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A Framework for Information Systems Metaresearch: The Quest for Identity

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Abstract:

Information systems (IS) research has a rich history of self-referential research efforts, i.e., those in which the object under study happens to be IS research itself. The nature of such inquiry has always been an ontological pursuit of the identity of IS research. In the current paper, we adopt a positivistic approach to what exactly is the identity of IS research. We extrapolate the IS discipline as an organization using concepts from organizational identity, and incorporate the quest for identity as a form of social identity, thus bringing it within the theoretical realm of the social identity theory. We posit that the best way to seek out this ontological pursuit is by looking at the observations of IS research from its highest level of abstraction–that is, from a metaresearch perspective. We examine the literature and identify major recurrent themes that discuss the identity of IS research–those that focus on the essence, the sustainability, indeed, the very future of IS research. We develop a framework based on this overarching quest for identity as a unifying theme that integrates the diverse streams as dimensions of achieving identity. These metaresearch streams include rigor, relevance, diversity and the essential core. We also look at current trends in IS research and highlight how they appear to correlate well with this research framework.

Keywords: ontology, metaresearch, identity, information systems, social identity

I. INTRODUCTION

Information systems (IS) research has a rich history of self-referential research efforts, i.e., those in which the object under study happens to be IS research itself. The nature of such inquiry has always been an ontological pursuit of the identity of IS research. In simple terms, ontology refers to the conceptualization or existence of an entity in terms of its defining parts. Where the entity is a field or a discipline, an ontological objective in research promises a unifying and integrating potential. In addition, a discipline as a collective entity exists within an environment populated by other disciplines [Benbasat and Zmud 2003]. It uses identity as a tool to establish some routines and standards within the environment as well as to create links with the environment [Aldrich 1999].

This paper adopts a positivistic approach toward the ontological pursuit of identity. The basic tenet of positivism is that an objective reality exists which is independent of human behavior and is therefore not a creation of the human mind. Comte [1853] proposed that all real knowledge should be derived from human observations of objective reality. Along these lines, we propose that identity is an objective reality that exists and can be ascertained by the observations of researchers in the field.

Discussions on what constitutes the nature and essence of the field of IS have been in progress since the 1970s when Dearden [1972] stated that the IS field was embedded in a mesh of fuzzy thinking and incomprehensible jargon. Ever since, IS scholars have debated whether the field is undergoing an "identity crisis" or not [Benbasat and Zmud 2003; Galliers 2003; Jones 1997; King and Lyytinen 2004; Lyytinen and King 2006; Robey 2003]. Some have suggested ways in which research in IS can be legitimized and authenticated using various techniques and practices such as incorporating rigor in methodology, examining issues from diverse related disciplines, focusing on research problems that are of relevance to practitioners, and several others. Jones [1997] characterizes research on identity of the IS field as taking one of two approaches, namely, the normative approach that presupposes the existence of rules and norms that describe how identity is to be defined in terms of boundaries, and the descriptive approach that defines identity in terms of what researchers do within the discipline [Neufeld et al. 2007]. All of these research papers are basically positivistic in their orientation in that, assuming that there is an objective reality called "identity" for a discipline, they propose ways to achieve it. We follow a similarly positivistic approach in this paper.

Albert and Whetton [1985] define organizational identity as the organizational members' perceptions of what is central, distinctive, and enduring in the organization. In this sense, while individual self-identity is molded by a single person, organizational identity is molded by the combined perceptions of its stakeholders [Jawahar and McLaughlin 2001; Teo and Srivastava 2007]. The IS research arena can be viewed as a form of organization with the researchers constituting its stakeholders [Teo and Srivastava 2007]. Applying Albert and Whetton's conceptualization of organizational identity, we posit that the best way to explore the ontological question of identity of IS research is by examining the perceptions of its stakeholders, namely the IS researchers. To do this, we attempt a comprehensive examination of IS metaresearch—research *about* research—especially with regard to scholarship into the identity, i.e., the very nature, of the IS research enterprise.

Before we explore research on identity of IS, we first need to examine the concept of identity. *Identity* is a multi-faceted term that has its roots in social sciences such as philosophy, anthropology, and social psychology. In these disciplines, identity is an umbrella term used to describe an individual's comprehension of himself or herself as a discrete, separate entity. In philosophy, identity is whatever makes an entity definable and recognizable, in terms of possessing a set of qualities or characteristics that distinguish it from entities of a different type—that is, whatever makes something distinct. This generic term can further be specified by psychology and sociology as bifurcating into two streams: *personal* identity relating to the self and *social* identity reflecting how the personal self relates to the social environment. Extending these to the organizational context, it has been proposed that organizational identity is actually a form of social identity [Haslam, 2001; Haslam et al. 2003; Cornelissen et al. 2007]. We incorporate this conceptualization in our paper as we try to explain the quest for identity in IS research in terms of organizational identity being a form of the social identity of the researchers.

Social identity theory [Tajfel and Turner 1986] has been applied to organizational behavior and to organizational identity but has never been applied at a discipline level in explicating the quest for identity. Following Teo and Srivastava [2007], we extrapolate the IS discipline as an organization using concepts from organizational identity and incorporate the quest for identity as a form of social identity, thus bringing it within the realms of social identity theory.

Several papers have attempted to synthesize the body of literature on identity in IS research [Hirschheim 2006; Ayanso et al. 2007; Neufeld et al. 2007; Teo and Srivastava 2007]. Some authors use an empirical approach by performing a topical analysis of research in selected publication outlets during a time period [Ayanso et al. 2007], thus presenting a temporal picture of the field. Others have adopted an interpretive approach in which they propose various conceptual bases such as the systemic view, in explaining the identity of IS [Guthrie 2003]. Teo and Srivastava [2007] have proposed a strong framework for explaining the contextual and constitutive elements of identity. This paper attempts to offer a plausible explanation for the quest using the strong cognitive flavors of the social identity theory and synthesizes the body of knowledge into a recognizable framework.

As noted, the corpus of IS research has a rich and valuable vein running through it of metaresearch. In any field of study, this is the venue in which researchers of the discipline discuss philosophical issues of critical importance to scholarship in the discipline; thus, it may be argued that the most important thing about IS metaresearch is really what it says about *us*, insofar as it creates a language of scientific discourse. It is by default the best place to seek out the true nature of our discipline. IS can be considered a relatively new field that has often been defined by what it was *not;* for example, *not* computer science. In addition, our discipline, by its nature, is continually in flux, drawing both content and methodologies from various reference disciplines. This communication flows both ways; information systems content and methodologies have influenced other scientific disciplines as well. This is why finding our identity has been and continues to be so very important to us, and the best way to do that would be via metaresearch. Therefore, the analysis in the current paper is meta-metaresearch.

The rest of the paper is organized as follows. Section II describes the research methodology for IS metaresearch. Section III discusses the different streams that emerged from the metaresearch. Section IV presents the framework that unifies the different research streams. Section V includes the discussion and implications for the future, and provides an overview of the activities in the discipline that offer empirical assessment to the framework.

II. RESEARCH METHODOLOGY

The current study delves into the issues and concepts that are at the very core of IS. Many metaresearch projects are the type that review hundreds of papers published in scholarly publications, and these sorts of papers often indicate in the methodology section that examples of metaresearch, meaning papers that examine other research papers, have been excluded from the study. The current study does the exact reverse. In a thorough search of the IS literature, *only* metaresearch was examined, and so-called "original" research was excluded. This was done in order to approach the research from its perceived highest level of abstraction. Consequently, the scope of this study was limited to IS research that has something to say about the essence of IS research. So, for example, papers about the pros and cons of using a particular methodology were of less interest than, say, papers with a more thematic analysis of IS research, *per se*.

Initially, all possible candidates for IS metaresearch were included, using keywords such as *Information Systems, Management Information Systems, MIS, or IS*. Using the EBSCO and the ABI/Inform Global databases, the titles and abstracts of papers were queried for the occurrence of these keywords. As one might imagine, it was soon discovered that the best way to filter articles for relevancy and context was through a manual scanning of the abstracts after retrieval. Such manual perusal ensured that we included only articles that were broad enough in their discussion of IS research in terms of issues, rather than in terms of specific empirical or non-empirical methodologies or tests. Once the initial set of articles was retrieved, the bibliographies of the set were examined in order to incorporate additional and supplementary readings that offered more insight on the research objective. This kind of extension to the primary research set is crucial to clarify and enunciate intellectual analysis.

After the composite set of articles was retrieved, the authors independently reviewed the full text of the articles and coded each on a central theme that formed the main subject of discussion. In the coding process, care was taken to ensure that articles that discussed more than one theme were classified in an intersection-category with no duplication in the independent ones (for example, those that discussed both rigor and relevance were coded only once in the intersection category of Rigor-and-Relevance, and not in the independent categories of rigor or relevance). The objective in coding was to come up with a key list of themes that can help in deciphering patterns of coherence in addressing the ontological question of identity in IS research.

After the independent coding was accomplished, the two authors together manually compared the codes and resolved any differences by discussion. The synchronization was also done for the intersection categories. In general, the authors, in their capacity as raters, agreed on the classification in the large majority of cases; the only discrepancy arose for articles of the type that discussed identity in general, without any specific sub-theme. It was decided to categorize these articles exclusively under the theme of "identity" itself (for example, papers that debated whether the field was undergoing an identity crisis at all).

The next stage of analysis required abstracting the "first-blush" codes into higher level codes, in order to come up with an overarching set of themes. As a guiding principle, the coded central theme of each article was scrutinized as to the macro objective in IS research to which it contributed. For example, articles that discussed validation in IS research such as Straub [1989] and Lee [2001] were initially coded "validation" and were then abstracted to a higher level code called "rigor" since validation, whether it be theoretical or methodological, contributes to the macro objective of ensuring "rigor" in research.

After performing the process of abstraction, we arrived at a final set of codes that included rigor, relevance, the essential core (that is, the IT artifact), and diversity. Each of these codes represents a major stream of metaresearch in the IS literature. We also allowed for overlapping areas between the streams. The following section discusses these streams of research in detail.

III. THE METARESEARCH STREAMS

In trying to approach the ontological query of identity in IS research, researchers have discussed and debated a multitude of issues in IS such as its epistemology, inter-disciplinary nature, paradigms, methodology, validation, generalizability, theory-building, and much more. While all these issues are important, certain themes can be viewed as major ones in the sense that they actually include smaller issues within their scope and definition. Such major issues are what we perceive to be integral and overarching themes. In examining the metaresearch, it was clear from the outset that this research effort would result in different levels of groupings based on abstraction. The themes or streams identified at the highest level of abstraction would be the overarching issues that IS scholars return to again and again, the themes that appear more than anything to focus on the essence of IS research, the sustainability of IS research, indeed, the very future of IS research. The following section discusses each of these streams in detail.

Rigor

Rigor in research is a central theme that emerged out of the IS metaresearch literature review. The term rigor in the dictionary is defined as inflexible adherence, severity or strictness. Applied to intellectual discourse, rigor is the means by which researchers demonstrate integrity and competence [Aroni et al. 1999].

What is interesting is that in research, the concept of rigor has been, for the most part, discussed in relation to research methodology. But in reality, rigor relates equally to research theory as well. This section discusses both these aspects of rigor as well as the associated concepts of validation and generalization. Finally, the discussion highlights the call for researchers to look beyond rigor and relevance into the responsibility-reverberation issue [DeSouza et al. 2006], thus proposing a new outlook to the identity debate.

IS research has been characterized by increasing rigor over the years as a plausible response to some past criticism on the lack of it [Straub 1989]. Some researchers have stated that IS research has been trying to emulate the research rigor of other disciplines [Benbasat and Zmud 2003]. Researchers have used different perspectives in explaining the importance of incorporating rigor in research. Since IS research is in an environment that is constantly evolving, it is faced with a learning issue in trying to develop innovative means of comprehending and coping with its environment [Aldrich 1999]. Attempts to deal with this learning issue includes those at establishing and maintaining methodological and theoretical rigor, methodological and theoretical diversity, and the respect gained in the community in terms of relevancy of research.

The need for establishing rigor through empirical testing and validation has gained momentum with the advent of positivistic, theory-driven approach to IS research. In this respect, Straub [1989] had a seminal influence on the notion of *methodological* rigor in IS research, specifically in empirical methodologies. Important highlights of such rigor include meticulous instrument development, and validation and testing using rich, statistical models and tools.

In addition to the emphasis on methodological rigor in supporting propositions and relationships between variables, there is a need for *theoretical* rigor in defining theoretical constructs and research ideas. Theoretical rigor has been emphasized by many researchers as an integral component in attaining legitimacy in the eyes of the other disciplines with which IS research interacts. In this regard, some claim that, research, in its quest for methodological and theoretical rigor, may end up sacrificing relevance [Moody 2000]. So a balanced approach to incorporating rigor, while at the same time, maintaining the relevance of research, would be ideal, though difficult to implement.

The existence of theoretical rigor is enhanced by the generalizability of the research [Lee and Baskerville 2003]. Interestingly, generalizability not only indicates a statistical dimension as often highlighted in most research, but also a conceptual dimension of generalizability of the theoretical constructs from research findings to theory [Yin 2002]. Zmud [1996] gives a more holistic definition of rigor in research as demonstration of soundness in its

theoretical/conceptual development, methodology, and interpretation of findings, and the use of such findings in extending or developing the theory.

Discussion on rigor is never complete without an ancillary discussion on the concepts of validation and generalization. Validation of the research instrument ensures that future researchers can adopt the instrument successfully and enhance it with additional features [Bailey and Pearson 1983; Hunter et al. 1983; Ives et al. 1983]. However, just as the environment of IS research changes due to the continuous evolvement of technology, so do the guidelines for enforcing appropriate rigor [Lee et al. 1997; Boudreau et al. 2001]. For example, at a point in time, factor analysis was accepted as the perfect measure with which to validate an instrument, but at present, such analysis is considered limited unless accompanied by more advanced modeling techniques [Lee et al. 1997] such as structured equation modeling and others. So, IS research has to keep up with the evolving guidelines to enforce rigor with a view to establishing and enhancing its legitimacy and identity.

While validation indicates the internal validity of the research (rigor), generalization indicates applicability of findings to settings other than those used in the research [Lee and Baskerville 2003]. In IS, generalizability of theory and findings is important not only for basic research but also for the purpose of managing and solving problems that organizations face in society [Lee and Baskerville 2003]. In other words, it includes applicability to real-world settings (relevance); however, the two concepts of validation and generalization are sometimes viewed as two sides of a coin, with the possibility that achieving one could diminish the extent of achieving the other. The argument is that increased rigor accomplished by having highly controlled settings and variables, may sometimes make the settings seem unrealistic in the real world, thus reducing the generalizability of the research [Applegate 1999]. An example of this trade-off is evidenced in the selection of a research methodology between a lab experiment vis-à-vis a field study. A lab experiment typically has high internal validity (rigor) and low generalization (relevance) because of its controlled setting. A field study, on the other hand, may be characterized by high generalization (relevance) in terms of its application to external situations and low internal validity (rigor) in terms of lack of controlled settings. In research settings, these decisions regarding the method and the trade-offs associated with the method, are made, not in isolation, but after careful evaluation of all the relevant research elements.

A call has been made for research that goes beyond the traditional rigor-relevance concepts to what has been termed "responsibility and reverberation" [Desouza et al. 2006]. This emphasizes the fact that research needs to focus on pivotal and pressing problems that society faces in order to be socially responsible. Additionally, research should "reverberate" or send ripples through the academic community, stimulating thinking and furthering academic discourse.

Relevance

Another major research stream that emerged out of the review was relevance in IS research. Relevance is the relation of something to the matter on hand. In academic discussions, relevance in research refers to the extent to which the practitioner community finds the knowledge produced by research applicable to their real-world settings and problems. This section covers issues such as the criteria used to evaluate relevancy of research, the role played by the transitory nature of information technology in such evaluation, the institutional and political factors in IS research that contribute to relevance, and the very critical role of information in widening or narrowing the disconnect between academia and practice in contributing to relevance.

Researchers have fairly often posited that IS research is lacking in relevance to practitioners [Galliers 1994; Benbasat and Zmud 1999]. Some of the criteria used to evaluate relevance have been the applicability of research findings to business settings, the currency of the research problem in addressing business issues, and the authenticity of research theory and its practical applicability [Benbasat and Zmud 1999]; however, the issue of evaluating relevance of research is not an easy and straightforward one, since there is a tendency to become myopic in only recognizing research that produces implementable outcomes. Not all research can culminate in implementable outcomes. For example, research work that centers on creation of a theoretical framework broadens the state of knowledge within a field, and as such, may be considered relevant, even if the results do not directly map to implementable outcomes; therefore, the definition of relevance in IS research is itself a delicate problem.

An interesting and prominent factor that impacts the relevance of research in IS—and is more or less unique to the IS discipline—is the transitory and adaptive nature of information technology [Orlikowski and Iacono 2001]. The speed at which technology is changing things in the business world is far ahead of the speed at which research work gets accomplished. Therefore, by the time a research artifact gets created, modeled, tested, and published, the environment may change to such an extent that the proposed artifact is no longer considered current and relevant. This poses a great challenge to the entire IS research community in ensuring relevancy.

In addition to rapidly changing information technology [Straub and Watson 2001], there are institutional and political factors that further influence the relevance of research. The level of patronage imparted by academic institutions on academic work is one such critical factor. A majority of business schools and educational institutions in North America focus heavily on empirical research for consideration of tenure and other career decisions, thus driving research to be heavily concentrated on positivist/empirical work when compared to interpretive, theory-building, qualitative work [Lee 1999]. An institutional change, of the nature that both acknowledges and rewards the creation of qualitative, theory-building work as stepping stones to conceptualization of future work, is necessary in making up a balanced research portfolio in IS. Also, a field needs to experience the formative phase of theory-driven inquiry before it endeavors to produce knowledge that is relevant for practice [Kuhn 1977].

From a philosophical perspective on the nature and goal of IS research in achieving relevancy, IS research could follow the model of research inquiry in the professional sciences such as medicine, law, engineering, and architecture [Davenport and Markus 1999; Lee 1999]. Traditionally, IS research has been associated as a means of inquiry within the natural science paradigm [Lee 1999]; however, since IS represents a close link between academia and practice, similar to medicine, which is a professional science, it may be reasonable to follow the research procedures used in these professional sciences [Lee 1999]. IS research, in this regard would, in addition to theory building, also include designing and evaluating artifacts that solve real-world problems [Hevner and March 2003].

Since IS involves "information" as a resource in addition to people and technology, discussions on relevance of IS research should also border on the role of information. Relevance in a discipline is normally characterized by a two-sided flow of information: from practice to research in which practice drives research activity, and from research to practice, in which the research results get applied and tested in practice. In this regard IS has been characterized by a disconnect problem in the flow [Moody 2000]. This disconnect can be resolved by improving the transfer of knowledge between research and practice. An example of a discipline that has a smooth flow of information and knowledge between research and practice is medicine; however, it would be worthwhile to remind ourselves that it did take a few years before medicine evolved to its level of relevancy today [Moody 2000]. Therefore, as IS evolves, it will hopefully succeed in resolving such disconnect and enhancing its relevancy. As a starting point, we have already seen the advent of innovative means of inquiry in IS such as action research, which represents the corroboration between researchers and practitioners in a real world setting. Such endeavor is aimed at easing this disconnect and enhancing the relevance of research, and in essence, contributing to the identity and recognition of research.

Diversity

A third research stream that was identified was the diversity in research. Diversity refers to variety or multiformity. Applied to a discipline, diversity refers to the variety in ideas, methods, theories and other elements involved in research [Benbasat abd Weber 1996; Robey 1996; Guthrie 2003]. Such variety or extrapolation can come from the sources with which the entity interacts. In the case of the discipline, these sources could be the other research disciplines that constitute its immediate environment. It is true that IS research has traditionally borrowed from different disciplines [Wade et al. 2006] such as computer science, management science, psychology, information management, marketing, and others [Davis and Olson 1984; Culnan and Swanson 1986]. The IS academic community has debated whether such borrowing of ideas and concepts from other disciplines is actually debilitating or enhancing the growth of the field [Benbasat and Weber 1996]. The question is whether IS research should be trans-disciplinary in freely borrowing ideas, methods, theories and other research components or be unidisciplinary in restricting itself to its own established domain-specific theoretic concepts. This section discusses the issue by deliberating on the pros and cons of establishing a boundary for the field, and on the nature of such boundary being flexible and extensible enough to incorporate diverse ideas from external disciplines.

For any discipline, the range of domain-specific topics helps demarcate its line of boundary and establish its intellectual foundation [Benbasat and Zmud 2003]. The selection of these topics can be done from within the domain or by borrowing from different reference disciplines. Within the IS academic community, there are two schools of thought on establishing this boundary. Robey et al. [2006] refers to this as the diversity-versus-the-consensus position. Some proponents of the diversity view criticize the very idea of having a boundary as limiting and suggest that IS should be free to cross disciplines and incorporate concepts from other areas [Moody 2000; King and Lyytinen 2004]. The notion is that for the field to grow, the boundary needs to evolve with the growth in knowledge. Also, emerging issues and new ideas are likely to occur by spanning the boundary [Galliers 2003] between disciplines, thus fostering creativity [Robey 1996]. Further, there is a need to have an inter-disciplinary focus on the transformational aspects or the macro aspects of technology, which leads to a broadening of the traditional boundaries [Agarwal and Lucas 2005].

On the other hand, the proponents of the consensus view emphasize the need for a boundary, as a means to target and define the field [Weber 1987]. This school of thought is based on the rationale that such demarcation enhances

the academic legitimacy of the field [Benbasat and Weber 1996]. Additionally, a boundary can protect against an otherwise, anarchic, anything-goes attitude, which is not beneficial for a discipline [Robey 1996]. In this context, Ayanso et al. [2007] suggest, based on their empirical analysis of three leading IS publication outlets, that most of the research topics were considered outside the traditional boundary of IS proposed by Benbasat and Zmud [2003].

In seeking a rationale for the presence or absence of boundary definition within the context of diversity, one can adopt the lens of environmental change and growth. Using this lens, a field should evolve and adapt new insights and ideas from within and outside the discipline as a necessary criterion for growth [Galliers and Meadows 2003]. The use of the lens highlights the nature of IS as existing within an environment that is constantly changing, thereby necessitating the field to be adaptive in defining its boundary. The field needs to adapt itself to embrace new developments that need to be incorporated within its research elements. A field should not be static but dynamic enough to be resilient to such environmental change; moreover, the phenomenon of change should not be perceived as a signal for crisis but as an opportunity for growth [Galliers 2003]. In this context, such boundary spanning activity is considered beneficial and innovative for the growth of the field [Tushman and Scanlan 1981].

A conjunction of the two schools of thought on the existence or otherwise of a boundary would be one that proposes a boundary that is *flexible and shifting* so as to have the capability to embrace new ideas, concepts, and methods from other research disciplines [Tushman and Scanlan 1981; Robey 2003]. This would help the discipline be legitimate and authentic not only in the eyes of its stakeholders but also in that of the environment in which it operates. While there is no one solution to the diversity debate, it can be safely said that as the field grows and expands its intellectual contributions, the discussions will also evolve and hopefully resolve themselves.

The Essential Core

One of the themes that arose from the literature review was that of the "essential core" in IS research. A core refers to the central, innermost, or most essential part of anything. It is a strong secure base upon which to build something. The strength or weakness of the foundation impacts the criticality of the structure that is built thereupon. For a discipline therefore, the core refers to the foundation set in terms of research elements that allow researchers to identify problems that are relevant and important to the discipline, and to develop solutions to these problems [Weber 1999; 2003; 2006].

The crux of this theme is whether IS research can be characterized by a central core that identifies and distinguishes it from other disciplines. The core subject matter in IS research has been considered to be the IT artifact [Orlikowski and Iacono 2001; Benbasat and Zmud 2003]. This section discusses the IT artifact as a central, defining entity in IS research and deliberates the philosophical question of having one for the discipline. It highlights the issues involved in classifying research based on identification of the artifact, and the value, if any, gained from such classification.

Some scholars have posited that characterizing research as IS-related requires determining a central theme or an *artifac*t, around which the research revolves [Orlikowski and Iacono 2001; Alter 2003; Benbasat and Zmud 2003; Guthrie 2003]. An artifact is defined as a "bundle of material and cultural properties packaged in some socially recognizable form such as hardware and/or software" [Orlikowski and Iacono 2001, p. 121]. In this respect, researchers claim that IS research, rather than focusing on the core subject matter—the IT artifact—has instead focused on peripheral issues surrounding the artifact, such as the context within which the artifact operates, the processing capacity of the artifact itself, or on the dependent variable that is influenced by the artifact [Orlikowski and Iacono 2001; Ayanso et al. 2007]. This trend is said to have diverted the field away from its central core.

If one were to take a naive approach to this issue, it would appear that if IS research were to focus on the core IT artifact, then we would have more potential to be identified as a field or a discipline, simply based on the uniqueness of the core. Simple as it may sound, identifying the artifact and branding the research as IS-related is not so straight-forward. There is, what has been termed, a "gray area" [Whinston and Geng 2004], that includes research dealing with technology that is hard to classify. An example would be research that addresses the use of Segway [http://www.segway.com] reshaping social life and business practices. Segway is a personal transportation system designed to travel to any destination and is similar to bicycles in some ways. But the fact is that it lies somewhere on the continuum between a clear IT artifact (computer/technology) and a non-IT artifact (bicycle). This research would therefore be difficult to classify as IT-related or otherwise [Whinston and Geng 2004]. This is only one such example. As IT becomes pervasive in many non-IS applications, many more such gray areas will continue to surface. The gray areas would relate to research that discusses either hard-to-classify technology or technology in a typically non-IS domain. Subjectivity in the assessment of what is considered typically IS domain and what is not, further adds to the nebulousness in classification.

Alter [2003] proposes shifting from an IT-centric perspective to a work-system-centric perspective, thus moving the focus away from the concept of a technology-only artifact to an integrated work-system artifact that includes people

in addition to technology. After all, an information system includes elements of people and information, in addition to technology. An argument has been made that technological transformation within the IS industry (such as IT outsourcing), along with institutional changes within universities (incorporation and use of technology in non-IT areas) are two factors that are currently drawing the attention away from a central artifact to establishing an identity for the field.

In addition, some researchers even question the value of having a dedicated IT artifact on the grounds that the field of IS is not yet ready to define a core [Myers,2003]; moreover, there is the possibility of having different conceptualizations of the core leading to the same research being classified differently [Alter 2006]. While it is not possible to conclusively take a stand and use a one-for-all paradigm in this matter, we should strive for a transient core that can be enhanced in response to changing organizational and environmental needs. Thus, along the same lines as a shifting boundary, the transient core tends to be one that can be enhanced or modified depending on the environmental changes that are prevalent.

IV. PULLING IT ALL TOGETHER—A UNIFYING FRAMEWORK

Each of the streams of metaresearch abstracted in this study represents a major theme that contains a number of sub-themes. For example, rigor includes methodological rigor which subsumes validation and generalization. The streams contribute to creating, maintaining or enhancing the identity of the IS research. In this section, we discuss how each stream is a dimension in the quest for identity.

All of these streams are concerned with the legitimacy, validity, and authenticity of IS research—in short, with its very *identity*. While many IS researchers have discussed each of these individually in relation to the field, the current study perceives these as sub-constructs contained within the integral objective of identity.

Specifically, this paper develops a framework that represents the quest for identity as a unifying umbrella theme that integrates these diverse streams of research. The quest for identity can be represented as permutations and combinations of the various streams. Appendix 1 shows the articles that were included in the framework. But before delving into the discussion of the framework, we offer a theoretical rationale for the quest, using the perspective of the Social Identity Theory. This rationale offers one perspective on examining the pursuit for identity for a discipline.

Social Identity Theory and the Quest for Identity

Identity, as defined in the introduction to this paper, is whatever makes an entity definable and recognizable in terms of possessing a set of qualities or characteristics. There are two types of identity namely the personal identity that relates to the self, and the *social identity* that reflects how the personal self relates to the social environment [Tajfel and Turner 1986]. In this paper, we focus on the latter manifestation—the social identity—and examine the quest for identity through the social identity of the researchers.

We borrow from the literature on organizational behavior in using social identity theory as a theoretical lens through which to study the quest for identity in IS research. The literature on organizational behavior proposes that organizational identity is a special form of social identity in which one refers to the self in terms of one's organizational membership [Ashforth and Mael 1989; Haslam 2001; Haslam et al. 2003; Cornelissen et al. 2007]. Using this perspective, we view the IS research community as a special form of organization and IS researchers as members of that organization. The identity of the IS research discipline, is therefore a form of social identity of the researchers who make up this community of scholars.

Social categorization is one of the main concepts in the social identity theory. According to the Social Identity Theory [Tajfel and Turner 1986], people classify themselves based on various social categories such as organizational membership, religious affiliation, gender, and age cohorts [Ashforth and Mael 1989]. There are some prominent reasons that can explain the rationale for social categorization. First, such categorization provides a cognitive segmentation of the environment, providing the individual with a systematic means of defining others [Ashforth and Mael 1989; Lansberg 1989]. Second, it offers a venue for the individual to define oneself within the social environment [Ashforth and Mael 1989]. Third, social categorization is a cognitive tool used to simplify the environment and expedite information processing [Hogg 2001]. It is common knowledge that IS does not operate in a vacuum but in an environment that is populated by other reference or contributing disciplines [Lee 2001]. Social categorization of the academic environment into different disciplines offers academicians a tool to cognitively define and place themselves as well as others within the environment. It is therefore a type of cognitive framework in which to place one's own self and others.

In addition to social categorization, another important concept that can be related to the quest for identity, is that of organizational socialization borrowed from organizational behavior [Jones 1986; Saks and Ashforth 1997a; Bauer et

al. 2007]. Organizational socialization emphasizes that organizational newcomers look to social identity as a way to define their roles and status within the organization, and as a way to become familiar with the institutional rules governing the organization [Ruolian 2008]. In this light, researchers who are new to the IS field can use social identity as a way to not only define and manifest their expertise in the academic arena, but also to comprehend the nuances of the discipline.

Using social identity theory, we view the IS discipline as a special form of organization that provides social identity to the researchers. In addition to using the social identity to describe themselves, researchers can, if desired, use it as a cognitive segmentation tool to place others and themselves within the academic environment. Finally, in academia, the role identity concept is applicable since each researcher can assume different roles and different role identities, while still maintaining their overall role in terms of social identity as an IS researcher.

A Unifying Framework for the Quest for Identity

In this section, we explain how we conceptually defined identity and how the different dimensions of the framework fell into place with this definition in mind. We also discuss how each dimension or stream contributes to the identity discussion.

We have defined identity as that which makes an entity definable and recognizable in terms of possessing a set of qualities or characteristics. In the metaresearch, we reviewed the themes using a process of abstraction until we reached the level where the four main streams of literature evolved. At this point, we analyzed to see if the four streams further had some kind of central objective as a unifying thread. That central thread seemed to emerge as some *qualities or characteristics* of IS research for identity. So, the metaresearch seemed to answer the question, "What are the distinguishing features or characteristics IS research can have in order to attain identity?" This corresponded perfectly with our definition of identity as a set of qualities that distinguishes an entity and makes it distinct from other entities. In this manner, the four streams of rigor, relevance, diversity, and core are all *part of a set of qualities* needed for identity and as such are conceptualized as dimensions in the identity quest. Figure 1 shows the research framework. The framework shows the components as intersecting because, while each could be a distinct attribute by itself, the combination could further enhance the identity element. Also, it is possible for an individual research study to examine only one, or a combination, or all, of the elements.

Others have looked at the identity issue in IS research. Our research contribution lies in the comprehensive review of literature of IS metaresearch and in offering a theoretical justification of the identity quest using the social identity theory. Thus far, social identity theory has been applied in organizational contexts in explaining group interaction and group behavior, but has never been applied towards the identity of a discipline.

Each of the dimensions in the framework contributes to creating, maintaining, or enhancing the identity of the discipline. Rigor contributes to making sure that research within the discipline is resilient enough to survive in the long run. After all, research culminates in accumulation of knowledge which should be based on work that is accurate and precise, in other words, rigorous. One way in which IS research can have sustainability and longevity is to enforce rigor in its research elements of theory, methodology, and findings.

Relevance in research ensures that the work is not merely esoteric and fantastic on paper but is actually implementable in that it addresses real-world problems. In the discussions on relevance, the most pertinent aspect relating to identity is whether relevance relates to addressing problems at the organizational level or at the societal level. Some suggest that IS research should focus on our "own backyard" which is the organization, and address problems faced by practitioners [Desouza et al. 2006]. Others feel that IS should have a macro objective and look beyond the organization to the society in addressing problems faced by the society at large [Desouza et al. 2006]. A balanced approach to this would be to initially structure the research to address problems faced by practitioners in organizations, and ultimately use this knowledge to focus on the larger societal context. If IS research is able to make businesses perform better, then businesses, in turn, will help transform societies by being more socially responsible. In the current day and age, many business schools like Harvard, Stanford, McDonough School of Business (Georgetown University), and others have dedicated courses on corporate social responsibility as a way to enhance the social awareness of youth entering the business world.

On the issue of diversity being a tool in the identity of a discipline, it can be said that while IS can continue to draw theories and methods from various disciplines, it should try to apply these in the solution of specific problems in its domain. This enriches the knowledge base and enhances the identity of the discipline. After all, the richness of a field lies in the variety of applications that it offers for its methods and theories. Such a variety can only be achieved by continuing to borrow and extend from the reference disciplines. Also, on the issue of diversity, it is possible for research to have diversity in its elements and at the same time enforce theoretical consensus. In an empirical analysis of research on interorganizational systems in eleven IS publication outlets between 1990 and 2003, Robey

et al. [2006] concluded that while their focus was on traditional IS theories in the domain, their analysis was done using non-traditional dimensions borrowed from other disciplines. The academic community should focus on the diversity issue not as a binary concept of having diversity or not, but as a blended concept of maintaining consensus while at the same time incorporating diversity.
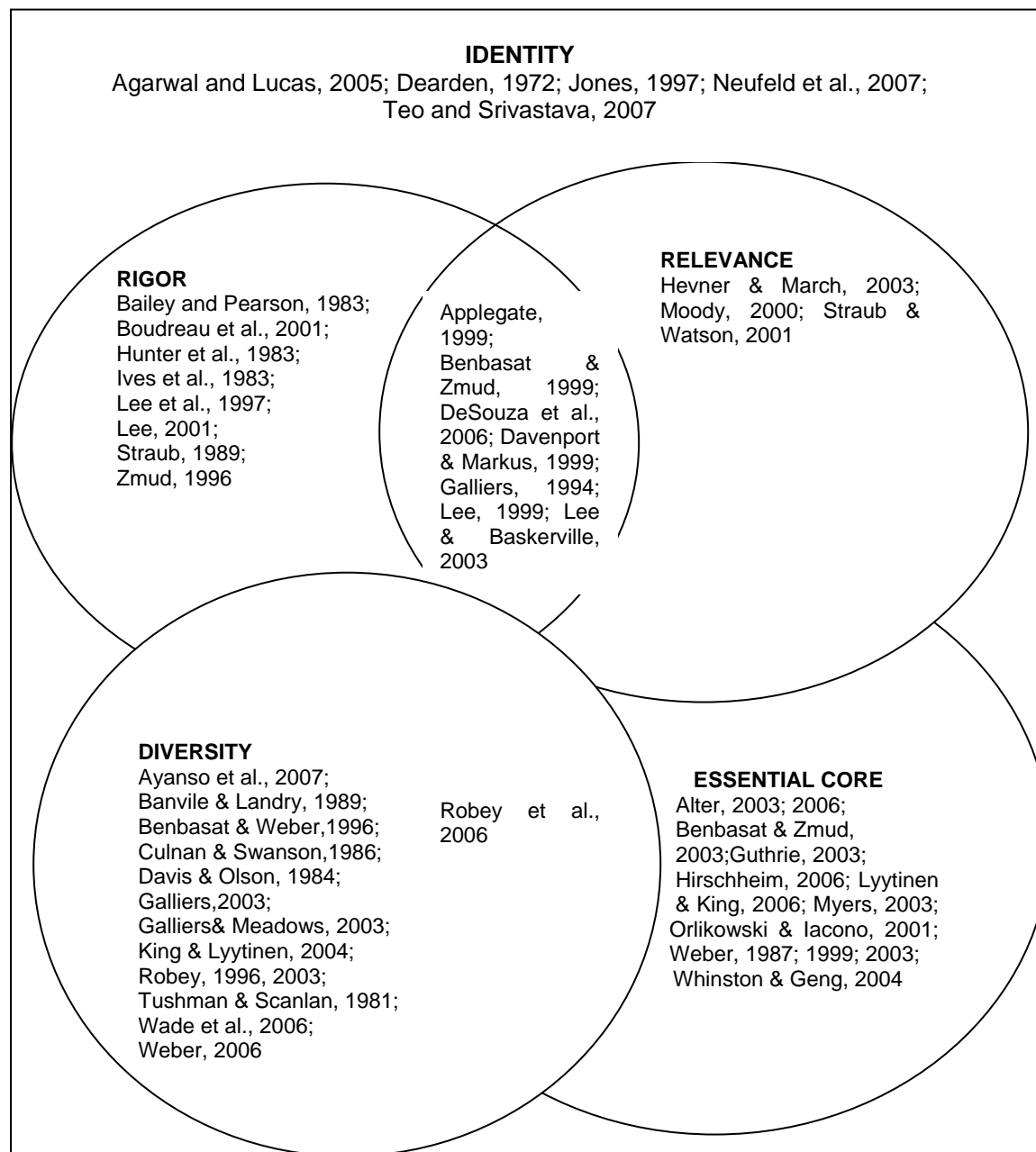
IDENTITY
Agarwal and Lucas, 2005; Dearden, 1972; Jones, 1997; Neufeld et al., 2007;
Teo and Srivastava, 2007

RIGOR
Bailey and Pearson, 1983;
Boudreau et al., 2001;
Hunter et al., 1983;
Ives et al., 1983;
Lee et al., 1997;
Lee, 2001;
Straub, 1989;
Zmud, 1996

Applegate, 1999;
Benbasat & Zmud, 1999;
DeSouza et al., 2006; Davenport & Markus, 1999;
Galliers, 1994;
Lee, 1999; Lee & Baskerville, 2003

RELEVANCE
Hevner & March, 2003;
Moody, 2000; Straub & Watson, 2001

DIVERSITY
Ayanso et al., 2007;
Banvile & Landry, 1989;
Benbasat & Weber,1996;
Culnan & Swanson,1986;
Davis & Olson, 1984;
Galliers,2003;
Galliers& Meadows, 2003;
King & Lyytinen, 2004;
Robey, 1996, 2003;
Tushman & Scanlan, 1981;
Wade et al., 2006;
Weber, 2006

Robey et al., 2006

ESSENTIAL CORE
Alter, 2003; 2006;
Benbasat & Zmud, 2003;Guthrie, 2003;
Hirschheim, 2006; Lyytinen & King, 2006; Myers, 2003;
Orlikowski & Iacono, 2001;
Weber, 1987; 1999; 2003;
Whinston & Geng, 2004

Figure 1. A Unifying Framework

The discussions on the core of IS research and the dominant paradigm in IS are important elements in the identity debate. For an organization, the concept of core competence refers to the set of activities or functions that can effectively give it a competitive advantage. Similarly, for research, core refers to the set of research topics that represent and distinguish the domain. In IS, the concept of the core has expanded from the traditional IT artifact to that of the integrated work system. In this manner, it actually represents the social consequences of using IT in an environment that involves people and information. The relevance of the core in enhancing the identity of IS field therefore lies in how adaptive and flexible the definition of core actually is. In this context, Robey [2003] views identity as a continuous process of evaluation and reflection in response to the environment. Neufeld et al. [2007] suggest that the identity of IS has been continually evolving with new out-of-the-box studies that are being propagated in the field, which, in their opinion, defy the traditional, orthodox boundaries.

The significance of placing identity as a superset of the four different research streams or themes lies in the all-encompassing role it plays in the IS research arena. The overlaps in the components of the framework indicate the fact that there is potential for good IS research to represent a combination of the themes. As an example, if research is conducted very rigorously but is totally irrelevant in terms of its methodology or findings, it cannot gain identity. Similarly, research that includes diverse theories from different disciplines still needs to be conducted with rigor in order to be considered legitimate; therefore, the different elements are not substitutable but are really complementary to each other in a research endeavor.

The framework (Figure 1) also shows the portfolio of research in the domain of IS identity. While revealing the concentration of research in some areas such as rigor and relevance, it also highlights the paucity in others such as relevance. There is an inherent danger of a field of study becoming myopic if it ignores selective areas of study. The lack of research is also highlighted in the intersecting domains such as diversity and rigor, relevance and core, and others. As pointed out by Robey et al. [2006], it will benefit the IS community to adopt a non-binary approach in viewing the different elements within the identity domain. For example, it is possible for research to have diversity in adopting theories from different disciplines, while at the same time maintaining the level of rigor in testing the theory for an IS-related problem. As an example, we are now using diverse research theories from psychology and sociology, as well as research methods from such fields in empirically testing phenomenon in the IS domain.

The framework presented here represents a cognitive segmentation tool for researchers to place their own and others' work in the area of identity. It additionally allows one to see the different facets in the identity debate.

V. DISCUSSION AND IMPLICATIONS

This study advances the discussion of identity by reviewing and organizing the metaresearch within a relevant framework. It further offers a theoretical perspective to the identity quest by making use of concepts from social identity theory and organizational behavior.

There are some limitations to our research. Our research is conducted with a positivistic orientation. We assume that identity is a reality. There are papers that adopt an interpretive perspective in that they seek out the reality. As the academic discussion on IS identity has been active for the past several years, it can be perceived that IS has an identity at some conceptual level, or there would have been no mention of it at all. Also, we feel that recognizing and pursuing IS identity is important since shared perceptions of identity shape institutional mechanisms such as journal editorial policies and business school tenure decisions, which in turn, impacts the survival of the discipline in terms of departments and faculty in the long run [Robey et al. 2006].

Our research is important from several aspects. First, it is the first of its kind to adopt social identity theory in examining the quest for identity at a discipline level. We justify the quest from a trans-disciplinary perspective, using theories from psychology and organizational behavior. Second, the research framework shows the portfolio of research in the domain of IS identity, bringing to attention the concentration or lack therefore in some areas. We can see that there is a lot of focus on rigor and relevance discussion while that on core and diversity remain comparatively sparse. Last, it offers researchers an analytical tool to, not only position their current work in the context of identity, but also help position any future work in the area.

An added advantage of the research framework is that it is extensible. The discussions on identity are expected, not to dwindle, but to get more intense and varied as more and more issues come into the horizon. As the debates spread on to newer research avenues and research agendas, one can add more dimensions to the framework to accommodate the additions.

Future research might consider comparing this research framework with one or more similar frameworks in other disciplines, say biology or computer science. Further, are the characteristics of interest regarding the identity of IS research very different from those relevant to computer science research or computer engineering research? Another study that comes to mind would involve examining the influences of its reference disciplines on IS, as well as the influences of IS on its reference disciplines.

It is interesting to note that certain trends in IS research appear to correlate well with our research framework.   The increasing emphasis and recognition for empirical, positivistic work that entails rigorous validation and testing, is standing proof for the continuing importance of rigor in IS research. The advent of emerging paradigms such as design science in IS research signifies the importance given to relevance. Design science seeks to build and evaluate innovative artifacts that are designed to address specific real-world problems [Hevner and March 2003]. Along the same light, there are other new and novel research methods such as action research that indicate the collaborative efforts of academia and business in theory-building and artifact-design. Action research focuses on the

immediate problem on hand and borders on the concept of learning by action wherein changes are introduced and then studied. All of these manifest the increasing propensity of relevance in research.

The increasing breadth of topics that have spanned the vista of IS journals and magazines, combined with the wide variety of tracks and topics in IS conferences, is evidence of the increasing emphasis on diversity in the research domain. In this context however, the field can further benefit from institutional reforms in academics in acknowledging and recognizing interdisciplinary research work.

We can safely surmise that the identity debate will be an ongoing inquiry rather than a dormant one. As new changes are evident in the environment, newer issues will get the limelight. The boundaries of the IS field may shift even more in order to accommodate these changes. As we see more globalization, we will come across additional phenomena or dimensions in the identity issue. Some fecund avenues for future research include social responsibility of IS research and its impact on identity, the impact of globalization on IS research identity, and the consideration of the impact of critical economic issues in IS research, such as global warming and disaster recovery, on identity. For example, IS research that focuses on social and economic issues such as emergency planning and risk mitigation would not only increase the relevance of research but would also make it trans-disciplinary simply based on its ubiquity.

It has been said that progress occurs when cumulative research knowledge in a field gets challenged [Banville and Landry 1989]. One might even say that a field of study becomes enriched with novel contradictions and issues in its wake and, if so, we should prepare to witness an era filled with further contradictions as well as continued progress in every facet of IS research.

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APPENDIX SHOWING ARTICLES IN THE FRAMEWORK

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