Towards a Reference Framework for Generational Analyses on Information Technology Professionals

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ABSTRACT

In light of the sociology of generations, this theoretical trial relates literature on information technology (IT) professionals, IT professional management, IT project teams, and generational studies to elaborate a reference framework that supports the research on the intergenerational dynamics of the field. The proposed framework offers a definition and structure for the concept of IT generation and contemplates the dimensions related to (1) technological contemporary changes, (2) culture bearers, (3) continuous nature of generational change, (4) generational succession, (5) knowledge transmission and sharing, and (6) intergenerational conflict, allowing future empirical research on the IT generational phenomena.

KEYWORDS

IT Generation, IT Generational Dynamic, IT Professionals, IT Teams

INTRODUCTION

The term “information technology” (IT), as a specific term, has its origins in the 1950s, when Leavitt and Whisler (1958) anticipate the impact of sociological, political and cultural approaches to an organizational context traditionally occupied by engineers and mathematicians, and state “The new technology does not yet have a single established name. We shall call it information technology” (p. 41).

IT is, therefore, the nomenclature that embraces these multiple knowledge domains and it is, from a sociotechnical perspective, a study area that investigates and explains the effectiveness of computational artifacts in the organizational scope, since it contemplates the technical (technology and processes) and social (structures and people) levels in the organizations.

The IT professional is the individual who acts in IT activities and is paid for his/her work. According to Bureau and Suquet (2009), this generally involves tasks related to design (system analysis, computer programming, system implementation, system testing, requirement elicitation), management (of projects, teams and resources) and use (technical support, operational support, training, etc).

The specialists who built the IT field originated from different professional communities (mathematicians, physicists, engineers, etc.) – since there was no academic formation in IT – and were trained by computer manufacturers. Currently, IT professionals are formed mainly by formal education processes (Grajek, 2011; Segre and Rapkiewicz, 2003), but the influence of technology providers remains (De Moura Jr and Helal, 2014).

The IT industry formally employs high proportion (80%) of young individuals in IT related jobs (Olinto, 2005; Ieger and Bridi, 2014), which is considered proportionately higher than observed for this same age group in the EAP (economically active population) of other professions. These young

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professionals generally act in teams, composed of a small number of professionals with complementary capacities and skills (Katzenbach and Smith, 2003; Mathieu et al., 2000; Peled, 2000).

Team composition have been investigated from the academic-scientific and managerial perspectives (Burnes, 2006). Studies have been conducted more frequently on member personality traces (Devaraj et al., 2008; Siau et al., 2010), leadership and group sense (Graham et al., 2009; Mumford et al., 2002; Tsai et al., 2012) and knowledge creation and sharing (Jakubik, 2011; Salazar et al., 2012).

It is known that values, principles and behaviors of a professional group or subgroup can be defined by a shared worldview (Mannheim, 1993). As a result, sharing a specific worldview, roughly, can help identify a professional generation in the organizational environment. Notwithstanding, a brief incursion into the literature related to generations and IT suggests a peculiar absence of the theme as an object for recent research. With exception for the study of Joseph et al. (2010), for example, who discusses the set of skills demanded from IT professionals, literature in this field seems to be concentrated at the end of the last century (Myers, 1991).

Explanations why this subject has suffered from disinterest for over a decade escape the scope of the present study, but it is unreasonable to believe that it be no longer relevant, specially when the role of the IT professional presents critical social implications, as is the case with intense IT application in medical procedures and healthcare management, traffic control, or conduction of autonomous vehicles, for instance (Lurie and Mark, 2016).

On the other hand, the increasing occurrence of unethical behavior among IT professionals, recently illustrated by incidents involving the automotive industry (Borenstein et al., 2017; Lurie and Mark, 2016), reinforces the attention that must be given to the values and principles maintained by each professional generation. Based on these assumptions, this theoretical essay introduces the following question: What would an adequate reference framework be for analyzing IT professional generations?

Whereas IT professionals make up a unique professional group, since (a) they share a particular need to constantly acquire and master new knowledge and experience in order to remain employable; (b) such knowledge and experience does not presuppose any formal educational credentials (eg from universities); and (c) they share a common lexicon, often linked to a specific technology and methodology (Joia and Mangia, 2017; De Moura Jr and Helal, 2014), such a framework for analysis of IT professional generations would alleviate the complexity of IT team and project management, by promoting a better understanding of diversity (team composition), technology (skills), knowledge sharing (attitude to) and worldview roles on team performance and team conflict.

The answer to that research question (including the proper definition of IT professional generation) requires (1) characterization of the IT professional, (2) the performance of this professional in teams, (3) the sociology of the generations and (4) the studies carried out in the generations and in IT, which comprises the structure of the rest of the study. These sections, covering a large literature review, serve as basis for the elaboration of a reference framework that would allow the empirical verification of the phenomenon in future studies.

THEORETICAL REFERENCE

IT Professionals and IT Work Teams

The IT professional has the role of supporting other people with the use of computers, be it for developing products and services in specific IT companies or perform in teams in other business areas (Segre and Rapkiewicz, 2003). However, this professional characterization is made difficult by the diversity of definitions found in literature (Freeman and Aspray, 1999). For this reason, the characterization attempted is based on the positions and attributions they assume (Barnes and
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