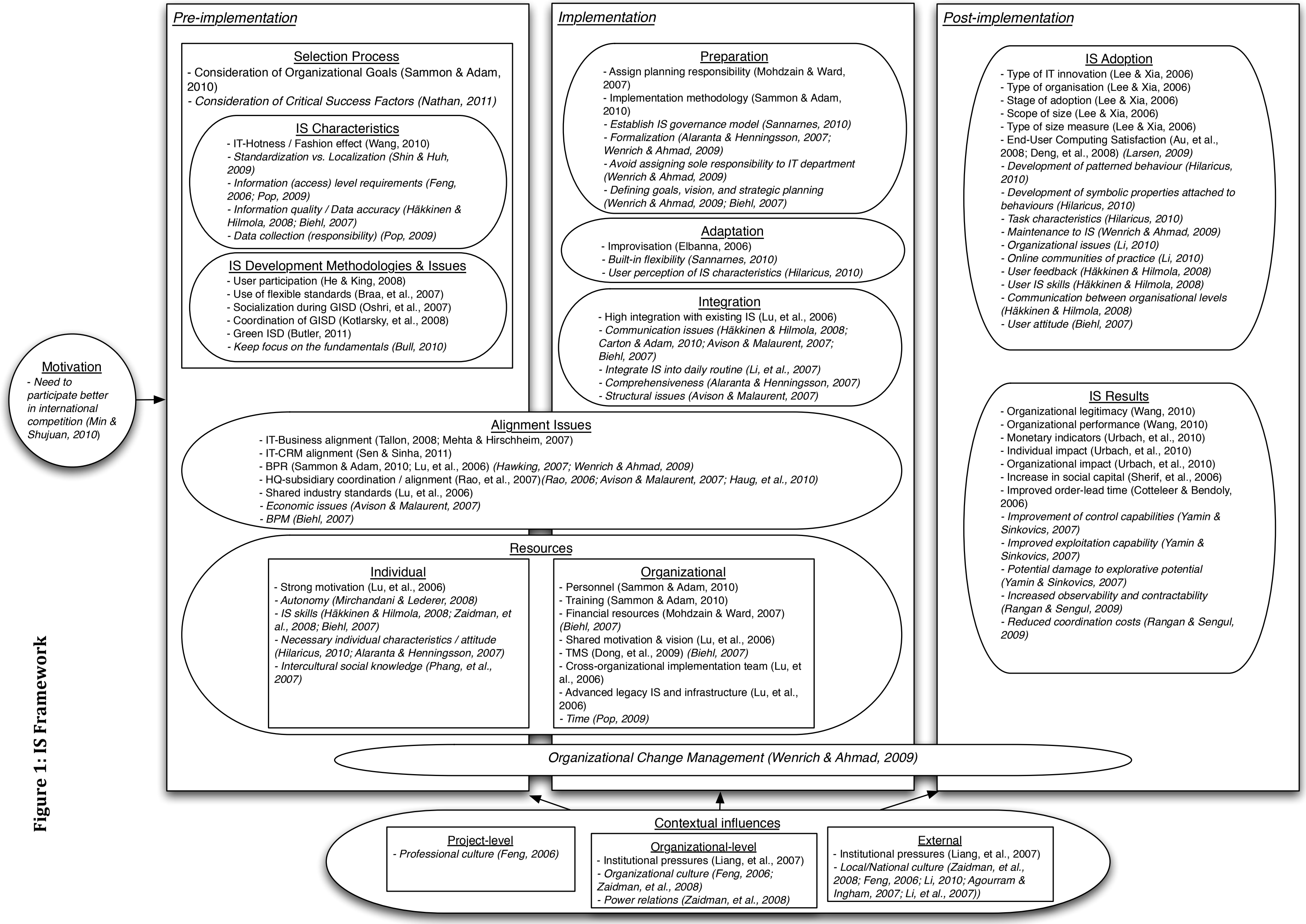


Figure 1: IS Framework

Pre-implementation
The pre-implementation phase consists of three main issues, i.e. the selection process, alignment issues, and resources. Aside from these, the organizational change management starts in this phase as well, and continues throughout the implementation phase and into the post-implementation phase. All topics that need consideration before starting with the implementation are placed in this category.

Selection Process
In the selection process, the organizational goals to be achieved, and the critical success factors that affect the choice need to be assessed. Besides these general activities, a choice needs to be made on whether to choose an existing IS, in which case the characteristics of the (needed) IS require further thought, or to develop a new IS, in which case several development issues require consideration. An interesting observation in this subcategory is that almost all papers on IS development springs from the 'Top Journals', while almost all research on IS characteristics in general originates from the 'Other Journals'.

Alignment Issues
The alignment issues subcategory spans two main categories, as it starts during the pre-implementation, but continues during the implementation phase. Though no real difference can be seen in the origins of the articles when comparing the 'Top Journal' articles with the 'Other Journal' articles, it can be noticed that some of the topics mentioned have quite a specific focus, thus not being applicable to every type of IS. It is to be expected that different types of IS have different alignment needs.

Resources
This is again a subcategory that spans two main categories, i.e. pre-implementation and implementation. Interesting, when looking at the resources, is the difference in orientation when comparing the two literature samples. While the 'Top Journals' keep their focus at an organizational level, the 'Other Journals' use a much more individual approach by assessing the resources at a personal level.

Implementation
The implementation phase encompasses three stages, i.e. preparation, adaptation, and integration. Aside from these, the previously discussed alignment issues, and resources also affect this phase of the IS trajectory. Remarkable in this category is how little research was published on implementation in 'Top Journals' in comparison to what was published in 'Other Journals'. The 'Top Journals' seem to favour the preparations and evaluations over the actual implementation of an IS.

Preparation
This subcategory entails the actual set-up for the implementation. Any topic that addresses the last preparations before the actual implementation, but after the choice or development of the IS. If this framework were to represent a nice dinner, this subcategory would be placed after the grocery shopping, comparable to collecting kitchen supplies and deciding in what order to prepare the ingredients.

Adaptation
Adjusting to the circumstances. No matter how well you plan, no implementation project will be completed without some hiccups. This category can be considered the glass of water to "cure" these hiccups.

Integration
This category could be considered the actual implementation. Integrating the chosen solution into the current situation. This category encompasses anything from the actual

installation of the IS, to the integration into the daily routine of an employee, or the communication during the implementation.

Post-implementation

The post-implementation phase can be divided into two subcategories, i.e. IS adoption, and IS results. Simply put, 'How do we work with it?', and 'What do we get out of it?'. No significant differences were detected in the balance between 'Top Journals' and 'Other Journals' within this category, and its subcategories.

IS Adoption

The adoption of the IS concerns any topic or variable that determines whether or not the IS will be used by the employees. Most important in this category is the end-user satisfaction, which becomes apparent when considering this is the topic that was covered by the most authors.

IS Results

This is the subcategory which is likely to be the most interesting for IS managers, as this represents how and how much the organization will gain by implementing the IS. Interesting to note in this category is that relatively few papers focus on financial gains, both in the 'Top Journals' and the 'Other Journals'.

External influences

This framework recognizes two external influences, since these seemed out of place within the framework. First, the motivation to undertake any IS project. This topic was considered important by merely one paper. The final conclusion on the motivation seems quite apparent, as the need to participate in international competition better is expectedly something every MNC strives for. Second, the contextual influences, which can be sub-divided into project-level influences, organizational-level influences, and external influences. Simply put, this mostly consists of institutional pressures and cultural pressures.

4. E-HRM

4.1 Placing the framework in an E-HRM context

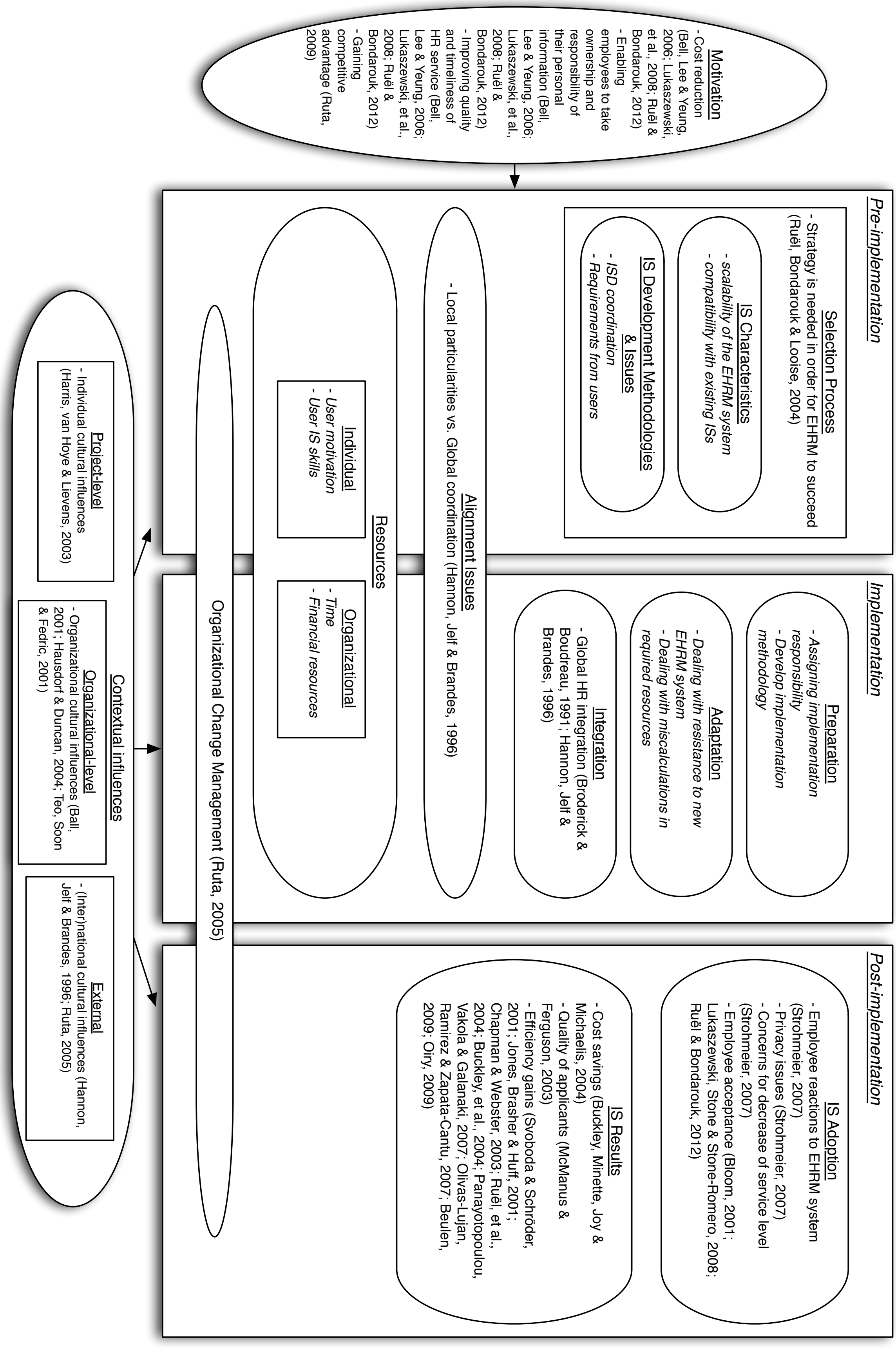
Figure 2 represents the IS framework from an E-HRM perspective. Based on an analysis of three literature reviews in the field of E-HRM, the relevance of the IS framework for E-HRM is assessed. In order to perform this assessment, three recent, and extensive, literature reviews on E-HRM have been selected as a foundation for relating the IS in MNC framework to the specific type of IS known as an E-HRM system. These E-HRM reviews are those of Strohmeier (2007), Ruël and Bondarouk (2012), and Bondarouk and Furtmueller-Ettinger (2012).

In the framework, not all topics found in the literature reviews were used. A selection was made, as it was never meant to be a complete overview, but merely to demonstrate whether or not the categories are relevant to E-HRM. The categories in which no examples from E-HRM literature were found contain examples in *italic*, in order to demonstrate that these categories still could apply to the context of E-HRM.

Pre-implementation

Considering the general nature of this category it seems fair to assume the three-step approach of pre-implementation, implementation, and post-implementation is valid for any type of IS, including E-HRM systems. One topic worth noting here is organizational change management. This topic spans all three main categories in the framework, and can be found in E-HRM literature as well (Ruta, 2005).

Figure 2: E-HRM in the IS framework



Selection Process

A link to the selection process in the framework can be found in the case study by Ruël, Bondarouk, and Looise (2004). They accentuate the importance of strategy for E-HRM success, which is reflected in the framework by the need for consideration of organizational goals (Sammon & Adam, 2010), and critical success factors (Nathan, 2011).

Alignment Issues

Only one example was found in literature, i.e. the alignment between local particularities and global coordination (Hannon, Jelf, & Brandes, 1996). Though this category did not surface much in either of the three literature reviews on E-HRM, it does appear to be a significant category. For any type of IS, that includes E-HRM systems, to be implemented properly, several alignment issues need to be attended to. Examples of this include shared industry standards, and alignment between headquarters and subsidiary.

Resources

Not mentioned throughout the three literature reviews, this category would seem a very obvious one. Though, perhaps the fact that it is such a general necessity, maybe too general, offers an explanation as to why this topic was not covered in E-HRM literature.

Implementation

Implementation consists of three highly relevant subcategories, i.e. preparation, adaptation, and integration. As the alignment issues and resources have already been covered above, these will not be considered here.

Logically, any IS, thus E-HRM systems as well, need to be implemented before use is possible. This simple reasoning explains the necessity of an implementation category in the framework. Though the relevance of the exact topics mentioned within the subcategories of the framework may be open for discussion, most topics are considered general necessities for any type of IS to be implemented, e.g. an implementation methodology, improvisation, communication issues, or integration with an existing IS or IT infrastructure. In the literature only two examples were found, both discussing the global integration of E-HRM (Broderick & Boudreau, 1991; Hannon, et al., 1996).

Post-implementation

As with pre-implementation and implementation, this category could be considered valid for any type of IS, thus including E-HRM systems, due to its general nature. In the specific context of E-HRM though, this category appears the most relevant of all in light of the work of Bondarouk and Furtmueller-Ettinger (2012). They conclude, based on an extensive literature review, that E-HRM research can be divided into two streams, i.e. factors affecting E-HRM adoption, which relates to the IS adoption category from the framework, and factors affecting E-HRM consequences, which relates to the IS results category from the framework.

IS Adoption

The adoption of an E-HRM system largely relies on people. Strohmeier (2007) finds that employee reactions to E-HRM systems constitute a main topic or research. Privacy issues, and concerns for the decrease of service level could threaten the adoption, while employee acceptance is considered crucial for successful implementation (Bloom, 2001; Lukaszewski, Stone, & Stone-Romero, 2008; Ruël & Bondarouk, 2012). Bondarouk and Furtmueller-Ettinger (2012) solidify this argument even further by revealing that in the 70s and 80s over 80% of E-HRM research focused on E-HRM adoption, and in the 90s around 60%, thus proving that adoption is a highly relevant issue in E-HRM research.

IS Results

Results of using an E-HRM system are also topics of research that are frequently considered (Strohmeier, 2007), these include results that can be found in the framework, such as cost savings (Buckley, Minette, Joy, & Michaelis, 2004), as well as results that were not mentioned in the framework, such as the E-HRM specific quality of applicants (McManus & Ferguson, 2003). Overall, the studies that cover the category of IS results are quite numerous, and appear to form the largest part of E-HRM research. Though not completely supportive of this statement, Bondarouk and Furtmueller-Ettinger (2012) do show that the E-HRM results, or consequences, constitute a significant part of E-HRM research.

External influences

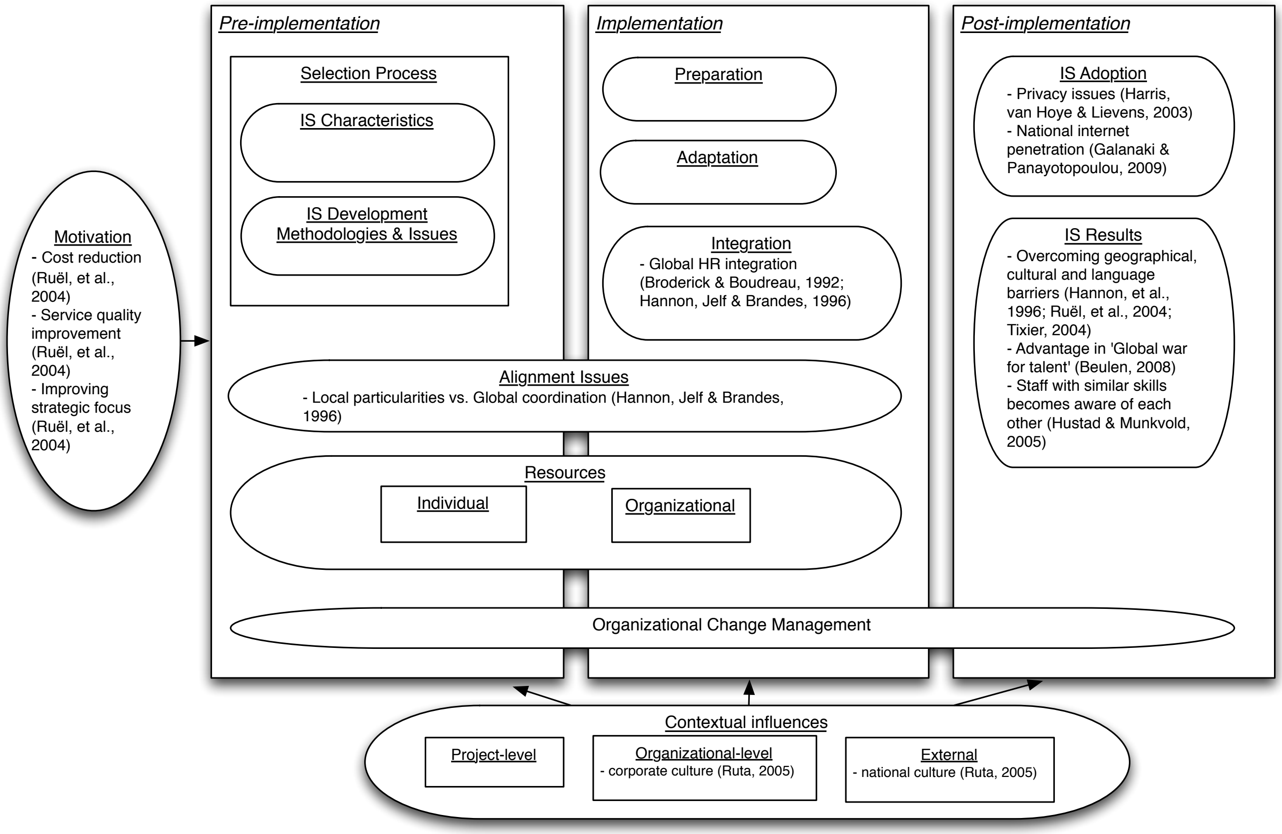
When looking at the motivation in the framework, it appears this will probably only apply indirectly for an E-HRM system. Based on E-HRM literature, the motivations for implementing an E-HRM system have a more internal focus, such as "cost reduction, enabling employees to take responsibility and ownership of their personal information, improving the quality and timeliness of HR service, and improving the overall organizational efficiency (Bell, Lee, & Yeung, 2006; Lukaszewski, et al., 2008)" (Ruël & Bondarouk, 2012). Ruta (2009), however, argues that a competitive advantage can be gained by using E-HRM. Thus can be concluded that the 'motivation' category does apply, but not for the reasons derived from the general IS literature.

When considering the contextual influences an IS has to deal with, Strohmeier (2007) finds that contextual aspects are not commonly used as central research topics. As moderating variables though, they do play a role in some studies. Congruent with the developed framework, Strohmeier's review also reveals three levels of cultural influences, i.e. individual (Harris, van Hoye, & Lievens, 2003), which mostly relates to the project-level subcategory, organizational (Ball, 2001; Hausdorf & Duncan, 2004; Teo, Soon, & Fedric, 2001), though these focus on different factors than the papers from the general IS review do, and a (inter)national level (Hannon, et al., 1996; Ruta, 2005), which relates to the external contextual influences in the framework.

4.2 E-HRM in MNCs

Figure 3 depicts the IS framework in the perspective of E-HRM in MNCs. In this situation, the MNC-specific view of E-HRM is considered. For this reason, only topics from literature that was specifically on E-HRM in MNC situations were used. No additional examples were provided, since these would be similar to those in figure 2 in the previous paragraph. The empty categories were left open to clarify the gaps in E-HRM in MNC literature.

Figure 3: MNC-filter applied to E-HRM in the IS framework



As can clearly be seen in the above figure, the research on E-HRM in MNCs is still relatively incomplete. Most of the research done focuses on the results after implementation of E-HRM, and a few examples of topics concerning the adoption of E-HRM can be found as well. Besides that, only a few stray examples exist, dipping into the research on motivation, alignment issues, integration, and contextual influences.

4.3 Gaps in literature and future research potential

As can be seen in figure 2, the motivation for E-HRM, the contextual factors influencing it, the adoption of E-HRM, and the results achieved by implementing E-HRM are well researched. However, in all other categories in the framework, research is either very scarce or completely absent. When adding another filter by focusing on E-HRM in MNCs, even the topics that appeared well researched prove to be rather scarce. In essence, this leaves us with a lot of potential for future research, both in E-HRM as well as in E-HRM in MNCs.

For the field of E-HRM, the focus of the research should be on the pre-implementation and implementation phase, as these steps in the life of E-HRM have not yet been researched thoroughly. In the case of E-HRM in MNCs, literature is too scarce in general, and thus all possible topics should be researched more. To provide some sort of agenda for future research, it is recommended to use the general IS framework as a guideline in determining research topics.

However, even though the abovementioned suggests that more research is needed on these topics, the fact of the matter is that IS research does cover these categories, and appears to be applicable to an E-HRM context. Thus it is advised that before undertaking any research in the field of E-HRM (in MNCs), the literature on IS in general is taken into consideration as it would be pointless to reinvent the wheel by repeating research that has already been covered by the field of IS and can be applied to E-HRM.

5. Conclusions and Discussion

At the start of this research, the aim was to find an answer to the question: *"How can the current literature on information systems in multinational corporations be categorized, and what does this mean for research on E-HRM systems in multinational corporations?"*

5.1 Main conclusions

A framework was developed representing the literature on IS in MNCs (see figure 1). During the analysis of the literature on IS in MNCs, the choice was made to start out with three main categories for the framework, i.e. pre-implementation, implementation, and post-implementation. After analysis of the entire literature sample, the resulting framework kept in line with this categorization, with the addition of two other categories, i.e. motivation, and contextual influences, and several subcategories.

Based on this framework, it can be concluded that publications in the category 'Top Journals' put more emphasis on topics within the categories of pre- and post-implementation, and less on the implementation category. Papers from the 'Top Journals' also revealed to favour the organizational perspective in selecting topics, as opposed to the individual perspective. Finally, it was noted that in publications from 'Top Journals' about half uses existing theories as a foundation for their research.

The category 'Other Journals' proved to have a much higher presence in the implementation category in the framework, and slightly less in pre- and post-implementation. Research from this category mostly favoured an individual perspective over an organizational perspective, and was mostly in the form of case studies, which resulted in very little use of theoretical foundations for the research.

To answer the second part of the research question, first a general E-HRM view was applied to the framework. Based on the literature reviews of Strohmeier (2007), Ruël and Bondarouk (2012), and Bondarouk and Furtmueller-Ettinger (2012), this resulted in a version of the general IS framework that was specifically adjusted for E-HRM (see figure 2).

Based on this framework can be concluded that E-HRM research keeps a strong focus on the post-implementation category, while paying little attention to the pre-implementation category, and the implementation category. Taking a closer look at the literature on which the framework is based though, the interrelatedness of the categories is unavoidable. All authors that focus their research on the pre-implementation and implementation categories, clearly point to the impact their research topic has either on the adoption of the IS (e.g. (Biehl, 2007; Häkkinen & Hilmola, 2008; He & King, 2008; Sammon & Adam, 2010) or the IS results (e.g. (Sammon & Adam, 2010; Tallon, 2008; Wang, 2010). More concretely for example, Wang (2010) explains how the 'hotness' of an IS can add to the legitimacy and performance of an organization, Lu et al. (2006) show how certain resources (e.g. strong motivation within employees) are critical for the adoption and success of an IS, and Hilaricus (2010) points to the connection between adaption during the implementation phase and adoption afterwards by discussing the user perception of IS characteristics. These are just a few examples that demonstrate the relevance of research in the pre-implementation and implementation categories for any field that is interested in the post-implementation category, i.e. the field of E-HRM. Thus can be concluded that the field of E-HRM needs to catch up in the aforementioned two categories.

As was argued in this paper though, the framework depicting the research on IS in MNCs in general can be applied to an E-HRM context. Thus, the research on IS in general on the topics of IS characteristics, IS development, alignment issues, resources required for IS, implementation preparation, implementation adaptation, and implementation integration can be used in the context of E-HRM. In essence, this means that the body of literature on E-HRM can actually be considered larger than previously assumed, as (at least parts of) general IS literature can be used as if it were E-HRM specific literature.

As a final step in answering the posed research question, an MNC filter was applied to the E-HRM adjusted IS framework (see figure 3). This was done by selecting MNC specific research from the previously mentioned E-HRM literature reviews. The resulting framework clearly showed the scarcity of E-HRM in MNC literature as only the post-implementation category provided more than a few topics from a stray author. This leads to the conclusion that the field of E-HRM in MNCs is either too specific, or has mainly been ignored so far. As with E-HRM literature in general, E-HRM in MNC literature can also be expanded by general IS literature, however, additional research in this specific field is definitely required.

5.2 Discussion

Looking at the general IS framework, and including both 'Top Journals' and 'Other Journals', a clear gap that can be noticed is the lack of feedback. Though Häkkinen and Hilmola (2008) address the issue briefly, in general the feedback-loop is missing throughout the framework. Of course, in essence all literature on IS can be considered some form of feedback, but for a more complete body of literature research on how we can learn for future IS projects is desirable. Research on the motivation for considering a new IS, or even an upgrade, also seems very scarce, and thus could use some more attention. The same argument could be made for organizational change management. Though, to be honest, this topic probably has sufficient literature on it, just not specifically focused on organizational change management in the situation of an IS in an MNC. Two areas that have been researched, but still appear quite scarcely researched are the selection process in general, and the adaptation category. These two subcategories in the framework could do with some additional research.

When considering the topics within the general IS framework, it is interesting to see that the topics discussed by 'Top Journals' do not vary much from those discussed by 'Other Journals'. The differences can mostly be found in the perspective that chosen, i.e. organizational versus individual, and the type of research, as the 'Other Journals' mostly use case studies, while 'Top Journals' rarely appear to do so.

Looking at the E-HRM adaption of the IS framework, it was concluded that the pre-implementation, and implementation category were underrepresented. This conclusion supports the original assumption by the author that E-HRM research is mostly done by HR and business scholars, as the pre-implementation and implementation category would probably require more IS-specific knowledge (or at least affinity with IS). HR and business scholars though, are likely to be more interested in the application of E-HRM, and not so much the technical layer that supports it.

After adding the MNC filter to the equation, the framework is mostly empty. This is not very illogical, as E-HRM is still a relatively young discipline, and E-HRM in MNCs, which is a subsection of that discipline, automatically even younger.

5.3 Implications

For the field of IS in MNCs, this research provides an overview of what has recently been done, and how these different researches fit together to form a more complete view of IS in MNCs. In the practical sense, the framework developed in this research could be used as a guideline for managers that play a part in the process of implementing an IS. Though this research in no way claims to be exhaustive in developing the IS in MNC framework, it could definitely serve as a basis for managers in considering what steps they need to take in implementing and working with an IS.

Looking at the field of E-HRM from the perspective of the IS framework revealed some serious gaps in current literature. The framework allows for an overview of what is yet to be done in the field of E-HRM. Besides that, it provides a clarification of the link between IS research and E-HRM research. As was shown in the review section, barely any IS research is focused on E-HRM, yet it proved to be relevant anyway. As a result, some significant gaps in E-HRM research can be filled without any additional research. More concretely, this means that (parts of) general IS literature on IS characteristics, IS development, alignment issues, resources required for IS, implementation preparation, implementation adaptation, and implementation integration can be used in an E-HRM context, thus immediately adding to the current body of E-HRM literature.

Considering the MNC filter that was applied to the E-HRM framework (see figure 3), again some serious gaps in the current literature are exposed. As with the E-HRM literature, the E-HRM in MNC literature can be expanded upon by general IS in MNC literature, as was demonstrated in this paper. Besides that though, the field of IS in MNCs does require far more research in the categories that remain empty in the E-HRM in MNC framework in figure 3.

Finally, this research revealed that clear differences exist between the topics covered in the top journals from the field of IS, and all other journals. As the framework demonstrated, a complete picture can only be created by using both categories of journals.

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Appendix A: Topics covered in Top Journals

Author	*Topic*
Au, Ngai & Cheng (2008)	End User Satisfaction: work performance
	End User Satisfaction: relatedness
	End User Satisfaction: self-development
Braa, Hanseth, Heywood, Mohammed & Shaw (2007)	IS Development: use of flexible standards
Butler (2011)	Green IS development
Cotteleer & Bendoly (2006)	Improved order-lead time
Deng, Doll, Al-Gahtani & Larsen (2008)	End User Computing Satisfaction
Dong, Neufeld & Higgins (2009)	Top Management Support: Resource provision
	TMS: Change management
	TMS: Vision sharing
Elbanna (2006)	Improvisation
Furneaux & Wade (2011)	Discontinuance intentions:
	(+) Systems Performance Shortcomings, (+) Organizational Initiative,
	(+) Environmental Change,
	(-) System Investment,
	(-) System Embeddedness,
	(-) Institutional Pressures
He & King (2008)	IS Development – User participation
Kotlarsky, van Fenema & Willcocks (2008)	Coordination of global ISD
Lee & Xia (2006)	Type of IT innovation
	Type of organization
	Stage of adoption
	Scope of size
	Type of size measure
Liang, Saraf, Hu & Xue (2007)	Institutional pressures
Lu, Huang & Heng (2006)	Cross-organizational implementation team
	High integration with existing IS
	Business Process Redesign
	Advanced legacy IS and infrastructure
	Shared industry standard
	Strong motivation
	Shared motivation
Martinsons & Davison (2007)	Cultural compatability
Mehta & Hirschheim (2007)	IS-business alignment in mergers
Mohdzain & Ward (2007)	(De)centralize IS planning responsibility
	Controlling costs and achieving economies of scale
Oshri, Kotlarsky & Willcocks (2007)	Socialization during global ISD
Rao, Brown & Perkins (2007)	Coordination between HQ and subsidiaries
Sammon & Adam (2010)	Best business personnel
	Approach to training
	Implementation methodology
	Business Process Redesign
	Organizational goals
Sen & Sinha (2011)	IT alignment with CRM strategy
Sherif, Hoffman & Thomas (2006)	Increase in social capital through KMS
Tallon (2008)	IT-business fit: process level alignment
Urbach, Smolnik & Riempp (2010)	DeLone and MacLean model
	Monetary indicators
	Individual impact
	Organizational impact
Wang (2010)	IT fashion effect
	Organizational legitimacy
	Organizational Performance

Appendix B: Topics covered in Other Journals

Author	*Topic*
Agourram & Ingham (2007)	Relation of IS success to national culture
Alaranta & Henningsson (2007)	Comprehensiveness
	Formalization
	Focus
	Flow
	Participation
	Consistency
Avison & Malaurent (2007)	Language and communication specifities
	Economic specifities
	Structural specifities
	Policital specifities
Biehl (2007)	Financial resources
	Top Management Support
	Business Process Management / Process capability
	Communication / Cross-functional teams
	Vision of the project / Understanding of goals
	Organizational Change Management / Managing expectations
	Training
	Data accuracy
	IS staff capability
	User attitude
Bull (2010)	ISD: focus on fundamentals
Carton & Adam (2010)	Virtualising the communication process
Feng (2006)	Culture
Häkkinen & Hilmola (2008)	Quality of information
	Adequate user skills
	Communication between organizational levels
	User feedback
	Quality of information
	Adequate user IS skills
	Communication between organizational levels
Haug, Pedersen & Arlbjørn (2010)	Parent-subsidiary IS choice:
	Separate systems,
	Open systems of different types,
	Open systems of the same type,
	Shared system
Hawking (2007)	Language
	Culture
	Currency
Hilaricus (2010)	Development of patterned behaviours
	Development of symbolic properties attached to behaviours
	Characteristics of the IS as perceived by the user
	Individual characteristics of the user
	Task characteristics
	Contextual factors
Larsen (2009)	Higher user satisfaction = better use of IS
Li (2010)	Organizational issues
	National cultural differences
	Online communities of practice
Li, Downey & Wentling (2007)	Integration of IS use into daily job performance
	Barriers to IS use
Min & Shujuan (2010)	Need to participate in international competition better
Mirchandani & Lederer (2008)	Level of autonomy for IS planning
Nathan (2011)	Critical Success Factors
Owojori & Asaolu (2010)	Adapting to international or local standards
Phang, Zheng & Zhong (2007)	Intercultural social knowledge

Pop (2009)	Information needs at specific levels Information needs of specific people Responsibility for data collection Available timeframe
Rangan & Sengul (2009)	Increased observability and contractablity Reduced coordination costs
Rao (2006)	HQ-subsidiary: resource dependence
Sannarnes (2010)	Establish IS governance model Built-in flexibility
Shin & Huh (2009)	Standardization vs. Localization
Wenrich & Ahmad (2009)	Organizational change management Defining goals and strategic planning Select appropriate IS Business Process Redesign Assignment of responsibility of implementation (avoid sole responsibility for IT dept.) Maintenance to IS
Yamin & Sinkovics (2007)	Improvement of control capabilities of MNE centres Undermining of features of multinationality Improved exploitation capability Potential damage to explorative potential
Zaidman, Schwartz & Te'eni (2008)	Organizational power relations Organizational culture Local culture

Appendix C: Categorization of Journals used

Top Journals

- MIS Quarterly
- Journal of Information Technology
- Journal of Strategic Information Systems
- Information Sciences
- Journal of Management Information Systems
- Information & Management
- Journal of the Association of Information Systems
- Journal of the American Society for Information Science and Technology
- Decision Support Systems
- Knowledge and Information Systems

Other Journals

- 40th Annual Hawaii International Conference on System Sciences
- AMCIS 2010 Proceedings
- Communications of the ACM
- Computers in Industry
- Critical Perspectives on International Business
- Education, Business and Society: Contemporary Middle Eastern Issues
- Information Systems Journal
- International Conference on E-Business and E-Government
- International Journal of Business and Systems Research
- International Journal of Enterprise Information Systems
- International Journal of Information Management
- International Journal of Physical Distribution & Logistics Management
- Journal of Business Systems, Governance and Ethics
- Journal of Enterprise Information Management
- Journal of Information & Knowledge Management
- Journal of International Business Studies
- Journal of Knowledge Management
- Journal of Marketing Communications
- Journal of Social Sciences
- Management & Marketing
- Omega
- PACIS 2007 Proceedings
- Performance Improvement Quarterly
- Personnel Review
- Proceedings of the American Society for Information Science and Technology
- Proceedings of the Annual Hawaii International Conference on System Sciences
- The Electronic Journal Information Systems Evaluation
- The Electronic Journal of Information Systems in Developing Countries

Appendix D: Article overview – articles for review

Top Journals

<table>
<tr><th>Journal</th><th>Year</th><th>Author</th><th>Title</th></tr>
<tr><th colspan="4">Abstract</th></tr>
<tr><td>MIS Quarterly</td><td>2011</td><td>Furneaux & Wade</td><td>An exploration of Organizational Level Information Systems Discontinuance Intentions</td></tr>
<tr><td colspan="4">Limited attention has been directed toward examining post-adoption stages of the information system life cycle. In particular, the final stages of this life cycle have been largely ignored despite the fact that most systems eventually reach the end of their useful life. This oversight is somewhat surprising given that end-of-life decisions can have significant implications for user effectiveness, the value extracted from IS investments, and organizational performance. Given this apparent gap, a multi-method empirical study was undertaken to improve our understanding of organizational level information system discontinuance. Research commenced with the development of a broad theoretical framework consistent with the technology–organization– environment (TOE) paradigm. The resulting framework was then used to guide a series of semi-structured interviews with organizational decision makers in an effort to inductively identify salient influences on the formation of IS discontinuance intentions. A set of research hypotheses were formulated based on the understanding obtained during these interviews and subsequently tested via a random survey of senior IS decision makers at U.S. and Canadian organizations. Data obtained from the survey responses was analyzed using partial least squares (PLS). Results of this analysis suggest that system capability shortcomings, limited availability of system support, and low levels of technical integration were key determinants of increased intentions to replace an existing system. Notably, investments in existing systems did not appear to significantly undermine organizational replacement intentions despite support for this possibility from both theory and our semi-structured interviews.</td></tr>
<tr><td>MIS Quarterly</td><td>2010</td><td>Wang</td><td>Chasing the Hottest IT: Effects of Information Technology Fashion on Organizations</td></tr>
<tr><td colspan="4">What happens to organizations that chase the hottest informa- tion technologies? This study examines some of the important organizational impacts of the fashion phenomenon in IT. An IT fashion is a transitory collective belief that an information technology is new, efficient, and at the forefront of practice. Using data collected from published discourse and annual IT budgets of 109 large companies for a decade, I have found that firms whose names were associated with IT fashions in the press did not have higher performance, but they had better reputation and higher executive compensation in the near term. Companies investing in IT in fashion also had higher reputation and executive pay, but they had lower per- formance in the short term and then improved performance in the long term. These results support a fashion explanation for the middle phase diffusion of IT innovations, illustrating that following fashion can legitimize organizations and their leaders regardless of performance improvement. The findings also extend institutional theory from its usual focus on taken-for-granted practices to fashion as a novel source of social approval. This study suggests that practitioners balance between performance pressure and social approval when they confront whatever is hottest in IT.</td></tr>
<tr><td>MIS Quarterly</td><td>2008</td><td>Au, Ngai & Cheng</td><td>Extending the Understanding of End User Information Systems Satisfaction Formation: An Equitable Needs Fulfillment Model Approach</td></tr>
<tr><td colspan="4">End user satisfaction (EUS) is critical to successful informa- tion systems implementation. Many EUS studies in the past have attempted to identify the antecedents of EUS, yet most of the relationships found have been criticized for their lack of a strong theoretical underpinning. Today it is generally understood that IS failure is due to psychological and organi- zational issues rather than technological issues, hence individual differences must be addressed. This study pro- poses a new model with an objective to extend our understanding of the antecedents of EUS by incorporating three well-founded theories of motivation, namely expectation theory, needs theory, and equity theory. The uniqueness of the model not only recognizes the three different needs (i.e., work performance, relatedness, and self-development) that users may have with IS use, but also the corresponding inputs required from each individual to achieve those needs fulfillments, which have been ignored in most previous studies. This input/needs fulfillment ratio, referred to as equitable needs fulfillment, is likely to vary from one individual to another and satisfaction will only result in a user if the needs being fulfilled are perceived as “worthy” to obtain.
The partial least squares (PLS) method of structural equation modeling was used to analyze 922 survey returns collected form the hotel and airline sectors. The results of the study show that IS end users do have different needs. Equitable work performance fulfillment and equitable relatedness fulfillment play a significant role in affecting the satisfaction of end users. The results also indicate that the impact of perceived IS performance expectations on EUS is not as significant as most previous studies have suggested. The conclusion is that merely focusing on the technical soundness of the IS and the way in which it benefits</td></tr>
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employees may not be sufficient. Rather, the input requirements of users for achieving the corresponding needs fulfillments also need to be examined.			
MIS Quarterly	2007	Braa, Hanseth, Heywood, Mohammed & Shaw	Developing Health Information Systems in Developing Countries: The Flexible Standards Strategy
The development of appropriate integrated and scalable information systems in the health sector in developing countries has been difficult to achieve, and is likely to remain elusive in the face of continued fragmented funding of health programs, particularly related to the HIV/AIDS epidemic. In this article, we propose a strategy for developing information infrastructures in general and in particular for the health care sector in developing countries. We use complexity science to explain the challenges that need to be addressed, in particular the need for standards that can adapt to a changing health care environment, and propose the concept of flexible standards as a key element in a sustainable infra- structure development strategy. Drawing on case material from a number of developing countries, a case is built around the use of flexible standards as attractors, arguing that if they are well defined and simple, they will be able to adapt to the frequent changes that are experienced in the complex health environment. A number of paradoxes are highlighted as use- ful strategies, integrated independence being one that encourages experimentation and heterogeneity to develop and share innovative solutions while still conforming to simple standards. The article provides theoretical concepts to sup- port standardization processes in complex systems, and to suggest an approach to implement health standards in developing country settings that is sensitive to the local context, allows change to occur through small steps, and provides a mechanism for scaling information systems.			
MIS Quarterly	2007	Liang, Saraf, Hu & Xue	Assimilation of Enterprise Systems: The Effect of Institutional Pressures and the Mediating Role of Top Management
We develop and test a theoretical model to investigate the assimilation of enterprise systems in the post-implementation stage within organizations. Specifically, this model explains how top management mediates the impact of external institu- tional pressures on the degree of usage of enterprise resource planning (ERP) systems. The hypotheses were tested using survey data from companies that have already implemented ERP systems. Results from partial least squares analyses suggest that mimetic pressures positively affect top manage- ment beliefs, which then positively affects top management participation in the ERP assimilation process. In turn, top management participation is confirmed to positively affect the degree of ERP usage. Results also suggest that coercive pressures positively affect top management participation without the mediation of top management beliefs. Sur- prisingly, we do not find support for our hypothesis that top management participation mediates the effect of normative pressures on ERP usage, but instead we find that normative pressures directly affect ERP usage. Our findings highlight the important role of top management in mediating the effect of institutional pressures on IT assimilation. We confirm that institutional pressures, which are known to be important for IT adoption and implementation, also contribute to post- implementation assimilation when the integration processes are prolonged and outcomes are dynamic and uncertain.			
MIS Quarterly	2006	Cotteleer & Bendoly	Order Lead-Time Improvement Following Enterprise Information Technology Implementation: An Empirical Study
This paper investigates the influence of enterprise systems implementation on operational performance. The work extends the literature on enterprise systems by focusing on changes in process dynamics as a source for ongoing firm- levelperformance improvement. A case discussion ofTristen Corporation, afirm that implemented ERP and subsequently experienced benefits through gains to its continuous improvement efforts, is examined in light of theorized impacts of such implementations on process dynamics. Analyses of longitudinal data suggest that performance along a key metric motivating the ERF initiative (i.e., orderfulfillment lead-time) showed a significant improvement immediately after system deployment. Thedatafurthersuggestthatthesystemimple- mentation gave rise to an ongoing trend of performance improvement, in contrast to a stable performance trend prior to go-live.			
Journal of Information Technology	2009	Dong, Neufeld & Higgins	Top management support of enterprise systems implementations
Despite the general consensus regarding the critical role of top management in the information systems (ISs) implementation process, the literature has not yet provided a clear and compelling understanding of the top management support (TMS) concept. Applying metastructuring (Orlikowski et al., 1995) as a guiding framework for under- standing TMS behaviors, this paper attempts to address the gap by focusing on two key questions: (1) What supportive actions do top managers engage in during IS implementations? (2) How do these actions affect IS implementation outcomes? Analyses of in-depth case studies at two Canadian universities that had implemented a large-scale enterprise system revealed three distinct types of TMS actions: TMS – resource provision (TMSR – actions related to supplying key resources such as funds, technologies, staff, and user training programs); TMS – change management (TMSC – actions related to fostering organizational receptivity of a new IS); and TMS – vision sharing (TMSV – actions related to ensuring that lower-level managers develop a common understanding of the core objectives and ideals for			

the new system). Results suggest that different support behaviors exercise different influences on implementation outcomes, and that top managers need to adjust their support actions to achieve the desired outcomes. In particular, TMSR affected project completion, TMSC impacted formation of user skills and attitudes, and TMSV influenced middle manager buy-in. Theoretical and practical implications of these findings are discussed.			
Journal of Information Technology	2006	Elbanna	The validity of the improvisation argument in the implementation of rigid technology: the case of ERP systems
Claudio Ciborra's improvisation argument provides a realistic dynamic account of how organisational practices address technology. This was developed from the study of malleable open-ended technology, but little research has occurred to investigate the theory's validity within different settings. This paper seeks to address this gap, by examining improvisation in the context of a rigid highly structured technology. It presents findings from the successful implementation of an Enterprise Resource Planning (ERP) system within a large international organisation, which was subsequently defined by the ERP vendor as being an 'exemplary site'. Through the theoretical lens of Actor Network Theory, the paper reveals the improvisation, enactments and constant work around the plan that took place in dealing with the high contingencies of ERP implementation. The study extends the discussion on improvisation and contributes to an already illuminating argument. It invites practitioners to reflect on ERP implementation practice and review their evaluation methods.			
The Journal of Strategic Information Systems	2011	Butler	Compliance with institutional imperatives on environmental sustainability: Building theory on the role of Green IS
Addressing the complexity of the growing number of regulatory imperatives from global institutional environments has prompted firms in the IT sector to leverage the enabling effects of IT-based systems to help manage environmental compliance and related organ- isational risks. Thus, a new breed of IS—Green IS—emerged in recent years. This paper pre- sents an integrative theoretical model that: (1) employs institutional theory to help explain how a range of exogenous regulative, normative and cultural-cognitive factors from the institutional environment and the organisational field influence IT manufacturers' deci- sions on the design and manufacture of environmentally sustainable products; and (2) uses organisational theory to describe the strategic endogenous arrangements that organisa- tions institute using Green IS in order to support sense-making, decision making and knowledge creation around environmental sustainability. The paper employs the findings of a case study of Compliance and Risks' Ltd. Compliance-to-Product (C2P) application and its implementation in two US-based Fortune 500 IT manufacturers to help validate and refine the a priori theoretical model. The paper therefore makes a significant contribution to theory building on the phenomenon of Green IS, through its articulation of empirically- based theoretical propositions which employ conceptual mechanisms to explain how Green IS can support organisational sense-making, decision making and knowledge shar- ing and creation around the design and manufacture of Green IT.			
The Journal of Strategic Information Systems	2010	Urbach, Smolnik, Riempp	An empirical investigation of employee portal success
Employee portals are utilized by many companies to improve companies' information exchange, communication, and employee collaboration, as well as to better support their business processes. Owing to limited IT budgets and the need to justify investments in employee portals, assessing the benefits of these is an important field in research and prac- tice. Thus, the purpose of this study is to gain a better understanding of employee portal success. We introduce a theoretical model for this that is based on the DeLone and McLean IS Success Model. Furthermore, we develop hypotheses regarding the associations between different models' success dimensions and test them using more than 10,000 employees' responses collected in a survey of 22 companies. Our results indicate that besides the fac- tors contributing to IS success in general, other success dimensions – like the quality of the collaboration and process support – have to be considered when aiming for a successful employee portal. The study's findings make it possible for practitioners to understand the levers with which to improve their employee portals. By empirically validating a com- prehensive success model for employee portals, the study's results advance theoretical development in the area of collaboration-centered systems and present a basis for further research in this field.			
The Journal of Strategic Information Systems	2007	Oshri, Kotlarsky, Willcocks	Global software development: Exploring socialization and face-to-face meetings in distributed strategic projects
Socialization is one means through which globally distributed teams (GDTs) can improve collabora- tion. However, harnessing socializing processes to support globally distributed collaboration is not easy. In particular, infrequent and limited face-to-face (F2F) contact between remote counterparts might result in diYculties in sharing norms, attitudes and behaviours. In this paper we seek to understand how dispersed teams create socialization in globally distributed settings. Based on data collected at SAP, LeCroy and Baan we conclude that, while F2F meetings are important in socializing remote counter- parts, other activities and processes employed before and after F2F meetings are no less important. In particular, the paper highlights the importance of re-socializing remote counterparts throughout a pro- ject lifecycle. Re-			

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<tr><td colspan="4">socializing means supporting the re-acquisition of behaviours, norms and attitudes that are necessary for participation in an organization. We oVer a framework in which three phases of creat- ing, maintaining and renewing socialization in GDTs are discussed. The paper concludes by oVering managers some guidelines concerning socialization in GDTs.</td></tr>
<tr><td>The Journal of Strategic Information Systems</td><td>2007</td><td>Mohdzain & Ward</td><td>A study of subsidiaries' views of information systems strategic planning in multinational organisations</td></tr>
<tr><td colspan="4">This research examines information systems strategic planning (ISSP) in multinationals from the perspective of the subsidiaries. The research was carried out through interviews with the IT and busi- ness managers in subsidiaries of nine large American, European, and Japanese multinationals. The evidence from this study reveals that, in the majority of these organisations, IS planning is either cen- tralised or moving towards centralisation. The main focus of IS planning, in many of these organ- isations, is to control cost and achieve scale economies. As centralisation increases IT tends to control the planning process and, as a result, IS planning becomes more tactical than strategic and is dominated by IT infrastructure planning. Project implementation was the main criterion used to measure IS planning success. However, due to the dominant role of IT, the subsidiary business managers are often less satisfied with the IS planning approach compared with the subsidiary IT managers. The level of involvement of business managers and their satisfaction with ISSP was related to the degree of decentralisation of responsibility for IS planning.</td></tr>
<tr><td>The Journal of Management Information Systems</td><td>2008</td><td>He & King</td><td>The Role of User Participation in Information Systems Development: Implications from a Meta-Analysis</td></tr>
<tr><td colspan="4">This study synthesizes the research findings of 82 empirical studies on user participation in information systems development (ISD). Various ISD outcomes are addressed using a classification scheme involving two broad categories—attitudinal/ behavioral outcomes and productivity outcomes. The results demonstrate that user participation is minimally-to-moderately beneficial to ISD; its effects are compara- tively stronger on attitudinal/behavioral outcomes than on productivity outcomes. This attitudinal/behavioral impact may largely be the result of the emphasis that has been placed on user participation by academics and consultants. The results of this analysis are compared to those of a meta-analysis in the broader management context of participation. The results are similar in terms of attitudinal outcomes, but different, and lesser, in terms of productivity outcomes. Since the current status of research in the broad area of participation is that the effects of participation are considered to be problematic, that status and the results of this study suggest that user participation alone may not be sufficient to achieve significantly improved ISD outcomes, and that different strategies should be employed based on the specific goals of ISD projects. If system acceptance is the ultimate goal, user participation should be designed to induce more psychological involvement among potential users. If productivity benefits are the focus, user participation should be designed to provide developers the needed domain knowledge. In sum, user participation should be treated as one of a number of means for ISD projects to be more successful.</td></tr>
<tr><td>The Journal of Management Information Systems</td><td>2008</td><td>Tallon</td><td>A Process-Oriented Perspective on the Alignment of Information Technology and Business Strategy</td></tr>
<tr><td colspan="4">Even after a decade of research and discussion, strategic alignment, denoting the fit between information technology (IT) and business strategy, remains an enduring challenge for firms worldwide. In this paper, we go beyond the dominant firm-level alignment paradigm by utilizing a value disciplines perspective on strategic foci to conceptualize alignment at the process level. Theory would then suggest that align- ment should be tightest in processes that are considered critical to each firm's strategic focus. Using data from matched surveys of IT and business executives at 241 firms, we detect support for this locus of alignment argument when alignment is identified using profile deviation or moderation. We also find a positive link between alignment and perceived IT business value in each of five primary processes in the value chain. By bringing a process-level view to the study of alignment and its impacts, we go beyond a discussion on the extent of fit—a cornerstone of the literature—to whether firms are pursuing the right type of fit for the particular mix of processes underlying their strategy. In this way, a process-level perspective can foster a deeper and more meaningful understanding of how alignment affects firm performance. Our results also show a need for managers to reconsider the steps taken to align IT and business strategy by looking more closely at how IT can support individual processes rather than at how IT can support an entire strategy.</td></tr>
<tr><td>The Journal of Management Information Systems</td><td>2007</td><td>Rao, Brown & Perkins</td><td>Host country resource availability and information system control mechanisms in multinational corporations: An empirical test of resource dependence theory</td></tr>
<tr><td colspan="4">The management of the information systems (IS) function is a complex task, particularly in the case of multinational corporations (MNCs), where installa- tions dispersed across distance, time, and cultures can lead to diverse and incompatible systems spreading among foreign subsidiaries. The need to globally control and coordinate the IS management function is often met with resistance from local IS managers, who may perceive corporate standards as intrusive. Resource dependence theory (RDT) argues that control is made easier when a subsidiary unit is dependent on corporate headquarters for critical resources. This study examined the IS management relationship and the use of various mechanisms of control (formal and</td></tr>
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<tr><td colspan="4">informal) between 54 headquarters–subsidiary pairs spread across 19 countries of varying resource-richness. While RDT appears to be valid when subsidiaries are dependent on MNC headquarters for resources, the expected relationship between the mechanisms and host country IS resource availability was not observed. Although there was a significant relationship with the use of informal mechanisms and IS resources, it was in the opposite direction to what would be expected by RDT.</td></tr>
<tr><td>Information & Management</td><td>2010</td><td>Sammon & Adam</td><td>Project preparedness and the emergence of implementation problems in ERP projects</td></tr>
<tr><td colspan="4">The problems that organizations face in implementing an enterprise-wide ERP project are linked to their level of understanding of what is involved in such an endeavor and how it influences their initial preparations. We sought to demonstrate empirically the causal relationship between the organization's preparedness and the emergence of implementation problems. We examined four case studies to extract insight into the criticality of certain factors and the type of problems created when no moderating measures were taken by project managers. Consequently, we developed a predictor-outcome model mapping a lack of preparedness with implementation problems.</td></tr>
<tr><td>Information & Management</td><td>2008</td><td>Kotlarsky, van Fenema & Willcocks</td><td>Developing a knowledge-based perspective on coordination: The case of global software projects</td></tr>
<tr><td colspan="4">We have attempted to bring together two areas which are challenging for both IS research and practice: forms of coordination and management of knowledge in the context of global, virtual software development projects. We developed a more comprehensive, knowledge-based model of how coordination can be achieved, and\illustrated the heuristic and explanatory power of the model when applied to global software projects experiencing different degrees of success. We first reviewed the literature on coordination and determined what is known about coordination of knowledge in global software projects. From this we developed a new, distinctive knowledge-based model of coordination, which was then employed to analyze two case studies of global software projects, at SAP and Baan, to illustrate the utility of the model.</td></tr>
<tr><td>Information & Management</td><td>2008</td><td>Deng, Doll, Al-Gahtani, Larsen, Pearson & Raghunathan</td><td>A cross-cultural analysis of the end-user computing satisfaction instrument: A multi-group invariance analysis</td></tr>
<tr><td colspan="4">IT managers in global firms often rely on user evaluations to guide their decision-making in adopting, implementing, and monitoring the effectiveness of enterprise systems across national cultures. In these decisions, managers need instruments that provide valid comparisons across cultures. Using samples representing five nations/world regions including the US, Western Europe, Saudi Arabia, India, and Taiwan, we used multi-group invariance analysis to evaluate whether the end-user computing satisfaction (EUCS) instrument (12-item summed scale and five factors) provided equivalent measurement across cultures. The results provided evidence that the EUCS instrument's 12-item scale and the five factors were equivalent across the cultures we examined. The implications of this for the global management of technology are discussed. Knowledge of the equivalence of MIS instruments across national cultures can enhance the MIS cross-cultural research agenda.</td></tr>
<tr><td>Information & Management</td><td>2006</td><td>Lu, Huang & Heng</td><td>Critical success factors of inter-organizational information systems: A case study of Cisco and Xiao Tong in China</td></tr>
<tr><td colspan="4">This paper reports a case study of an inter-organizational information system (IOS) of Cisco and Xiao Tong in China. We interviewed their senior managers, heads of departments and employees who have been directly affected in their work. Other sources of information are company documents and publicly available background information. The study examines the benefits of the IOS for both corporations. The research also reveals seven critical success factors for the IOS, namely intensive stimulation, shared vision, cross-organizational implementation team, high integration with internal information systems, inter-organizational business process re-engineering, advanced legacy information system and infrastructure and shared industry standard.</td></tr>
<tr><td>Information & Management</td><td>2006</td><td>Sherif, Hoffman & Thomas</td><td>Can technology build organizational social capital? The case of a global IT consulting firm</td></tr>
<tr><td colspan="4">Knowledge management (KM) and knowledge management systems (KMS) have been positioned as strategies and tools that enable organizations to create and transfer knowledge in order to sustain competitive advantage. While KM as a strategy gained legitimacy, KMS have struggled to show a causal relationship to knowledge creation and knowledge transfer. KMS contribution to the economic performance of organizations has been harder to prove, mainly because of a lack of collection of data and thus analysis of knowledge metrics. This has lead to an unjustifiable move to underplay the role of technology in creating and transferring knowledge. We strived to revive interest in KMS by exploring their ability to accumulate social capital and showing its effect on the creation and transfer of knowledge. We posited that social capital was the mediating factor between KMS and knowledge creation and transfer and hypothesized that: (1) KMS will positively affect an organization's ability to build social capital, and that (2) social capital will enhance a firm's ability to create and transfer knowledge. Qualitative data collected from a multinational IT consulting firm was used to validate the framework.</td></tr>
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Information & Management	2006	Lee & Xia	Organizational size and IT innovation adoption: A meta-analysis
Organizational size has long been considered to be an important predictor of IT innovation adoption. However, empirical results on the relationship between them have been disturbingly mixed and inconsistent. Through a meta-analysis of 54 correlations derived from 21 empirical studies, we attempted to explain and resolve these mixed results by synthesizing across studies the effects of organizational size on IT innovation adoption and by examining the effects of six moderators on the relationship. The results suggested that, although a positive relationship generally existed between them, the relationship was moderated by five variables: type of IT innovation, type of organization, stage of adoption, scope of size, and type of size measure. This suggested that the mixed empirical results from previous studies can be explained by a lack of consideration of moderators.			
The Journal of the Association for Information Systems	2007	Mehta & Hirschheim	Strategic Alignment In Mergers And Acquisitions: Theorizing IS Integration Decision making
This paper focuses on IS integration decisions made during mergers and acquisitions from a strategic-alignment lens. The objectives of this study are to: (1) examine business-IS alignment as reflected in IS integration decisions in a merger context and (2) identify factors that shape IS integration decisions in a merger context. We study these issues in three oil and gas mergers from pre-merger announcement to three to four years after merger announcement. Our contributions are three- fold. We show that firms are somewhat misaligned in the early post-merger period, and come into alignment only two to three years after the merger. We find that business-IS alignment was a minor concern for the new organizations in pre-merger and early post-merger phases. Other factors such as acquirer-target power struggles, prior merger experience, and overarching synergy goals drove much of the initial integration decision making. Only late in the post-merger do the merged organizations revisit their systems to bring them into alignment with the business needs.			
Decision Support Systems	2011	Sen & Sinha	IT alignment strategies for customer relationship management
Customer relationship management (CRM) is the overall process of building and maintaining profitable customer relationships by delivering superior customer value and satisfaction. A CRM strategy involves the entire enterprise and is employed on an ongoing basis. Despite the fact that CRM projects incur huge expenditures, a large percentage fails to achieve the stated objectives. Failure in CRM initiatives could be avoided if a firm's CRM strategies are intelligently linked with its employees, customers, channels, and IT infrastructure. In this paper, we focus on those linkages, particularly on the linkages between an organization's CRM strategies and its IT infrastructure. Even though the relationships between IT and business strategies have been extensively explored in the IT alignment literature, prior research has not addressed how a firm's CRM strategies are aligned with its IT infrastructure. In this paper, we investigate the issues relating to CRM-IT alignment based on an in-depth case study of a large, well-known Internet travel agency.			
Decision Support Systems	2007	Martinsons & Davison	Strategic decision making and support systems: Comparing American, Japanese and Chinese management
Internationalization creates a need to know how managers in different parts of the world make decisions, and how computer- based information systems (IS) can support decision making. Business leaders from the United States, Japan and China were each found to have a distinctive prevailing decision style that reflects differences in cultural values and the relative needs for achievement, affiliation, power and information. This paper examines the IS issues that arise from the discovery of the distinctively American, Japanese and Chinese styles of strategic decision making. The existence of international differences in analyzing and conceptualizing strategic decisions raises doubts about the global applicability of IS such as decision support systems and executive information systems. The success of knowledge management and information systems in different countries and cultures will depend critically on how well IT applications are adapted to the decision styles of their users.			

Other journals

Journal	***Year***	***Author***	***Title***
Abstract			
40th Annual Hawaii International Conference on System Sciences	2007	Alaranta & Heningsson	Shaping the Post-merger Information Systems Integration Strategy
Many researchers and business professionals have emphasized the importance and difficulties of successful information systems (IS) integration in the context of mergers and acquisitions (M&A). However, existing research remains sparse, failing to explain how firms design their IS integration strategy and its relation to successful IS integration. In order to overcome this shortcoming, we adapt six dimensions of strategic IS planning to the post-merger integration situation, namely comprehensiveness, formalization, focus, flow, participation, and consistency in the post- merger IS integration context. We then use two in- depth cases studies to shed light on these constructs. We find evidence that contradicts the typical view presented in the			

M&A literature, and argue that there are several different approaches to post-merger IS integration planning. In the analysis, we point out specific differences between the cases that eventually lead up to these fundamentally different approaches to IS integration design.			
AMCIS 2010 Proceedings	2010	Sannarnes	A Study of Emerging Multi-cultural and Multi-national Issues in Enterprise System Adoption Processes
Previous research has documented that introduction of enterprise systems (ES) is a major undertaking in organizations. Multinational ES implementation adds new dimensions of complexity due to national, cultural, organizational, and technical differences. The paper reports from an ongoing case study on ES deployment in a multinational engineering company, operating in a highly competitive and global industry. The findings illustrate the complexity of multinational ES implementations and how ES is constrained by an installed base of information, systems, organizational structures and practices at various geographical locations, which also evolves over time. The case study exemplifies the need of a long-term perspective on change processes in a multinational context. The findings suggest a need for flexibility built in IS solutions and processes while simultaneously maintaining necessary IT governance, such as establishing an IS governance model with global process owners, information managers and super users actively involved in discussion and negotiation of changes.			
Communications of the ACM	2007	Biehl	Success factors for implementing global information systems
No abstract available			
Computers in Industry	2009	Larsen	A multilevel explanation of end-user computing satisfaction with an enterprise resource planning system within an international manufacturing organization
The present research results assume that end-user computing satisfaction (EUCS) of an enterprise resource planning system (ERP system) depends on users' positive perception of determinants on multiple organizational levels. Hence, rather than investigating a precise theory of narrow focus, this research addresses the users' view of the impact of major project and organizational issues on EUCS. This requires a multilevel approach to research. A hierarchical regression analysis based on data from 123 middle managers and super-users from a single company with operating units in 10 western European countries confirmed this theory. Still, a path analysis suggests that determinants representing the near user environment (communication and decision-making patterns between users and experts locally during the ERP system implementation process, and communication with peers in organizational units other than that of the respondent) contribute more consistently to EUCS than determinants on other organizational levels. User training plays a role in helping users understand the relevance of ERP system project business objectives, but training does not help in explaining EUCS. The study points to future research in the areas of instrument development as well as an increased understanding of stakeholders' views, determinant definitions, relationships among determinants, and measures of ERP system outcome.			
Critical Perspectives on International Business	2007	Yamin & Sinkovics	ICT and MNE reorganisation: the paradox of control
Purpose – The purpose of this paper is to aim to highlight the ICT-enabled enhancement of control capability in MNEs. The literature on MNE structures acknowledges the role of ICT as a support system, but the specific changes facilitated by ICT have remained significantly underdeveloped. The paper seeks to address this issue conceptually and link contemporary ICT advancement with changes in MNE strategy or structure. The paper further posits that certain applications of ICT may paradoxically reduce a key advantage of multinationality. Design/methodology/approach – The paper is of conceptual nature and critically examines and develops literature to generate insight on the implications of ICT applications for MNE development. Specifically the focus is on enterprise resource planning systems (ERPs) and the impact of enhanced visibility of remote operations to headquarter management. Findings – The finding is that ICT application entails a possible trade-off. It may facilitate an enhancement of control capability for MNE headquarters, however, potentially entails the risk of lessened adaptive capability of subsidiaries, thus potentially constraining the long-term viability of MNE operations: Practical implications – Whilst ICT applications may improve coordination and control for the MNE, a level of subsidiary autonomy and initiative taking is still beneficial for MNE strategic and organisational development. ICT applications should not go so far as to suppress it. To this end, managers may be advised to purposefully "blur" subsidiary visibility, by, e.g. allowing the use of different ERP systems. Originality/value – The main contribution is the integration of literature on ICT advancements, specifically the application of enterprise resource planning systems (ERP), into the IB literature. Keywords Multinational companies, Communication technologies, Manufacturing resource planning, Organizational structures, Adaptability Paper type Conceptual paper			
Education, Business and Society: Contemporary Middle Eastern Issues	2008	Zaidman, Schwartz & Te'eni	Challenges to ICT implementation in multinationals

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<tr><td colspan="4">Purpose - This article explores the challenges to ICT implementation in multinationals. Our analysis considers organization culture and power relations as part of the implementation process as well as ICT tools as cultural products and their transplantation within a culturally diverse multinational organization located in the Middle East.
Methodology/Approach - We conducted interviews with 31 employees who hold different professional and managerial positions in the organization. In addition we studied 60 days of electronic mail of two senior managers and collected random samples of messages from the computers of six participants, both Israelis and Egyptians. Altogether we surveyed 200 e-mail messages, spanning seven months.
Findings- We found that the transplantation of ICT in the Egyptian plant was based on the construction of technology as symbolizing the value of modernity. Although employees did not resist the implementation of ICT tools, several problems related to language and access to data had an impact on the work of employees in the lower levels of the organization. Furthermore, the ICT tools implicitly assumed a utilitarian discourse that values computer-mediated more than face-to-face communication, but the organization rejected this aspect of the tools.
Practical implications – More flexible designs of ICT should take into account the particular discourse system employed in order to achieve a better fit between the tools and the users. Managers should consider the consequences of introducing or avoiding ICT tools for different functions in the organization, the language of these tools as well as the general mode of communication in the organization and the degree to which ICT can fit within it.
Originality/value- We focus on a neglected area of research, the implementation of ICT tools in culturally diverse organizations. Our findings challenge the culture-free "pipeline approach"; we instead suggest examining the imposition of ICT tools as cultural products of a Western discourse into a diverse organization. The value of the paper is also expressed in pointing to contextual variables relevant to the understanding of the implementation of ICT in organizations which have not been extensively discusses in the literature.
Paper type Case study</td></tr>
<tr><td>Information Systems Journal</td><td>2008</td><td>Häkkinen & Hilmola</td><td>ERP evaluation during the shakedown phase: lessons from an after-sales division</td></tr>
<tr><td colspan="4">Integrated information systems and operational efficiency are both pivotal issues for contemporary firms. While there is substantial evidence that enterprise resources planning (ERP) systems can deliver related improvements, the implementation of these systems can turn out to be a very complex and risky task. One key aspect of managing these risks is maintaining operational momen- tum and preventing possible problems from escalating in the so-called shakedown phase shortly after system implementation. The objective of this paper is to examine how user evaluations of ERP system success could be used to trace down the source of potential problems, which can arise during the shakedown phase, and how and why experienced system success might vary between differ- ent user groups. The paper builds on a case study completed in the after-sales division of a large multinational organization. This context is considered a fruitful empirical setting for the study as the business sets enormous demands for ERP system functionality and its smooth implementation. Based on the case study, it is argued that in such a context the importance of sufficient user skills, data reliability and intra-organizational communication becomes emphasized in the ERP imple- mentation process. Moreover, results illustrate how downstream operations and customer relations are particularly vulnerable to problems accumulated in upstream business processes. Related problems can potentially form a self- fulfilling cycle, where the lack of skills and information constantly deteriorates both user perceptions and actual operational performance.</td></tr>
<tr><td>International Conference on E-Business and E-Government</td><td>2010</td><td>Min & Shujuan</td><td>Constructing of the Foreign Exchange Management Information System of the Transnational Corporation</td></tr>
<tr><td colspan="4">As China drives domestic enterprises to implement the development strategy of "going global", foreign activities of transnational corporations are increasing every year, and issues of their foreign exchange management are quite highlighted. This paper analyzed the significance of constructing a foreign exchange management information system in the process of China transnational corporations' foreign business, and explored the content of constructing the foreign exchange management information system of the transnational corporation, such as the basic framework, the information constitution, network requirements and information transmission requirements etc..</td></tr>
<tr><td>International Journal of Enterprise Information Systems</td><td>2009</td><td>Wenrich</td><td>Lessons learned during a decade of ERP experience: a case study</td></tr>
<tr><td colspan="4">Eminent Enterprise Resource Planning (ERP) literature concentrates on critical success factors for implementation. More recently, published work relates to ERP maintenance and upgrade practices. In papers concerning all phases of the ERP lifecycle, researchers commonly gather material via case studies of organizations comparatively new to ERP implementation, maintenance, or upgrade projects. This paper uses a literature review detailing critical success factors and best practices during all phases of the ERP lifecycle to frame a case study on a large company with a decade of experience in supporting an ERP system through implementation, two major upgrades, one major domestic business merger, and two international business acquisitions. This paper catalogs the company's departures and concurrences with the published</td></tr>
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<tr><td colspan="4">best practices and success factors over time, as well as the positive and negative consequences of its decisions. The company’s experience shows that straying from generally accepted best practices can lead to a successful outcome, and that portraying some success factors too well can exacerbate problems in other areas.</td></tr>
<tr><td>International Journal of Information Management</td><td>2010</td><td>Bull</td><td>Customer Relationship Management (CRM) systems, intermediation and disintermediation: The case of INSG</td></tr>
<tr><td colspan="4">Whilst our knowledge of Customer Relationship Management (CRM) systems continues to evolve, there is still much to learn. This paper offers some relatively rare insights on the use of CRM systems and the strategic impact on the processes of intermediation and disintermediation in order to improve customer service. This research was conducted from April 2007 to 2008 using an interpretative case study approach. The case involved working with a leading international insurance company (given the pseudonym of INSG) and some of their intermediary customer service agents. The research highlights some design characteristics and philosophical insights regarding CRM system approaches and also offers some useful practical insights on the impact of CRM in changes to the deployment of some intermediaries, leading to a process of disintermediation, in order to improve customer service. In summary, some theoretical and practical implications are highlighted and discussed.</td></tr>
<tr><td>International Journal of Information Management</td><td>2007</td><td>Avison & Malaurent</td><td>Impact of cultural differences: A case study of ERP introduction in China</td></tr>
<tr><td colspan="4">ERP systems are central to the information systems (IS) strategy of most international companies. With the global economy, there is pressure to implement such applications at a global level, in order to control and manage all the company processes at all sites. However, rolling out a global template in each of the different countries is risky as it does not take the local environment into account. Each country has its own specificities: organizational, cultural, political and economic, and these can have an important influence on the potential of the new IS. This case study describes a largely unsuccessful implementation of a French firm’s ERP project in its Chinese subsidiary over 18 months. This system has been rolled out successfully elsewhere but our diagnosis suggests that China has particular cultural factors that include language, governance, political and legal issues.</td></tr>
<tr><td>International Journal of Physical Distribution & Logistics Management</td><td>2010</td><td>Haug, Pedersen & Alrlbjørn</td><td>ERP system strategies in parent-subsidiary supply chains</td></tr>
<tr><td colspan="4">Purpose – Many companies are part of parent-subsidiary supply chains, i.e. organisations where a parent company receives products from its subsidiary or the other way around. Having this close relationship in a supply chain network opens the possibilities for different setups of enterprise resource planning (ERP) systems across such companies. This paper clarifies the different ERP system strategies for companies in parent-subsidiary supply chains and the consequences of choosing the different strategies.
Design/methodology/approach – In order to position the contributions of the paper, literature on the use of ERP systems in supply chain management (SCM) is investigated. Next, four archetypical ERP system setups across parent-subsidiary supply chains are defined. The consequences of the four defined setups are deduced. Three case studies are presented to justify the relevance of the defined four ERP system strategies and to further investigate the consequences of choosing these (one case study represents two strategies).
Findings – The paper shows that there are significant impacts of choosing one of the four ERP system setups across parent-subsidiary supply chains, e.g. quality of communication, degree of local management, synergy effects, etc. Furthermore, the paper shows that extant literature dealing with ERP systems and SCM fails to consider this aspect, which may at worst lead to incorrect generalisations.
Research limitations/implications – The paper clarifies the importance of considering different ERP system setups in parent-subsidiary relationships. Future research in ERP systems and SCM needs to focus more on this aspect.
Practical implications – The paper provides an improved basis for companies in parent-subsidiary supply chains that are to implement ERP systems or are to rethink their current ERP strategy.
Originality/value – The definition of ERP system setups across parent-subsidiary supply chains and the clarification of the consequences of these strategies represent new and useful contributions to the SCM and the ERP literature.</td></tr>
<tr><td>Journal of Business Systems, Governance and Ethics</td><td>2007</td><td>Hawking</td><td>Implementing ERP Systems Globally: Challenges and Lessons Learned for Asian Countries</td></tr>
<tr><td colspan="4">Improved communication technology has seen growth in a convergence of global corporate activities. In an effort to improve their global operations many companies are implementing global information systems in particular Enterprise Resource Planning (ERP) systems. Companies are faced with a number of complexities when implementing these systems in a single country and considerable research has been conducted on the critical success factors associated with ERP implementations. However very little research has been conducted on the issues associated with global implementations of ERP systems and in particular implementations within the Asian region. This research utilises industry presentations to identify challenges and best practice for global implementations from the Asian region. The challenges have been classified as either technological or cultural pertaining to particular countries. The identified factors provide</td></tr>
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<tr><td colspan="4">a foundation for further investigation.</td></tr>
<tr><td>Journal of Enterprise Information Management</td><td>2007</td><td>Agourram & Ingham</td><td>The impact of national culture on the meaning of information system success at the user level</td></tr>
<tr><td colspan="4">Purpose – The purpose of this paper is to understand how people from different national cultures; France, Canada and Germany, define and perceive information systems success.
Design/methodology/approach – This is exploratory research that used a grounded theory approach to analyze qualitative data that were collected using an open interview data collection technique. Grounded theory helps to develop new concepts and new theory.
Findings – The findings confirm the divergence thesis. The authors found that people from different national cultures define information systems differently. The authors developed models that groups information systems success as they are defined in France, Canada and Germany.
Research limitations/implications – There are many limitations in this research. First, the findings concern only one single multinational organization. The authors' aim was analytical and not statistical generalization. Second, although the number of respondents was sufficient to develop a partial theory, the authors could not meet with a larger number of people to get more insights.
Practical implications – There are many practical implications. Multinational organizations that seek to standardize their information systems need to be aware that the implementation as well as long term success of the standard system will not be homogenous. Moreover, the results of the study reveal that information quality and other systems based concepts are not defined the same way in all cultures. Finally, the study proposes a tool that would help the case organization measure IS success in these three cultures.
Originality/value – This study is unique in a sense that not only does it claim that culture does impact IS success, but it also goes a step further and defines what IS success is in different national cultures.</td></tr>
<tr><td>Journal of Information & Knowledge Management</td><td>2010</td><td>Hilaricus</td><td>Technology Adoption by Subsidiaries of a Multinational Corporation: An Actor-Network Perspective</td></tr>
<tr><td colspan="4">International business (IB) and management information system (MIS) literature have focused respectively on the adoption process in multinational corporations (MNCs) and on the adoption of technology in organisations. This paper investigates the process of technology adoption in MNCs and draws on the actornetwork theory (ANT) in order to under- stand the process of technology adoption in MNCs. A case study of a French-owned subsidiary in Brazil is utilised for the conclusions. First, through data analysis, it is discovered that people established connections that di®er in being either bene¯cial or detrimental to technology adoption. Next, it is proposed that the decision to adopt is constantly being rene- gotiated, whereas previous research assumes a single adoption choice for individuals and organisations. Finally, this paper shows how boundary objects may help MNCs to cope with the con°icting pressures of global integration and national responsiveness.</td></tr>
<tr><td>Journal of International Business Studies</td><td>2010</td><td>Rangan & Sengul</td><td>Information technology and transnational integration: Theory and evidence on the evolution of the modern multinational enterprise</td></tr>
<tr><td colspan="4">Reflecting amplified hazards in cross-border exchange and imperfections in markets for intangibles, internalization has been central in multinational enterprise (MNE) theory. This centrality notwithstanding, the fact is that internalization coheres with lower-powered incentives and carries an implicit drawback, namely, higher realized production costs. With the emergence and deployment of information and communication technology (ICT), modern MNEs are reshaping their transnational governance to address this cost. The modern MNE uses ICT to mitigate transaction costs, and evolves more to arm's length exchange to incentivize lower production costs. A testable prediction is that MNEs in industries more susceptible to and employing more ICT will exhibit a reduced propensity for transnational integration. We examine this hypothesis using available data from 1982 to 1997 for US MNEs across all manufacturing sectors. Regression results and robustness tests are strongly congruent with the prediction. This study, a first to explore empirically the role of ICT in the evolution of transnational exchange, suggests that MNE theory, until now founded primarily on transaction cost economics and a cross-border control theory of value capture, is more likely to keep pace with developments in MNE practice by opening up to incentive theories of exchange governance and a cross-border coordination theory of value creation.</td></tr>
<tr><td>Journal of Knowledge Management</td><td>2010</td><td>Li</td><td>Virtual knowledge sharing in a cross-cultural context</td></tr>
<tr><td colspan="4">Purpose – The purpose of this paper is to identify what factors impact employees' online knowledge sharing in a cross-cultural context.
Design/methodology/approach – A qualitative research design was used. Data were collected from 41 in-depth interviews with Chinese and American employees who worked for a multinational Fortune 100 company.
Findings – The research discovered that three categories of factors were critical in impacting Chinese and American participants' online knowledge sharing: organizational issues, national cultural differences, and online communities of practice (CoPs). Organizational issues, including performance expectancy, compatibility based on work practice, knowledge-sharing culture and time pressures, were identified as</td></tr>
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<tr><td colspan="4">being important factors that strongly influenced both Chinese and Americans' knowledge sharing. Three major national culture-related differences emerged as significant: language, different thinking logic, and different levels of perceived credibility of voluntarily shared knowledge. These cultural differences made Chinese participants contribute knowledge less frequently than their US peers. Online CoPs showed both advantages and disadvantages in facilitating knowledge sharing among globally distributed members, and these factors influenced both cultural groups in similar ways.
Research limitations/implications – The findings were based on a single case study from one business sector. Only US and Chinese participants were included in the study.
Originality/value – Research on knowledge sharing among geographically distributed and culturally diversified employees through online systems is still in its infancy. The paper integrates research from multiple disciplines (organizational studies, national culture and online CoPs) to address the literature gap. The findings will assist knowledge management managers to make global knowledge sharing more fruitful in multinational organizations</td></tr>
<tr><td>Journal of Marketing Communications</td><td>2009</td><td>Shin & Huh</td><td>Multinational corporate website strategies and influencing factors: A comparison of US and Korean corporate websites</td></tr>
<tr><td colspan="4">This study, using a content analysis method, explored whether and to what extent multinational corporate websites targeting different markets are standardized. It also tested three organizational factors – country of origin, company size, and product type – for their potential influence on the level of corporate website standardization. A sample of 52 top US-based multinational companies and 52 Korea-based multinational companies was drawn and a total of 104 pairs of websites for these companies were content-analyzed. Overall, the degree of website standardization was not significantly different between companies based in the two countries. The results suggest that both US and Korean multinational corporations tend to maintain their websites in a similar way when targeting the home and foreign markets. Among the three organizational factors, only product type – B2B versus B2C products and durables versus non-durables – was found to be significantly associated with the level of website standardization. This study makes important contributions to the research literature by offering new information on the current state of multinational corporate website strategies and advancing our knowledge about international marketing communications on the Internet and influencing factors.</td></tr>
<tr><td>Journal of Social Sciences</td><td>2010</td><td>Owojori & Asaolu</td><td>Critical Evaluation of Accounting Systems in Multinational Organizations in Nigeria</td></tr>
<tr><td colspan="4">The purpose of this research is to evaluate the effectiveness and efficiency of accounting system in multinational organisations. The sample comprises 100 employees who were randomly selected from different categories of multinational organizations in Nigeria. Data were collected from both Primary and Secondary sources while the Chi-square ($\chi 2$) statistics was used for analysis of data. The results showed that International Accounting Standards have impact on the preparation of the financial statements of multinational organizations and that international accounting standards were complied with in the preparation of financial statements of multinational organisations. It was therefore recommended that for accounting system of multinationals to be effective, the firms should work with executives who have skills to deal with a variety of cultures and bring diverse team together to achieve common goal. The implications are that when the international side dominates the domestic, then the firm has become a multinational or global corporation.</td></tr>
<tr><td>Management & Marketing</td><td>2009</td><td>Pop</td><td>Information Systems for International Business Management</td></tr>
<tr><td colspan="4">International business has been growing constantly lately and the number of enterprises that are classified in some sense as intenational is now very large. International managers must deal with the added risks of expropriation, discrimination, and foreign exchange rate fluctuations. Computer models have been developed to aid in exchange rate forecasting, but unfortunately none is a perfect forecaster. I think a good manager invests in IT to increase productivity. Besides reducing costs, computers can increase the quality of products and services provided to consumers. The company's real challenge is to optimize its strategy. This paper presents several advantages and disadvantages of information systems used in international business management.</td></tr>
<tr><td>Omega</td><td>2008</td><td>Mirchandani & Lederer</td><td>The impact of autonomy on information systems planning effectiveness</td></tr>
<tr><td colspan="4">Autonomy for information systems planning may have an impact on the effectiveness of that planning. Theory Y suggests that when managers have more autonomy, they have greater feelings of ownership, commitment, and responsibility, and thus perform better. A postal survey of 131 chief information officers of US subsidiaries of multinational firms collected data to test hypotheses based on the theory. Data analysis revealed that autonomy for IS planning in general and the strategy selection planning activity in particular significantly predicted IS planning effectiveness. These findings thus extend the theory to a new domain, namely IS planning in multinational firms, and thereby facilitate a better understanding of the management of IS planning. They further suggest that parent managers consider delegating greater autonomy to the managers of their foreign subsidiaries.</td></tr>
<tr><td>PACIS 2007 Proceedings</td><td>2007</td><td>Phang, Zheng & Zhong</td><td>Global Deployment of Enterprise Systems in MNC: Exploring the Importance of</td></tr>
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<tr><td></td><td></td><td></td><td>Intercultural Social Knowledge</td></tr>
<tr><td colspan="4">This study investigates an instance of global enterprise systems (ES) deployment in the context of a multinational corporation (MNC). Based on an in-depth case study, we highlight a specific type of knowledge relevant to such context i.e., intercultural social knowledge. Such knowledge is particularly pertinent when members involved in the ES project come from different cultures, which makes conflicts arising from cultural differences likely. Evidence of how cultural differences introduced issues to an ES deployment project is presented. Specifically, the study finds that being open to cultural diversity may help members to tolerate cultural differences, but it may not be sufficient to ensure smooth collaboration of the team. Intercultural social knowledge may be needed to provide the guidance of how one should react when faced with these issues. Additionally, intercultural social knowledge may also be helpful to ES deployment team's interactions with the relevant external parties such as the vendors. This paper may serve to sensitize managers of global ES deployment projects the importance of intercultural social knowledge. Implications are also suggested for how such knowledge can be better leveraged to improve intercultural project collaboration.</td></tr>
<tr><td>Performance Improvement Quarterly</td><td>2011</td><td>Nathan</td><td>Critical success factors: How one multinational company develops global e-learning</td></tr>
<tr><td colspan="4">This research study examined how a multinational company determined what the critical success factors (CSFs) were for developing global e-learning. The study analyzed how these CSFs were grouped together to make their management more efficient. There were 21 participants in the study who were key stakeholders from the United States, Europe, Latin America, and Asia. The results demonstrated that not all CSFs were deemed critical for every program and that what were consid- ered CSFs early in the project often changed by the end of the project. In addition, the study showed that group- ing the CSFs into common categories allowed the program development stakeholders to be more consistent and thorough in their ability to manage and address those CSFs throughout the project. Finally, the results demon- strated that for the study company, the best way to manage CSFs was to expand existing best practices and standard operating procedures to ad- dress global CSFs.</td></tr>
<tr><td>Personnel Review</td><td>2010</td><td>Burbach & Royle</td><td>Talent on demand?: Talent management in the German and Irish subsidiaries of a US multinational corporation</td></tr>
<tr><td colspan="4">Purpose – As the interest in talent management (TM) gathers momentum, this paper aims to unravel how talent is managed in multinational corporations, what factors mediate the talent management process and what computerised systems may contribute to the management of talent. Design/methodology/approach – The study employs a single case study but multiple units of analysis approach to elucidate the factors pertaining to the transmission and use of talent management practices across the German and Irish subsidiaries of a US multinational corporation. Primary data for this study derive from a series of in-depth interviews with key decision makers, which include managers at various levels in Germany, Ireland and The Netherlands.
Findings – The findings suggest that the diffusion of, and success of, talent management practices is contingent on a combination of factors, including stakeholder involvement and top level support, micro-political exchanges, and the integration of talent management with a global human resource information system. Furthermore, the discussion illuminates the utility and limitations of Cappelli's "talent on demand" framework.
Research limitations/implications – The main limitation of this research is the adoption of a single case study method. As a result, the findings may not be applicable to a wider population of organisations and subsidiaries. Additional research will be required to substantiate the relevance of these findings in the context of other subsidiaries of the same and other corporations.
Practical implications – This paper accentuates a number of practical implications. Inter alia, it highlights the complex nature of institutional factors affecting the talent management process and the potential efficacy of a human resource information system in managing talent globally. Originality/value – The paper extends the body of knowledge on the transfer of talent management practices in the subsidiaries of multinational corporations. The discussion presented herein may engender further academic debate on the talent management process in the academic and practitioner communities. The link between talent management and the use of human resource information systems established by this research may be of particular interest to human resource practitioners.
Keywords Skills, Management development, Multinational companies, Germany, Ireland, The Netherlands
Paper type Case study</td></tr>
<tr><td>Proceedings of the American Society for Information Science and Technology</td><td>2007</td><td>Li, Downey & Wentling</td><td>Online knowledge sharing in a multinational corporation: Chinese versus American practices</td></tr>
<tr><td colspan="4">In-depth interviews were conducted with Chinese and American users of a knowledge sharing system, pseudo-named Knowledge Everywhere (KE), being employed by a Fortune 100 company with operations in over 100 countries. The intent of these interviews was to identify factors influencing knowledge sharing behaviors among Chinese and American users of the KE system. Interview questions were framed using the Unified Theory of Acceptance and Use of Technology (Ventakesh, et al., 2003). Three primary conclusions</td></tr>
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<tr><td colspan="4">emerged from the findings generated from the interviews. First, there is a perceived disconnect between knowledge sharing system usage and daily job performance. Second, language appears as a one-way barrier to knowledge sharing and not two-way as many practitioners believe. Third, cultural conservatism and perceived differences in practices hinders Chinese users' willingness to share and as a result gives the false impression that Chinese employees hoard information.</td></tr>
<tr><td>Proceedings of the Annual Hawaii International Conference on System Sciences</td><td>2006</td><td>Rao</td><td>Formal and informal IS control mechanisms in multinational corporations: A test of resource dependence theory</td></tr>
<tr><td colspan="4">The management of the Information Systems (IS) function is a complex task, particularly in the case of multinational corporations (MNCs), where installations dispersed across distance, time, and cultures can lead to diverse and incompatible systems across foreign subsidiaries. The need to globally control and coordinate the IS management function is often met with resistance from local IS managers who may perceive corporate standards as intrusive. Resource Dependence Theory argues that control is made easier when a subsidiary unit is dependent on corporate headquarters for critical resources. This study examined the IS management relationship between 54 headquarters- subsidiary pairs spread across 19 countries. While the theory holds up well in the case of dependence, the expected relationship with IS resource availability was not observed. Though there was a significant relationship with the use of informal mechanisms of control and coordination, it was in the opposite direction to what was expected.</td></tr>
<tr><td>The Electronic Journal Information Systems Evaluation</td><td>2010</td><td>Carton & Adam</td><td>Towards a Model for Determining the Scope of ICT Integration in the Enterprise: the Case of Enterprise Resource Planning (ERP) Systems</td></tr>
<tr><td colspan="4">The question of integration of information systems (IS) into the planning and execution of operational activities has been the focus for researchers from different constituencies. Organisational theorists recognise the need for integrating mechanisms for co-ordinating the actions of sub-units within an organisation. Centralisation has been seen as a defensive reaction by organisations when placed under increasing external control , and also as a way to improve the efficiency of information processing, at least for routine tasks. In the meantime, researchers have been sceptical about the ability for structured information systems to deal with the complexity of the information flows within the organisation. Frameworks have also been identifying characteristics of the tasks themselves that have a bearing on the amount of information processing required. The real world is complex and moving, thus managers require flexibility in their interpretation of the mixed signals arising from this complexity. However, managers are working in environments where highly integrated information systems blur the distinction between what is real and what is virtual. There is a need for an integration approach allowing organisations to question which areas of activity are worth integrating, and conversely which areas are better left under local control. Where integrated, managers require processes for the maintenance of data integrity (people, tools, procedures). Based on field work involving two multi-national manufacturing companies, this paper proposes a framework for ERP integration, which describes the evolution of functionality gaps as an ongoing and inevitable process that requires management.</td></tr>
<tr><td>The Electronic Journal of Information Systems in Developing Countries</td><td>2006</td><td>Feng</td><td>A Framework for Culturally Influenced Information Systems Management</td></tr>
<tr><td colspan="4">This paper presents a framework for culturally influenced Information Systems Management (ISM), which is developed to resolve the increasing challenge of managing Information Systems (IS) in a complicated international environment. The framework consists of entities such as: ISM tasks, ISM actors, "Closed Loop", and cultural influential factors; each of these entities will be explored on the basis of prior research publications from both ISM stud ies and national culture studies. The objective of this framework is to study management patterns for culturally influenced ISM in a cross-cultural environment. The contribution of this framework is twofold: (1) to create clear relationships between national culture variables and ISM task domains, revealing how aspects of the national culture could impact ISM and what perspectives of the ISM might be influenced by national cultural variables; (2) to study critical factors of culturally influenced ISM and ascertain the management patterns of ISM in a cross-cultural environment. In this regard, the framework is helpful for ISM in a complicated multinational environment by taking into account cultural differences.</td></tr>
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Totals

Category	*Top Journals*	*Other Journals*	**Total**
Total	24	29	53

Appendix E: Top Journal topics categorized

Pre-implementation (input)	*Implementation (throughput)*	*Post-implementation (output)*
IS Development – User participation (He & King, 2008)	Top Management Support (3 types: Resource provision, change management, vision sharing) (Dong, et al., 2009)	Organizational legitimacy (Wang, 2010)
IS Development – Use of flexible standards (Braa, et al., 2007)	Merger situations: IS-business alignment (Mehta & Hirschheim, 2007)	Organizational Performance (Wang, 2010)
IT Fashion Effect (Wang, 2010)	Cross-organizational implementation team (Lu, et al., 2006)	DeLone and Maclean model (2003): 6 interrelated dimensions for testing IS success → • Information quality • System quality • Service quality • Intention to use • User satisfaction • Net benefits (related to Wang 2010 → Org. Perf.) (Urbach, et al., 2010)
Is the company pursuing the right IT-Business fit? Align at process level (Tallon, 2008)	High integration with internal (existing) IS (Lu, et al., 2006)	Monetary indicators (e.g. ROI, or TCO) (Urbach, et al., 2010)
IT alignment with CRM strategy (Sen & Sinha, 2011)	BPR (Lu, et al., 2006)	Individual impact (Urbach, et al., 2010)
Best Business Personnel (Sammon & Adam, 2010)	Advanced legacy IS and infrastructure(Lu, et al., 2006)	Organizational impact (Urbach, et al., 2010)
Approach to training (Sammon & Adam, 2010)	Shared industry standard (Lu, et al., 2006)	Increase in social capital through KMS (Sherif, et al., 2006)
Implementation methodology (Sammon & Adam, 2010)	Institutional pressures (Liang, et al., 2007)	Coordination between HQ and subsidiaries (Rao, et al., 2007)
BPR (Sammon & Adam, 2010)	Improvisation (Elbanna, 2006)	Institutional pressures (Liang, et al., 2007)
Organizational Goals (Sammon & Adam, 2010)		Type of IT innovation (Lee & Xia, 2006)
Coordination between HQ and subsidiaries (Rao, et al., 2007)		Type of organization (Lee & Xia, 2006)
Socialization during Global Development of IS (Oshri, et al., 2007)		Stage of adoption (Lee & Xia, 2006)
Responsibility for IS planning? (De)centralize? (Mohdzain & Ward, 2007)		Scope of size (Lee & Xia, 2006)
IS planning: controlling costs and achieving scale economies (Mohdzain & Ward, 2007)		Type of size measure (Lee & Xia, 2006)
Cultural compatability (Martinsons & Davison, 2007)		Discontinuance intentions: (+) Systems Performance Shortcomings, (+) Organizational Initiative, (+) Environmental Change, (-) System Investment, (-) System Embeddedness, (-) Institutional Pressures (Furneaux & Wade, 2011)
Strong motivation (Lu, et al., 2006)		End-User Computing Satisfaction (EUCS) (Deng, et al., 2008)
Shared motivation and vision (Lu, et al., 2006)		Improved order-lead time (Cotteleer & Bendoly, 2006)
Institutional pressures (Liang, et al., 2007)		End User Satisfaction: work performance, relatedness, self-

		development. (Au, et al., 2008)
How to coordinate global ISD? (Kotlarsky, et al., 2008)		
Going green? Green IS development (Butler, 2011)		

Appendix F: Other Journal topics categorized

Pre-implementation (input)	*Implementation (throughput)*	*Post-implementation (output)*
Need to participate in international competition better (Min & Shujuan, 2010)	Organization power relations (Zaidman, et al., 2008)	Control: Resource dependence of subsidiary on HQ (Rao, 2006)
Organizational change management (Wenrich & Ahmad, 2009)	Organizational culture (Zaidman, et al., 2008)	Improvement of control capabilities of MNE centres (Yamin & Sinkovics, 2007)
Define goals and strategic planning (Wenrich & Ahmad, 2009)	Local culture (Zaidman, et al., 2008)	Undermining of features of multinationality (Yamin & Sinkovics, 2007)
Select appropriate IS (Wenrich & Ahmad, 2009)	Development of patterned behaviours (adoption) (Hilaricus, 2010)	Improved exploitation capability (Yamin & Sinkovics, 2007)
BPR (Wenrich & Ahmad, 2009)	Development of symbolic properties attached to behaviours (adoption) (Hilaricus, 2010)	Potential damage to explorative potential (Yamin & Sinkovics, 2007)
Standardization or localization? (Shin & Huh, 2009)	Characteristics of the IS as perceived by the user (Hilaricus, 2010)	Organizational change management (Wenrich & Ahmad, 2009)
Establish IS governance model (Sannarnes, 2010)	Individual characteristics of the user (Hilaricus, 2010)	Maintenance to IS (Wenrich & Ahmad, 2009)
What information is needed at what level in the organization? (Pop, 2009)	Task characteristics (Hilaricus, 2010)	Increased observability and contractability (Rangan & Sengul, 2009)
Responsibility for data collection (Pop, 2009)	Contextual factors (e.g. TMS) (Hilaricus, 2010)	Reduced coordination costs(Rangan & Sengul, 2009)
Who needs what information? (Pop, 2009)	Organizational change management (Wenrich & Ahmad, 2009)	Factors influencing use of IS: organizational issues, national cultural differences, and online communities of practice (W. Li, 2010)
What is the timeframe available?(Pop, 2009)	Allocation of sufficient resources (Wenrich & Ahmad, 2009)	IS success related to national culture (Agourram & Ingham, 2007)
Adapt to international standards or local standards? (Owojori & Asaolu, 2010)	Avoid assigning responsibility to IT dept. (Wenrich & Ahmad, 2009)	Language and culture can form barriers to using IS (Wei Li, et al., 2007)
What are the CSFs to consider? (Nathan, 2011)	Built-in flexibility (Sannarnes, 2010)	Higher User satisfaction = better use of IS (Larsen, 2009)
Level of autonomy for IS planning (Mirchandani & Lederer, 2008)	Intercultural Social Knowledge (Phang, et al., 2007)	User feedback (Häkkinen & Hilmola, 2008)
Parent-subsidiary: Choice of IS; Separate systems, Open systems of different types, Open systems of the same type, Shared system (Haug, et al., 2010)	Integrate IS use into daily job performance (Wei Li, et al., 2007)	Potential problem areas: quality of information, adequate user IS skills, communication between organizational levels (Häkkinen & Hilmola, 2008)
Potential problem areas: quality of information, adequate user IS skills, communication between organizational levels (Häkkinen & Hilmola, 2008)	Language (technical as well as cultural) (Hawking, 2007)	Culture (Feng, 2006)

Culture (Feng, 2006)	Culture (language and meaning) (Hawking, 2007)	User attitude (Biehl, 2007)
ISD: focus on fundamentals (Bull, 2010)	Currency (Hawking, 2007)	
Sufficient financial resources (Biehl, 2007)	Culture (Feng, 2006)	
	Virtualising the communication process (Carton & Adam, 2010)	
	Comprehensiveness (Alaranta & Henningsson, 2007)	
	Formalization (Alaranta & Henningsson, 2007)	
	Focus (Alaranta & Henningsson, 2007)	
	Flow (Alaranta & Henningsson, 2007)	
	Participation (Alaranta & Henningsson, 2007)	
	Consistency (Alaranta & Henningsson, 2007)	
	Language and communication specifities (Avison & Malaurent, 2007)	
	Economic specifities (Avison & Malaurent, 2007)	
	Structural specifities (Avison & Malaurent, 2007)	
	TMS (Biehl, 2007)	
	BPM / Process Capability (Biehl, 2007)	
	Communication / Cross-functional team cooperation (Biehl, 2007)	
	Vision of the project / understanding goals (Biehl, 2007)	
	Org. Change Mgt. / Manage expectations (Biehl, 2007)	
	Training (Biehl, 2007)	
	Data Accuracy (Biehl, 2007)	
	IS staff capability (Biehl, 2007)	