Integrating ICT adoption issues into (e-)leadership theory

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A B S T R A C T

Information and communication technologies (ICTs) are having a profound effect in society and organizations. However, the literature on ICT adoption—from selection to implementation—has not been well integrated into leadership theory. This is particularly true in terms of adoption. Leaders must adopt ICTs not only for their own competence—an antecedent condition for what is considered e-leadership, but choose, recommend, and support implementation of ICTs for their organizations/units to use. Leaders are also expected to become effective in dealing and navigating the challenges of leading within the digital space. At this moment, there are two pertinent literatures: the technology adoption literature and the enterprise resource planning literature—which can be considered an important special case of leadership change management literature—and which could provide the theoretical basis for developing a unified theoretical perspective on e-leadership. This article provides a framework and propositions to connect these literatures by focusing on the effects of individual leader characteristics on the ICT adoption process from both a personal and enterprise-wide perspective. Study limitations and future research opportunities are outlined.

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1. Introduction

The digital revolution has increased the amount of information that can be computed and stored, as well as the amount and flexibility of communication (Hilbert and Lopez, 2011). Digitalization has become so important that countries are now ranked on their information and communication technology (ICT) maturation, with Korea, Denmark, Denmark, and Sweden being current leaders, and the US lagging to 15th place (ITU 2015). Cities, too, are ranked on digital governance, with Seoul, New York and Hong Kong leading the way (Holzer et al., 2014). For executives, according to the Harvard Business Review, technology skills are now among the seven most prized skills (Groysberg, 2014). Organizational technology adoption decisions have become exceptionally important, because they must be timely and require a major startup investment (Tyre and Orlikowski, 1994; Brown, 2007), and because poor initial choices have enormous down-stream effects that have been widely reported in the public sector (Anthopoulos et al., 2016). The digital phenomenon has had a huge impact on governments around the world that seek to adopt ICTs to increase their efficiency and effectiveness, inclusiveness, and transparency (e.g., Fishenden and Thompson, 2013; Cordella and Tempini, 2015; Janowski, 2015; Janssen and van der Voort, 2016), while maintaining privacy (e.g., Clark, 2015), security (e.g., Diersing, 2015), and risk management concerns (e.g., Zraick, 2015; GAO, 2016). This is reflected in citizens' heightened demands for more and better digital services (Veto, 2015; U.S. Digital
organizations, via complex and expensive enterprise resource platforms (ERPs), has become an enormously important ICT
and transaction processing systems, among others. The integration of information and communication technologies in
e-leadership—ICTs for personal communication use.

but useful, distinction between ICTs for a variety enterprise-wide functions, and a narrower subset much highlighted in
distinctions for future research.

Given the massive opportunities and challenges, skills at adopting new technology for both personal use and organiza-
tional purposes have become critical. Leaders who are poor at personally adopting new technologies are less effective and
and poor role models (Van Wart, 2015). In the organizational context, leaders must know when and how to adopt new technolo-
gies and how to implement them successfully; failures and overruns can end up costing their agencies billions of dollars
(Flood, 2013). Across sectors, expert estimates show that 20 percent of all new technology adoption projects fail entirely,
and 60 percent underperform, but that government projects are challenged at even higher levels (Kimberling, 2015). The
Chief Executive Officer of Booz & Company stated the answer to the challenge of coping with the opportunities and
challenges of technological change was to be “rigorously and prudently selective” (Mainardi, 2014, ix). Leaders with poor
personal information technology skills not only limit their options, but are generally seen as less effective (e.g., forthcoming
by author). Yet technology skills across government are lagging, with a recent report finding that a gap in digital-related
skills was reported by 81 percent of federal employees (Government Business Council, 2015). The top-reported problems
regarding poor personal virtual leadership skills include increased employee isolation, confusion, miscommunications, com-
munication overload, problems with interpersonal trust, issues with motivation, and weakened accountability among others
(Jarvenpaa and Tanriverdi, 2003; Goldfinch, 2007; Malhotra et al., 2007; Snellman 2014).

The importance of developing a “digital” skillset (e-skillsset) for leaders has led to the creation of the new subfield of
e-leadership. E-leadership has been defined as “a social influence process embedded in both proximal and distal contexts
mediated by AIT [advanced information technology] that can produce a change in attitudes, feelings, thinking, behavior,
and performance” (Avolio et al., 2014, 107). However, Avolio et al. also asserted this area of study “remains at the very nas-
cent stages of development” (106), and “the gap between the practice and implementation of AIT and what we know about
its effects has grown” (126). Additionally, it is also recommended that researchers look at interaction effects of leaders and
organizations as reflected in adaptive structuration theory. While institutional determinants such as organizational charac-
teristics have been examined (e.g., Lee, 2008; Wang and Feeney, 2016), antecedent conditions for e-leadership have not.
The question of why some ICTs are adopted when others are not has been extensively discussed in the technology adoption
literature, but has not been integrated into the leadership literature to date. Even more importantly, the question about
the role of leaders adopting ICTs has been unaddressed. We know from the innovation literature that the role of managers
and leaders is substantial in promoting change (e.g., Damanpour and Schneider, 2009), but it only tells us that pro-
inovation attitudes are helpful. What it does not tell us is what traits, skills, styles, and behaviors lead some leaders to
do a better job at adoption than others. This begs the question, are there differences in the traits, skills, styles and behaviors
based on different situations, such as a leader adopting an ICT for personal use or for adoption by the organization at large?
While there are some important similarities, there are key differences as well. Until there is a better understanding of lead-
ers’ roles in adopting ICTs for their personal use and organizational purposes, there is unlikely to be meaningful progress in
theory development. That is the focus of this article.

This article begins with a discussion and definition of ICTs which can have a variety of meanings in different contexts.
That is followed by a discussion of leaders’ roles in selecting ICTs and our expanded definition of e-leadership to include
adoption skills. Next, we discuss what we can learn from the technology adoption literature and where it falls short from
a leadership theory perspective. From this gap, the article discusses adapting a prominent technology adoption model
and concepts into one more suitable for the study of leadership. The conclusion includes study limitations and recommenda-
tions for future research.

2. Defining ICTs

The term ICT has many definitions (see Zuppo (2012) for a good discussion). In different contexts it is used to refer to: (1)
information and communication systems that provide broad functionalities such as an office information system, (2)
technological tools used by individuals to communicate, and (3) the evolving field of information and communication tech-
nology as a whole (ITU, 2015). For the purpose of this discussion, we use the first two definitions because they make a rough,
but useful, distinction between ICTs for a variety enterprise-wide functions, and a narrower subset much highlighted in
e-leadership—ICTs for personal communication use.

Enterprise-wide information and communication technology systems include communication systems, decision and sup-
sport systems, knowledge and learning management systems, database management systems, office information systems,
and transaction processing systems, among others. The integration of information and communication technologies in
organizations, via complex and expensive enterprise resource platforms (ERPs), has become an enormously important ICT
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