An analysis on the dimensions of information security culture concept: A review

Akhyari Nasir a,*, Ruzaini Abdullah Arshah b, Mohd Rashid Ab Hamid c, Syahrul Fahmy a

a Faculty of Computer, Media and Technology Management, TAIT University College, Teluk Kalong, Kemaman, Terengganu 24000, Malaysia
b Faculty of Computer Systems & Software Engineering, Universiti Malaysia Pahang, Lebuhraya Tun Razak, Kuantan, Pahang 26300, Malaysia
c Faculty of Industrial Management, Universiti Malaysia Pahang, Lebuhraya Tun Razak, Kuantan, Pahang 26300, Malaysia

ABSTRACT

The cultivation of positive Information Security Culture (ISC) is an effective way to promote security behavior and practices among employees in the organization. However, there is yet a consensus on a standard set of dimensions for the ISC concept. ISC has been associated with many facets, with some overlapping dimensions found in the literature. There is little explanation, if any, as to why this happens or to what extent do variances of dimensions affects ISC concept and findings. This paper presents an analysis of the different dimensions in conceptualizing the ISC. Eight major databases including Web of Science, Scopus and Google Scholar were systematically exhausted using PRISMA and a total of 79 studies from 2000 to 2017 was selected for analysis. While different approaches such as adopted theories affect the dimensions of ISC, our analysis also covered other contributing factors such as the objective of the study, type of organization under study and the information security maturity level. In addition, we found no evidence of a set of widely accepted concepts and dimensions for ISC. This review provides substantial evidence on the numerous dimensions used in ISC and could be utilized by academicians as a reference in ISC-related studies.

There are also a number of ISC models and frameworks developed based on specific dimensions and research objectives. Al-Hogail and Mirza [8] in their Systematic Literature Review of ISC-related studies for the period of 2003–2013 discovered 12 out of 62 studies discussing ISC models and frameworks. Interestingly, these models used different dimensions from one and another.

Despite several recent views on ISC including Karlsson, Astrom and Karlsson [52]; Karwowski, Glaspie and Karwowski [37]; and Mahfuth, Yussof, Baker and Ali [62]; there is little interest in the identification of ISC dimensions. Mahfuth et al. [62] conducted a review to identify ISC based on definitions and frameworks in studies between 2003 and 2016. Although they managed to identify ISC dimensions in their review, there was no further analysis on these dimensions. Karlsson et al. [52] conducted an extensive review ranging from 2000 to 2013 by classifying ISC studies based on four main categories: Research Topic, Underlying Theory(ies), Research Purpose and Research Method. Although this study provided a significant findings by providing a clear summary on the particular themes investigated, including the theories and concepts that in-

---

[103]; Von Solms [123]; Zakaria [126]). Although there are numerous studies in this area, there is a lack of widely accepted dimensions for ISC as different perspectives and concepts are used. This causes problems for academicians in identifying the actual concept of ISC as well as for the practitioners to cultivate and assess a positive ISC in the organization, thus limiting its full potential.

There are different dimensions of ISC found in the Information Security Policy (ISP) compliance behavior literature. For example, D’Arcy and Greene [25] used Top Management Commitment, Security Communications and Computer Monitoring whilst Alkalbani, Deng, and Kam [9] used Top Management Commitment, Accountability and Information Security Awareness as dimensions in ISC. Although they share a similar dimension (Top Management Commit-