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Theoretical Trends in IS/T Leadership: A Review of Published Research

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ABSTRACT

One way to examine the research contribution in structuring knowledge about an Information system (IS) phenomenon is to understand its theoretical state, trends and traits (structural nature of theory). We performed a theoretical assessment of one specific IS phenomenon: Information systems/technology (IS/T) leadership. IS/T leadership is a process followed by the top IS executives to affect various stakeholders to achieve the IS/T related goals aligned with the organizational mission and vision. We performed a systematic literature review, and categorized the surveyed articles based on the Gregor's taxonomy of theory types in IS research to identify the type of theories developed and used in IS/T research. Our findings demonstrate the interest in theory used for explaining and predicting IS/T leadership research.

Keywords

IS Leadership, Leadership, Leadership traits, Gregor's theory taxonomy

INTRODUCTION

IS/T leadership plays an important role in achieving organizational goals. This fact is universally accepted but its nature and impact are still not very well understood (Maclean, E. & Smits, S., 2003). IS/T leadership can be defined as the *process in which the top IS executive follow to induce other people inside and outside the IS environment to attain IT related and other organizational goals* (Eom, M., 2003). The IS leadership research's roots span from various facets and includes topics like leadership traits, behavior, roles, responsibilities, relationship with the firm performance, and strategic alliances (Ghawe, A. & Brohman, K., 2016).

A phenomenon of such interest, which has its roots in the intersection of technology and its use in the organizations deserves a great interest within the IS discipline's academic community. One way to measure the contribution of research in structuring knowledge about an Information system (IS) phenomenon is to understand its theoretical state, trends and traits (structural nature of theory). Use of the theory by the researchers in their discipline shows the maturity of the research as well respect to the field (Pettigrew & Mckechnie, 2001; Hauser, 1988). In the past, several IS researchers raised the concerns for the perceived maturity of the IS field; and whether the IS field should be considered as a reference discipline (Baskerville & Myers, 2002; Weber, 2003). In response to this, several IS researchers have called upon increase in awareness among the IS research practitioners on the development of the theory in the IS field (Gregor, 2006; Weber, 2001; Weber, 2003). In line with Weber's challenge, the aim of this research is to understand the theoretical contributions of an important IS phenomenon: Information systems/technology (IS/T) leadership.

To organize our review, we use Gregor's taxonomy of theory types in IS research. Gregor *describes theory as an abstract entity that aims to describe, explain, and enhance the understanding of the world, and in some cases, predict outcomes in the future*. Gregor (2006) proposes a taxonomy for theories in IS which broadly categorizes theories into five major divisions. A summary of the five types is given in Table 1.

Theory Type	Distinguishing Attributes
1. Analysis	The research question(s) focus on "what is the phenomenon". Theory main aim is analysis and description. Theory does not focus on causality and predictions.

2. Explanation	The research question(s) focus on “what is, how, why, when, and where of the phenomenon”. Theory focus is to explain about the phenomenon and not to predict. Missing testable propositions.
3. Prediction	The research question(s) focus on “what is and what will be of the phenomenon”. Theory provides predictions and has testable hypotheses about the phenomenon but does not have well-developed causality.
4. Explanation and Prediction	The research question(s) focus on “what is, how, why, when, where, and what will of the phenomenon”. Provides predictions and has both testable propositions and causal explanations about the phenomenon.
5. Design and Action	The research question(s) focus on “how to do something”. Theory provides prescriptions about methods, techniques, and guiding principles for constructing an artifact.

Table 1. A Taxonomy of Theory Types in Information System Research (Gregor 2006)

RESEARCH METHOD

Our research follows the foundational literature review process prescribed by Webster and Watson (2002). Our review focuses on the top five IS journals (Clark et al. 2011) as per the rankings provided in. The five IS journals included in our analysis are MIS Quarterly (MISQ), IS Research (ISR), Journal of MIS (JMIS), Communications of the Association for Information System (CAIS), European Journal of IS (EJIS).

Our study covered the time frame from January 2007 to December 2017. For our literature search, we used the following keywords: “Global IS Leadership”, “Chief Information Officer - CIO”, “IT/IS Leadership”, and “Leadership”. We also used “Leadership” as a search keyword as we observed that “Leadership” and “IS Leadership” were used interchangeably. This initial search identified a list of 44 published articles on IS/T leadership. After an in-depth review of these articles, 26 articles were included. Excluded articles either did not aim to theorize on IS/T leadership or were only referencing to IS/T leadership.

Analysis Procedures

For a detailed analysis of the selected research articles, we classified the articles based upon the definition of theory types as defined by Gregor (2006). The definition of theory types is provided in Table 1. For this study, a theory is identified, as prescribed by Gregor (2006), we identified the theory component – *way of representation, primary constructs, statement of relationships, scope, causal explanation, testable proposition, and prescriptive statements*. For example, we categorize the article “Charismatic leadership and user acceptance of information technology” (Neufeld, et al., 2007) as “theory for explaining and predicting” theory type based on the following evidence found in the paper: “*This paper integrates the unified theory of acceptance and use of technology (UTAUT) with charismatic leadership theory, and examines the role of project champions influencing user adoption. PLS analysis of survey data collected from 209 employees in seven organizations that had engaged in a large-scale IT implementation revealed that project champion charisma was positively associated with increased performance expectancy, effort expectancy, social influence and facilitating condition perceptions of users.*”

Table 2 shows the frequency of published IS/T leadership articles and their associated theory types. Table 3 shows the use of various theories in IS/T leadership along with the reference discipline of the theory and classification of the surveyed article based on Gregor’s taxonomy.

<i>Theory Types</i>	<i>Frequency</i>	<i>Percent</i>
1. Analysis	0	0
2. Explanation	6	23%
3. Prediction	3	12%
4. Explanation and Prediction	17	65%

5. Design and Action	0	0
Total	26	100.0

Table 2. Frequency of published articles based on Gregor's taxonomy of theory types

<i>Theory Used</i>	<i>Theory Type</i>	<i>Purpose</i>	<i>Reference Discipline</i>	<i>Referred article</i>
Transformational Leadership Theory	4. Explanation and Prediction	To examine the relationships between managers' leadership behavior and user technology beliefs.	Political Science, Management	Dong et al., 2007
Transformational Leadership Theory	2. Explanation	The role of the leader in a period of technological change.	Political Science, Management	Agarwal et al., 2011
Transformational Leadership Theory	2. Explanation	Identification of various organizational, technological, and individual issues of IT employees across the world and establishing a relationship with cultural and organizational factors.	Political Science, Management	Palvia et al., 2017
UTAUT & Charismatic Leadership	4. Explanation and Prediction	Effect of the leadership.	Information System, Management	Neufeld et al., 2007
Contingency Theory & Institutional Theory	4. Explanation and Prediction	Proactive or Reactive leaders and influence on IT innovation and firm alignment.	Management	Lu et al., 2011
Theory of planned behavior	4. Explanation and Prediction	Influence of organizational and cognitive factors on ERP assimilation at individual level.	Psychology	Liu et al., 2011
Theory of Behavioral Complexity in Leadership & Quinn's Model of Leadership Roles	4. Explanation and Prediction	Virtual Team Leaders and conflict.	Interdisciplinary	Wakefield et al., 2008
Control theory	3. Prediction	Structure the software development environment managed by the project manager to optimize the agile project management goals.	Sociology	Maruping, et al., 2009
leader-member exchange theory	4. Explanation and Prediction	Leadership style and its impact on member participation in online collaborative work communities.	Interdisciplinary	Oh et al., 2016
leader-member exchange	4. Explanation and Prediction	A study of congruence between a project manager and a team member in regard to influence tactics.	Interdisciplinary	Narayanswamy et al., 2013
Institutional Theory	4. Explanation and Prediction	Sustainability of a firm's IT capability reputation.	Interdisciplinary	Lim et al., 2013

Social Capital Theory	4. Explanation and Prediction	Effects of social capital and organizational value creation between CIO and TMT.	Interdisciplinary	Karahanna et al., 2013
Agency Theory	4. Explanation and Prediction	Project leader cultural values and offshore IS project success.	Financial - economics	Rai et.al., 2009
Agency Theory & Resource Dependence Theory	4. Explanation and Prediction	Operational IT failure and changes in firm's board-level IT governance.	Financial - economics	Benaroch et al., 2017

Table 3. Use of theories in IS/T leadership research.

OUTCOME AND DISCUSSION

Our analysis of the theoretical foci of IS/T leadership using Gregor's taxonomy of theory types leads to a number of observations.

The results suggest that theory Type - Explanation and Prediction is most prevalent among the five theory types. 17 articles were classified in this category. The second largest group is Theory for Explanation with 6 out of 26 followed by Theory for Prediction with 3 out of 26. Our analysis suggests, no theoretical contribution for the Theory for Design and Action, and Theory for Analysis. This result may be because we reviewed articles from the top 5 journals. Publications from the top-quality journals are expected to be well grounded in theory.

As can be seen in table 3, the IS/T leadership research utilized theories from a wide range of established disciplines. These theories borrowed from other disciplines used either to help develop a theoretical model to justify the research under investigation or to develop propositions and hypotheses. These theories from other disciplines were used to explain various IS/T leadership research such as - IS leader behavior (like leadership style, role, and other behavioral attributes for effective IT leaders), IT governance (project management and risk management), organizational factors (strategic alignment of business and IT, culture, structure of organization), technology (IS leadership for collaborative technology like group support system and virtual world, ERP, & ICT), and various outcomes of effective IS leadership like IS effectiveness, IS performance, and IS adoption.

CONCLUSIONS

Although limited in scope to the top 5 IS journals, this structured review investigates the type of theories developed, and used in IS/T leadership research. Our findings demonstrate the theoretical research roots of IS/T leadership research span across various disciplines such as political science, management, sociology, and Information Systems. Our observations reveal that sixty five percent of the surveyed articles are explanatory and predicting in nature, tested through statistical methods and qualitative data. Most of the articles used established theories to justify or motivate research questions or hypotheses. Theoretical research in these top 5 journals to create design related artifacts, and to describe or classify the IS/T leadership related research is least common. The IS/T leadership research still needs to grow its own theoretical roots. As suggested by weber (2003), interest and efforts to develop its own body of theory is warranted. Our findings also suggest, there are many IS/T-related research that are not theory-driven.

We acknowledge that additional study needs to be done. We employ the literature survey for past decades focusing only the top 5 IS journals, but for future studies, we can use the "going forward" technique described by Webster and Watson (2002) to explore more IS/T related research and its theoretical contributions. Finally, future research should further focus on the domain, structural, epistemological component of the theories to get deeper understanding of the theories used in IS/T leadership research.

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