

# IT STEREOTYPING AND THE CEO-CIO HEADLOCK

*Research-in-Progress*

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## Abstract

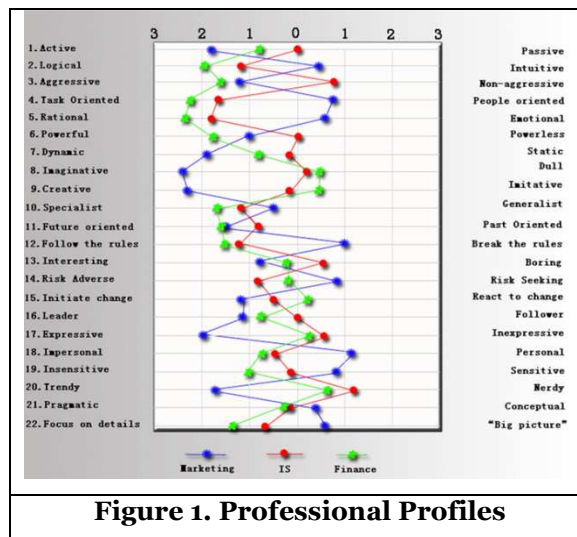
*In addition to running key organizational systems, Chief Information Officers (CIOs) are increasingly expected to embrace a broader role in their organizations by driving organizational transformation, innovating for competitive advantage and acting as key strategic partners to the CEO and other members of the C-level team. Their ability to fulfill this challenging role, however, is inhibited by the existence (and influence) of IT stereotypes. When CEOs harbor these stereotypes, they tend to treat the CIO as a "last among equals", impose limits on the CIO's resources (e.g., access to the Board), and relegate the CIO to a supporting role thus denying a strategic opportunity for IT. This research proposal develops a means of assessing the IT stereotypes and their strength and examines their impact on the role of IT within the organization. This study will introduce a novel theoretical approach to the understanding of the relationship between the IT organization and the rest of the business. Implications for theory and practice are presented.*

**Keywords:** CIOs, IT/business relationships, IS/IT perceptions gap, IT stereotype, IT/IS management

## Motivation

IS researchers and practitioners often refer to the existence of an IT stereotype (e.g., García-Crespo et al. 2008; Peppard 2010; Willcoxson and Chatham 2006). The assumption is that, not only does this IT stereotype exist; but that it exists at the highest levels of the organization where key decisions are made regarding the role of IT. As an example, Hirschheim et al. (2003) found that, despite ample evidence to the contrary, Texaco's CEO considered the IT organization as overly costly and ineffective. Acting on his beliefs, the CEO reduced support and resources for the IT organization that limited the role that IT was allowed to play with a commensurate reduction in IT-enabled value. This example highlights the importance of stereotypes; that is, people act in accordance with their stereotypical beliefs (Kunda 1999) and unfounded and/or unwarranted stereotypical beliefs result in biased and/or prejudicial behaviors (Kunda 1999; Kunda and Spencer 2003). This phenomenon has been demonstrated in situations involving gender, race, religion, and ethnicity. Interestingly, the IT stereotype has not been assessed or measured – nor have its ramifications been demonstrated within an organizational context – beyond anecdotal evidence. We have reason to believe that a study of IT stereotypes may provide a new lens to explain the behavior of senior executives regarding the deployment of IT resources. At the very least, understanding IT stereotypes may help to explain executive decision making and their actions regarding IT.

In an attempt to understand the low enrollment of undergraduate students in IS majors, two of the co-authors (Tu and McKeen 2011) surveyed 172 Commerce students from different years and specializations. The study used a semantic differential technique based on 22 bipolar scales of adjectives (i.e., active-passive) to profile students' perceptions of three different professions: marketing, finance, and IS (Figure 1). Different profiles emerged for each profession in a classical stereotypical fashion; that is, profiles were taken to the extreme (e.g., marketers were trendy, IT professionals were nerdy). The results fit our predictions that, given the students' limited life and work experiences, they would gravitate towards stereotypical profiles. This was expected. What was not expected was the discovery that these stereotypical beliefs did not change over the student's four years of their Commerce program. There was no maturity with respect to their perceptions of these professions, no nuanced insights, and seemingly no appreciation for differences and variations within professions. During the process of taking advanced courses in different areas of specialization and being forced to make career decisions, students' stereotypes did not to change.



These results suggest rather strongly that the students' stereotypes were likely formed during their pre-university years; it underlines the persistence of these stereotypes over time and despite individuating evidence (e.g., knowing someone in IT who is not nerdy); and it suggests that these students are selecting

courses and career options based on their stereotypical beliefs because the literature has shown convincingly that people "act in accordance with their beliefs" (Kunda 1999). Extending these findings to an organizational setting leads us to suspect that CEOs who hold positive stereotypic beliefs of the role of IT in their organizations (i.e., CEOs who see IT as a source of competitive advantage) will create an organizational climate where a CIO can succeed as a transforming agent. In contrast, CEOs who harbor negative IT stereotypic beliefs of the role of IT in their organizations will tend to treat the CIO as a "last among equals", curtail the CIO's resources (e.g., access to the Board) and relegate the CIO to a supporting role thus denying any strategic impact for IT. While numerous studies agree that stereotypes play a significant role in decisions related to performance evaluations, allocation of resources, and hiring, we use psychological stereotyping theory and research to explore whether CEOs apply stereotypes of IT professionals to CIOs, and the consequences of this application in different decision making situations. It is anticipated that these stereotypes will help to explain the persistent "gap" that exists between IT professionals and business managers (Hirschheim et al. 2003; Peppard 2001). This gap refers to a "mismatch [or disconnect] between the expectations and beliefs about the IT function possessed by individuals inside and outside of IT" (Hirschheim et al. 2003, p. 10).

This paper is organized as follows. The next section establishes key definitions and the research questions. We then overview the literature that pertains to the existence of the IT stereotype, as well as the study's propositions derived from this literature. Next, details of the research methodology are presented. The paper concludes by outlining the study's contributions to the academic and practitioner communities.

## **Definitions and Research Questions**

### ***Stereotypes***

There is a rich and well-established literature on stereotypes within Social Psychology (Schneider 2004) that defines stereotyping as a category-based cognitive process that helps people simplify a complex world (e.g., Allport 1979; Dovidio et al. 1996; Fiske 1993) and defines a stereotype as a cognitive structure that contains our knowledge, beliefs, and expectations about a social group (e.g., Hamilton, Sherman, and Ruvolo 1990). Rather than treating individuals as idiosyncratic, it is cognitively simpler to treat them as prototypical members of a social category (e.g., female, Greek, or Doctor). Stereotypes contain a mix of abstract knowledge about a group (i.e., lawyers are aggressive and articulate) along with exemplars of group members (i.e., my neighbor, the lawyer) (for a review see Hamilton and Sherman 1994). Stereotypes are commonly measured and reported as prototypes; that is, lists of unrelated attributes that vary in typicality (e.g., Blacks are stereotyped as poor, uneducated, and criminal). However, it is asserted that stereotypes can theoretically contribute to causal knowledge (e.g., the discrimination and declining economic opportunities experienced by Blacks have restricted their educational opportunities and produced poverty and criminality; Wittenbrink, Gist, and Hilton 1997, Kunda 1999).

Stereotypes have been well-studied in the workplace (e.g., Falkenberg 1990; Heilman 1995). Managers have been shown to use stereotypes to judge or evaluate others unless other informational or situational conditions are met (Fisk and Neuberger 1990). These managers apply stereotypical beliefs to the disadvantage of demographic groups when predicting the possible success of a candidate during hiring, promoting, or evaluating performance. Because performance evaluations are linked to compensation, promotion, and vulnerability to downsizing, there are substantial consequences to unfair or biased evaluation when managers activate and behave in accordance with their stereotypes (Bielby 2000) which are often developed and employed subconsciously. We approach IT stereotypes as a neutral, necessary cognitive process that can lead to inaccuracies and/or negative consequences.

### ***The IT Stereotype***

Researchers often refer to the existence of the IT stereotype (e.g., Garcia-Crespo et al., 2008; Peppard 2010; Pflieger and Zetlin 2006; Stewart 2002; Willcoxson and Chatham 2006). These references are largely anecdotal but their frequency underscores the presence and impact of the IT stereotype. There are both positive and negative aspects of the stereotype (see Table 1); however, the negative aspects have been emphasized in the literature. According to these sources, negative elements of the IT stereotype are rooted

in the belief that IT managers lack necessary leadership skills, are not strategic in their orientation, and have reduced credibility with their business peers (Peppard 2010; Stewart 2002). IT managers are also perceived as unable to build relationships with their business counterparts (Willcoxson and Chatham 2006). When profiling IT managers' personality and behavioral characteristics, Willcoxson and Chatham (2006) found that the typical IT manager tends to exhibit a task orientation while general managers are more likely to demonstrate a people orientation. This literature characterizes IT professionals as inept in their ability to build effective relationships among executive peers due to their focus on the process rather than the outcome of business initiatives, on solving problems rather than influencing people, and all the while using unshared language (e.g., acronyms). The premise is that, due to their technical background, they lack communication and influencing skills necessary to successfully integrate IT into the business (Peppard 2010). These differences have been labeled as the "techie/business" gap (Peppard and Ward 1999; Pflieger and Zetlin 2006). Despite their business title as "chief" information officer and their burgeoning business acumen, CIOs still complain about being characterized as "techies" and perceived as "geeks" rather than business professionals (Peppard 2010). This study sets out to explain this gap by measuring and validating the IT stereotype. We need to know if it exists and, if it does, how it is manifested.

**Table 1 IT Stereotype: Profiling the Positive and Negative Aspects of IT managers**

Positive Attributes/traits	Negative Attributes/traits
Task-focused <sup>a</sup> deadline-oriented <sup>a</sup> 'focus on business models and processes before focusing on technology' <sup>b</sup> Highly motivated <sup>c</sup> – 'there is no substitute for a CIO's passion for the industry and the business that he or she is in' Politically-oriented <sup>d</sup> ; Savvy negotiator <sup>d</sup> ; Entrepreneur <sup>e</sup>	Poor communicators <sup>a,f,g</sup> 'geeks and not business professionals' <sup>h</sup> 'can't listen –only lecture...they talk at –not to-business managers' <sup>f</sup> Socially inept – unable to build relationships <sup>a,i</sup> Nerd <sup>j</sup> Introvert <sup>j</sup>
<b>References:</b> a (Willcoxson and Chatham 2006); b (Gupta et al. 2009); c (Trandafir 2011; p.72); d (Dawson and Watson 2011) e (Martinotti 2005); f (Keen 1997); g (Cook 2011); h (Peppard 2010); i (Pflieger and Zetlin 2006); j (García-Crespo et al. 2008).	

## Research Questions

Three research questions are posed in this research program:

- R1. What are the dimensions of the IT stereotype?
  - R1.a Is there a general stereotype with multiple dimensions or are there multiple IT stereotypes?
  - R1.b Does the CIO<sup>1</sup> share similar characteristics of the general social category of IT professionals?
- R2. How does the IT stereotype influence decisions making?
  - R2.a What dimensions of the IT stereotype bias decisions related to the role of the CIO?
  - R2.b Under what conditions are the dimensions in R2a more likely to bias decisions related to the role of the CIO?

<sup>1</sup> We use the term "CIO" to refer to the senior IT executive of the organization. This individual may actually hold the title CIO or may hold another title (e.g., IT director, IT manager, IT leader). When we refer to the "role of the CIO", we are also referring to the role of the IT department as reflected in the role of the CIO.

- R3. How does the endorsement of IT stereotypical beliefs held by the CEO relate to the role of the CIO?

## **Theoretical Background and Propositions**

### ***Stereotype Activation and Application***

In general, stereotypes guide our expectations about group members or a person and can color our interpretation of their traits and behavior (Kunda and Thagard 1996). The processes in which this occurs are defined as stereotype activation (i.e., the extent to which a stereotype is accessible in one's mind) and stereotype application (i.e., the extent to which one uses a stereotype to judge a member of the stereotyped group) (Kunda and Spencer 2003, p. 522). Stereotypes can be activated but not applied. For example, encountering an Asian American woman may activate the Asian American stereotype (i.e., the perceivers may experience heightened accessibility of stereotypic traits such as shy and intelligent) but they may abstain from applying this activated stereotype to this individual (i.e., they may not judge her as especially shy or intelligent). If applied, it is assumed that stereotypes have been activated.

Evidence from psychology and organizational studies suggests that activation and application of stereotypes depends on the goals of perceivers (Carton and Rosette 2011; Kunda and Spencer 2003). This phenomenon has been labeled goal-based stereotyping (Kunda and Spencer 2003; Macrae et al. 1995; Sinclair and Kunda 1999). Kunda and Spencer (2003) elaborated on these goals and refer to them as comprehension goals. They argue that perceivers use stereotypes when they need to understand events, reduce the complexity of the environment, gain cognitive clarity, and form coherent impressions.

### ***Subtypes and Subgroups***

Similar to other categories, stereotypes can be organized hierarchically, so that higher-level categories can contain subordinate categories, defined as subtypes or subgroups. A subtype is one way in which perceivers accommodate a person or persons who disconfirm the overall group stereotype (Richards and Hewstone 2001). For example, the characteristics of a Black businessman differ quite sharply from the characteristics of the broader category of Blacks (Devine and Baker 1991). As such, in order to preserve the stereotype of Blacks, perceivers create a category of a Black businessman that is functionally distinct from the category of Blacks. In this case, activating the stereotype of Blacks does not activate the stereotype of a Black businessman and vice versa (Devine and Baker 1991; Sinclair and Kunda 1999). Because subtyping preserves the original stereotype, it reduces the likelihood of changing negative stereotypes about African Americans (Kunda and Oleson 1995). A subgroup is a smaller group within the larger category, but in contrast to a subtype, it includes targets that share many characteristics of the larger group stereotype despite having a few characteristics that are different (Richards and Hewstone 2001). For example, subgroups like grandmotherly type, elder statesman, and senior citizen share many qualities with the superordinate category of the elderly (Brewer et al. 1981). In brief, whereas a subgroup is simply a subset of a broader group, sharing wide stereotype content, a subtype is a functionally distinct group with its own stereotype content that differs widely from the superordinate group.

### **The CIO: A subtype or subgroup of IT professionals?**

Some dimensions of the general stereotype of IT professionals seem to overlap with those of IT leaders, such as the following: task and process focused, lacking necessary leadership skills, not being strategic in their orientation, or being unable to build relationships with their business counterparts (Peppard 2010; Stewart 2002; Willcoxson and Chatham 2006). These stereotypical beliefs are highly influenced by the media where an IT professional is typically portrayed in popular films and shows (e.g., *The IT Crowd*) as someone who is nerdy, intelligent, geeky, who works long hours, and is solitary and socially inept (García-Crespo et al. 2008). These perceptions seem to be held by business leaders who constantly complain about the difficulty of obtaining business value from IT initiatives (e.g., Cramm 2010; Hirschheim et al. 2003; Gupta 2009; Karahanna & Rowe 2006), and often attribute the blame to the incumbent of the IT department (e.g., CIO). The following quotation illustrates this situation: "The CIO is typically regarded as

being a technical person and so only interested in technical matters and discussions and almost excluded from discussions around critical business issues” (Peppard 2010, p. 18).

Although the idea of stereotyping typically refers to stereotypes of individuals based on demographic characteristics (e.g., race, gender), stereotypes also exist for occupational groups. For example, perceivers describe lawyers as extraverted and competent (Kunda and Oleson 1995) and librarians as neat, quiet, and responsible (Weber and Crocker 1983). Occupational roles have been shown in prior research to be the basis for subtyping. For instance, Black businessmen have been identified as a subtype of Blacks; that is, it shares different stereotype content (Devine and Baker 1991). However, occupational groups within the same category tend to have similar stereotype content (i.e., Black businessmen and Black professionals). In addition, the level of social categorization depends upon whether the perceiver is an in-group or out-group member of the stereotyped group (Haslam et al. 1997). This relates to the principles of the in-group heterogeneity and out-group homogeneity. That is, in-group members perceive their own group as more variegated and complex than do out-group members. Therefore, we expect that,

*P1: CEOs will tend to perceive CIOs as members of the stereotyped group of IT professionals; that is, CIOs will be a subgroup of IT professionals.*

### **Application and Inhibition of the Stereotype of Leadership and Strategic Partnership Incompetence of CIOs**

Generally, leaders are evaluated more positively after performance success than after performance failure (e.g., Meindl 1990; Rush et al. 1981). According to attribution theory (Kelley and Michela 1980), people make sense of their environment by making inferences (i.e., attributions) about the attributes of other people, or simple deductions related to cause and effect (i.e., positive outcomes are caused by positive attributes, and negative outcomes are caused by negative attributes). In the context of leadership, a critical aspect of making inferences is that responsibility for outcomes rests with leaders themselves and not with situational factors. Also, perceivers are more likely to base attributions of leaders on performance rather than other outcomes (Carton and Rossette 2011; Meindl and Ehrlich 1987). Empirical evidence of this concept has been applied and extended to the understanding of bias against Black leaders. Carton and Rossette (2011) demonstrated that perceivers applied different stereotypes depending upon whether Black leaders – but not white leaders – succeeded or failed. This study revealed that the stereotype of incompetence was applied strongly to Black leaders after performance failure but inhibited after performance success. Although the romance-of-leadership theory predicts that perceivers tend to make positive attributions after success and negative attributions after failure for both black and white leaders, the irrelevance of the stereotype of incompetence to whites suggests that perceivers will neither promote nor inhibit its applications when evaluating them.

We extend and apply this line of reasoning in explaining the struggles that some CIOs have in becoming strategic partners with business executives as well as in leading IT-strategic initiatives. The dominant belief is that CIOs lack leadership competence (e.g., socially inept, limited knowledge of the business). Consequently, responsibility for an organization’s inability to successfully leverage its business with IT is typically borne exclusively by the CIO (Peppard 2010). Since IT-business initiatives are influenced by various factors (e.g., project management, risk management, technical planning and testing, process change, people skills, motivation), these initiatives are perceived to be complex and sometimes difficult to comprehend and manage (Segars and Chatterjee 2010). Therefore, we suggest that perceivers adopt comprehension goals when they evaluate CIOs in these contexts. Specifically, perceivers achieve these goals via goal-based stereotyping, and thus apply the stereotype of leadership and strategic partnership incompetence depending upon whether CIOs need to be evaluated in the context of success and failure. Therefore, we expect that,

*P2: In the context of an IT-business initiative, the stereotype of leadership and strategic partnership incompetence will be applied and the CIO will be evaluated more negatively than his /her business counterpart. However, the application of these stereotypes will more likely be moderated by the outcome of the initiative (e.g., success vs. failure).*

## CEO's Endorsement of the IT Stereotype and the Role of the CIO

Social categorization theory predicts that people display behaviors in accordance with the content of the stereotype and selectively gather evidence that confirms their beliefs. This behavior illustrates the process known in social psychology as social stereotype confirmation (Klein and Snyder 2003). Social stereotype confirmation derives from the social categorization of the target (e.g., the CIO) and of the activation and application of social stereotypes associated with the target's category membership. Such an interaction, although it involves only two people, can be regarded as essentially an intergroup situation because the perceiver (e.g., CEO) views the target in terms of his or her social identity (i.e., a prototypical member of a social category) rather than as an idiosyncratic individual. Much of the interest in stereotype confirmation process derives from the role this phenomenon plays in the maintenance of stereotypes and in the perpetuation or reproduction of the social structure (Claire and Fiske 1998). Indeed, if members of advantaged groups can influence members of disadvantaged groups into performing the behaviors that confirm their negative expectations, they may thereby reinforce their privileged status in society. For example, if the CEO systematically influences his/her CIO into providing evidence of unreliability or incompetence as a business player, they could then use these behaviors as evidence that CIOs deserve their order-taking (or supporting) role in the organization, thereby curtailing their discretionary ability to perform effectively beyond this limited role (i.e., by reducing budget, downsizing the IT function, underrepresenting the IT function in the board table).

The behavioral consequences of the stereotype confirmation depend on the content of the perceiver's stereotype-based expectation about the target. According to the underlying cognitive strategies of the behavioral confirmation (e.g., avoidance and dominance strategies), discriminatory and prejudicial behaviors can be attributed to the traits associated with the target and to the expected behaviors of the target. That is, it would appear that stereotypes may elicit from perceivers the very behavioral tendencies that make confirmation of those stereotypes likely.

In an organizational context where CEOs may have little understanding of IT, no desire to learn about it, and may harbor negative beliefs about the IT function (e.g., IT costs too much, IT always fails), the everyday pressures of business predispose these executives to adopt IT stereotypes, to form limited if not negative perceptions about CIOs, and thus behave towards them in a biased way. Thus, we can expect the following,

*P4: CEOs holding IT stereotypical beliefs will be less likely to cast the CIO in a strategic role in the organization.*

## Methodology

The research plan is comprised of two related studies to explore these research questions. The first study will assess the content and strength of the IT stereotypes and uncover stereotypes of CIOs relative to stereotypes of IT professionals. The content of the IT stereotypes will be initially derived from a general sample population of Commerce students, graduate students, MBAs and Executive MBAs, and then tested with executives and CEOs. Three different but complementary assessment procedures are included in this multiple-stage development:

**1. Adjective checklist.** A small group of participants (pre-test participants) will be asked to create an open-ended list of adjectives to describe each of 6 different business titles (e.g., marketers, Human Resources, finance/accounting, operations and IT.). From this, we will develop an initial list of traits which will be compared and enhanced with traits found in the literature. This list of traits will be given back to participants to select the five most relevant traits.

**2. Free response.** Free responses capture attributes that are central to people's stereotypes. A small group of respondents (pre-test participants) will be asked to list as many characteristics or traits they associate with IT professionals, general managers, and CIOs. In this step, we will also gather stereotypes of issue competencies by asking respondents to "list as many specific issues associated with leadership and partnerships (e.g., strategic and business) in organizational context, as people in general think the following group is capable of handling. Each participant will list popular traits and issues competencies for all of the groups.

Using the most popular traits and issues mentioned by pretest respondents, combined with traits, we will develop a comprehensive checklist of traits and issues.

**3. Rating scale.** The rating scale measures the strength of the IT stereotype. The rating scales will be added to the list of traits to measure the extent to which each trait or behavior is stereotypical or counterstereotypical of each group.

After the pretest development of a list of traits and issues, a separate study will test which traits and competencies (as well as the strength of these beliefs) apply to each group. We will randomly assign participants to evaluate one of the three groups: general managers (business executives), IT professionals, and CIOs. The scale will be further validated in study 2.

The second study will assess the implications of holding stereotypical beliefs (found in study 1) on the role of the CIO within the organization. This study will investigate propositions 2 and 3 and consist of two phases. The first phase includes a survey-controlled experimental task that tests whether the exposure to “IT labeling” can evoke stereotypes, resulting in a biased judgment toward the evaluation of the CIO in an organizational context. Specifically, in this phase we assess whether using elements associated with the CIO (i.e., using words or statements such as IT leader, knowledge or experience in technology) activates aspects of the CIO stereotype (e.g., leadership and strategic partnership incompetence) when the CIOs are to be evaluated in sensitive organizational contexts that can induce stereotype application. Participants will be provided with a description of an IT-business case failure (success) and asked to attribute responsibility for this failure (success), in addition to other dependent variables that indirectly assess the presence of stereotypical beliefs.

The experiments will be a 2 (Stereotype: Activation and non-activation) x 2 (context: success, failure) between-subjects design. The manipulation will be randomly assigned to one group of the CEOs. It is expected that this group, in which the stereotype is strongly endorsed (stereotype activation condition) will blame the CIO for the failure. However, in the success condition, the responsibility is expected to be evenly distributed between the CIO or IT department and the business side.

The results of these studies will further confirm whether CIOs are perceived as a subtype or subgroup of the global social category of IT professionals. The prediction will be that for CEOs (perceivers) who have a more refined CIO stereotype (i.e., the stereotypical attributes of CIOs differ quite sharply from the stereotypical attributes of IT professionals in general), the effects of the application of the general IT professional stereotype will be smaller. But, CEOs who do not hold the refined CIO stereotype will most likely rely on the general IT stereotype (i.e., the CIO is then classified as a subgroup of the general IT stereotype). The development of this task requires a set of calibration studies in which the indirect measures that captures stereotype activation and application will be undertaken

As part of phase 2, the participants will also be asked to respond to the scale developed in study 1 (i.e., rate stereotypical and counter stereotypical traits and behaviors of CIOs in general), questions related to their CIO’s involvement in business strategy, CIO-CEO reporting, and demographics. The details of these measures are as follows:

**CIO’s involvement in business strategy.** This measure will elicit perceptual information about the CIO’s involvement in business strategy decisions in the organizations. A similar measure approach is used in Armstrong and Sambamurthy (1999) and Saldanha and Krishnan (2011).

**CEO-CIO reporting.** This measure will be a binary indicator for whether the CIO reports to the CEO. This measure will be taken from Law and Ngai (2007).

## **Anticipated Contributions**

The proposed study will contribute to the academic community. First, it will empirically and theoretically ascertain the existence of the IT stereotype - a common but untested assumption. By examining the content of the stereotypes of three professional groups (e.g., IT professionals, CIO, and general managers), it will also examine whether perceivers apply their negative stereotypes of IT professionals to CIOs. Second, the study will explore the biasing effects of these stereotypical beliefs in decisions related to the CIO role. This allows us to extend previous theoretical and empirical work on understanding the gap between the relationship between the IT organization and the rest of the business. Third, this research



will develop a tool for assessing the content and strength of the IT stereotype - a necessary foundation for examining the organizational effects of the IT stereotype.

The use and application of different stereotype assessment procedures will allow us to examine attributes of the IT stereotypes that have not previously been studied and enable us to derive a model of improved stereotype assessment procedures for future studies of other professional stereotypes. The identification of these additional attributes and comprehensive assessments are important from a methodological perspective in the study of interactions among professional groups because, the more scholars know about what senior managers believe, the more apt they are to detect bias. In our case, detecting where bias does and does not occur in the interactions between CIOs and other business executives has theoretical implications for a broader understanding of the organizational role of the IT function.

The proposed study will also contribute to the practitioner community. By establishing the content and strength of stereotypes of IT professionals and CIOs/IT leaders, we can better understand the role of the CIO, and ultimately of the IT department in the organization. To date, the role of the CIO is fraught with ambiguity (Peppard et al. 2011). Scholars indicated that this ambiguity is rooted in the multiple roles of the CIO found in the industry, which in turn, is determined by the information and technology strategy of the organization as well as the maturity of the information leadership capabilities Peppard et al. 2011). This study will provide practitioners with a new explanation for this ambiguity and argue that the uncertainty of this role can also be rooted in the existence and salience of stereotypical beliefs held by business executives. Specifically, we argue that negative stereotypes prevent CIOs/IT leaders to take stronger and more proactive leadership roles in their organizations (e.g., Board member). That is, when negative IT stereotypes are salient within an organizational context, these beliefs limit the potential for the CIOs/IT leaders to exert strategic influence and may ultimately jeopardize IT-enabled initiatives.

In sum, exploring IT stereotypes, their antecedents, and their behavioral effects, will enhance our understanding of the role of CIO and the IT organization particularly with respect to the creation of IT-enabled business value.

## References

- Allport, G. W. 1979. *The Nature of Prejudice*, Basic books.
- Armstrong, C. P., and Sambamurthy, V. 1999. "Information Technology Assimilation in Firms: The Influence of Senior Leadership and IT Infrastructures," *Information Systems Research* (10: 4), pp. 304–327.
- Bielby, W. T. 2000. "Minimizing Workplace Gender and Racial Bias," *Contemporary Sociology* (29:1), pp. 120–129.
- Brewer, M. B., V. Dull, and L. Lui. 1981. "Perceptions of the Elderly: Stereotypes as Prototypes," *Journal of Personality and Social Psychology* (41:4), pp. 656–670.
- Carton, A. M., and A. S. Rosette. 2011. "Explaining Bias Against Black Leaders: Integrating Theory on Information Processing and Goal-Based Stereotyping," *The Academy of Management Journal* (54: 6), pp. 1141–1158.
- Cook, T. 2011. "Need a New CIO? Why Firms Are Opting to Try Before They Buy | TechRepublic," <http://www.techrepublic.com/blog/cio-insights/need-a-new-cio-why-firms-are-opting-to-try-before-they-buy/39748198>.
- Claire, T. and Fiske, S. 1998. "A Systemic View of Behavioral Confirmation: Counterpoint to the Individualist View," In C. Sedikides, J. Schopler, and C.A. Inski (Eds), *Intergroup Cognition and Intergroup Behavior*, pp. 205–231. Mahwah, NJ: Lawrence Erlbaum Associates, Inc.
- Cramm, S. 2010. *8 Things We Hate About IT: How to Move Beyond the Frustrations to Form a New Partnership with IT*. Boston, Massachusetts: Harvard Business School Press.
- Dawson, G. S., and Watson, R. T. 2011. "Uncovering and Testing Archetypes of Effective Public Sector CIOs," *ACM Transactions on Management Information Systems (TMIS)* (2:1), pp. 5–19.
- Devine, P. G., and S. M. Baker. 1991. "Measurement of Racial Stereotype Subtyping," *Personality and Social Psychology Bulletin* (17:1), pp. 44–50.
- Dovidio, J. F., Brigham, J. C., Johnson, B. T., and Gaertner, S. L. 1996. "Stereotyping, Prejudice, and Discrimination: Another Look," in *Stereotypes and Stereotyping*, C. N. Marrae, C. Stangor, and M. Hewstone (eds.), Guilford Press pp. 276–319.
- Falkenberg, L. 1990. "Improving the Accuracy of Stereotypes within the Workplace," *Journal of Management* (16:1), pp. 107–118.
- Fisk, S. T., and Neuberger, S. L. 1990. "A Continuum of Impression Formation, from Category-based to Individuating Processes: Influences of Information and Motivation on Attention and Interpretation," in *Advances in Experimental Social Psychology*, M. P. Zanna (eds.), New York: Academic Press. pp. 1–74.
- Fiske, S. T. 1993. "Controlling Other People: The Impact of Power on Stereotyping," *American Psychologist* (48:6), pp. 621–628.
- García-Crespo, A., Colomo-Palacios, R., Gómez-Berbis, J. M., and Tovar-Caro, E. 2008. "The IT Crowd: Are We Stereotypes?," *IT Professional* (10:6), pp. 24–27.
- Gupta, K., Wilderom, C., and Hillegersberg, J. 2009. "Exploring the Behavior of Highly Effective CIOs Using Video Analysis," <http://doc.utwente.nl/78002/>.
- Hamilton, D. L., and J. W. Sherman. 1994. "Stereotypes" in Wyer, Robert S., Jr. and Srull, Thomas K (Eds). *Handbook of social cognition*, Vol. 1: Basic processes; Vol. 2: Applications (2<sup>nd</sup> ed.), Hillsdale, NJ, England: Lawrence Erlbaum, pp. 1–68.
- Hamilton, D. L., Sherman, S. J., and Ruvolo, C. M. 1990. "Stereotype-based Expectancies: Effects on Information Processing and Social Behavior," *Journal of Social Issues* (46:2), pp. 35–60.
- Haslam, S. A. 1997. "The Group as a Basis for Emergent Stereotype Consensus," *European Review of Social Psychology* (8:1) pp. 203–239.
- Heilman, M. E. 1995. "Sex Stereotypes and Their Effects in the Workplace: What We Know and What We Don't Know," *Journal of Social Behavior & Personality* (10:6), pp. 3–26.
- Hirschheim, R., Porra, J., and Parks, M. S. 2003. "The Evolution of the Corporate IT Function and the Role of the CIO at Texaco: How Do Perceptions of IT's Performance Get Formed?" *ACM SIGMIS Database* (34:4), pp. 8–27.
- Karahanna, E. and Rowe, F. 2006. "Development of Shared Understanding Between the Chief Information Officer on Top Management Team in U.S. and French Organizations: A Cross-Cultural Comparison," *Engineering Management IEEE Transactions* (53:2), pp. 191–206.

- Kelley, H. H., and Michela, J. L. 1980. "Attribution Theory and Research," *Annual Review of Psychology* (31:1), pp. 457-501.
- Keen, P. 1997. "It's Time for IS to Learn Civility," *Computer World*, pp. 86.
- Kunda, Z. 1999. *Social Cognition: Making Sense of People*. The MIT Press.
- Kunda, Z., and K. C. Oleson. 1995. "Maintaining Stereotypes in the Face of Disconfirmation: Constructing Grounds for Subtyping Deviants," *Journal of Personality and Social Psychology* (68:4), pp. 565-579.
- Kunda, Z., and Spencer, S. J. 2003. "When Do Stereotypes Come to Mind and When Do They Color Judgment? A Goal-based Theoretical Framework for Stereotype Activation and Application," *Psychological Bulletin* (129:4), pp. 522-544.
- Kunda, Z., and P. Thagard. 1996. "Forming Impressions from Stereotypes, Traits, and Behaviors: A Parallel-constraint-satisfaction Theory," *Psychological Review* (103: 2), pp. 284-308.
- Klein, O., and Snyder, M. 2003. "Stereotypes and Behavioral Confirmation: From Interpersonal to Intergroup Perspectives," *Advances in Experimental Social Psychology* (35:1), pp. 153-234.
- Law, C. and. Ngai, E. 2007. "ERP Systems Adoption: An Exploratory Study of the Organizational Factors and Impacts of ERP Success," *Information & Management* (44: 4), pp. 418-432.
- Meindl, J. R. 1990. "On Leadership: An Alternative to the Conventional Wisdom," *Research in Organizational Behavior* (12:1), pp. 159-203.
- Meindl, J. R., and Ehrlich, S. B. 1987. "The Romance of Leadership and the Evaluation of Organizational Performance," *Academy of Management Journal* (30:1), pp. 91-109.
- Macrae, C. N., G. V. Bodenhausen, and A. B. Milne. 1995. "The Dissection of Selection in Person Perception: Inhibitory Processes in Social Stereotyping," *Journal of Personality and Social Psychology* (69: 3), pp. 397-407.
- Martinotti, S. 2005. "The CIO as Leader of Business Innovation Strategies Enabled by Disruptive Technologies." *MBA Project*.  
<http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.108.7801&rep=rep1&type=pdf>.
- Peppard, J. 2001. "Bridging the Gap Between the IS Organization and the Rest of the Business: Plotting a Route," *Information Systems Journal* (11:3), pp. 249-270.
- Peppard, J. 2010. "Unlocking the Performance of the Chief Information Officer (CIO)," *California Management Review* (52:4), pp. 73-99.
- Pfleging, B., and Zetlin, M. 2006. *The Geek Gap: Why Business and Technology Professionals Don't Understand Each Other and Why They Need Each Other to Survive*. Amherst, NY: Prometheus Books.
- Richards, Z., and M. Hewstone. 2001. "Subtyping and Subgrouping: Processes for the Prevention and Promotion of Stereotype Change," *Personality and Social Psychology Review* (5:1), pp. 52-73.
- Rush, M. C., Phillips, J. S., and Lord, R. G. 1981. "Effects of a Temporal Delay in Rating on Leader Behavior Descriptions: A Laboratory Investigation," *Journal of Applied Psychology* (66:4), pp. 442-450.
- Saldanha, T., and M. Krishnan. 2011. "Leveraging IT for Business Innovation: Does the Role of the CIO Matter?" In *Proceeding of the International Conference on Information Systems*, paper 17.
- Segars, A. and Chatterjee, D. 2010. "Diets That Don't Work: Where Enterprise Resource Planning Goes Wrong," *The Wall Street Journal*, August 23.
- Sinclair, L., and Z. Kunda. 1999. "Reactions to a Black Professional: Motivated Inhibition and Activation of Conflicting Stereotypes," *Journal of Personality and Social Psychology* (77: 5), pp. 885-904.
- Schneider, D. J. 2004. *The Psychology of Stereotyping*, The Guilford Press.
- Stewart, G. 2002. "Uncovering Implicit Leadership Beliefs: Variation between Information Technology (IT) Executives and Business Executives in a Public Service Agency," *International Journal of Organizational Behavior* (5:4), pp. 163-79.
- Trandafir, C. 2011. "The CIO's History, Present and Future," *New Trends in Information Resources Management*, 67.
- Tu, Z., and Mckeen, J. D. 2011. "Determinants of Business Students' Perceptions Regarding Information Systems," in *Proceedings of the 2011 Administrative Sciences Association of Canada (ASAC) Conference*, Montreal, Canada, July 2-5, 2011.
- Weber, R. and Crocker, J. 1983. "Cognitive Processes in the Revision of Stereotypic Beliefs," *Journal of Personality and Social Psychology* (45:5), pp. 961-977.
- Willcoxson, L., and Chatham, R. 2006. "Testing the Accuracy of the IT Stereotype: Profiling IT Managers' Personality and Behavioural Characteristics," *Information & Management* (43:6), pp. 697-705.

Wittenbrink, B., Gist, P. L., and Hilton, J. L. 1997. "Structural Properties of Stereotypic Knowledge and Their Influences on the Construal of Social Situations," *Journal of Personality and Social Psychology* (72:3), pp. 526-543.