Chapter 24

Investigating the Information Perception Value (IPV) Model in Maintaining the Information Security:
Bruneian Perspective

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ABSTRACT

This pioneering study is conducted among 150 employees from various ministries of Brunei Darussalam regarding their perception in maintaining the information security and to validate the IPV model using linear regression data analysis techniques. The IPV model identifies the factors that affect the user's perception of information values and to further assess as how these perceptions of information value affect their behavior in information security environment. The results show that IPV model have significant predicting power the employees' behavior with more than half of the variance (59%) in information value is shared by these six contextual variables. However, four out of six antecedent variables monetary value, ministerial jurisdiction, spiritual, and social values are significantly predicting the information value. The study has significant impact both for the researchers and practitioners and will add value to the current repository of broad knowledge in information security behavior.

INTRODUCTION

The first decade of 21st century has brought a radical shift in ICT paradigm with emergence of new technologies such as IoT, Big Data, Cloud Computing, Artificial Intelligence and Virtual Reality. These technologies have changed the corporate world by empowering the end user with better operative command and communication to have a competitive advantage among businesses. At the same time when end users are getting the benefits of the pervasive and ubiquitous computing, the CEOs and CIOs, especially of Fortune 500 companies have been given a more difficult task to protect their valuable assets-data not only from the outside intruders- but to continuously developing a policy to protect it from the inside loss.

Information is still one of the major assets in an organization or business. A loss in information can greatly produce negative impacts on an organization. In the case of Target's data breach in 2013 there was a loss of 70 million customers financial data which caused customers to lose trust towards the company that resulted in reduced sales during that month of the event (Plachkinova & Maurer, 2018). It was identified that the point of entry of the attack was from the use of stolen credentials of third-party service providers. Therefore, it is important to protect information to prevent negative impacts on businesses.

It is widely known in information security that the human aspect is the weakest link in security defence (Bashorun, Worwui, & Parker, 2013) and every organization must address this issue within their domain and framework. Before managing the people factor in information security, security experts must know how the people behave towards the information. The IPV (Information Perception Value) model was developed to understand the human factor in the information security environment.

The IPV model is a model which identifies the factors that affect the user's perception of information values and how these perceptions of information value affect their behaviour in the information security environment (Doherty & Tajuddin, 2018). This research project extends the research on the current IPV model because the model itself is newly developed and has not been tested in a larger population. The IPV model had been proven valid and true using qualitative research conducted in the public sector in Brunei Darussalam (Doherty & Tajuddin, 2018).

Problem Statement

The IPV model is built and verified using qualitative methods. Although the model is proven to be valid, there are two problems that are associated with the IPV model. There is a need to prove it using statistical measures to ensure that the model will work if the model is used in maintaining information security.

The first problem is whether the model can be used in managing different individuals with different backgrounds in a different environment. It is unknown whether the model can be used by different types of organizations that employ a lot of people with a different background or the model can only be used in a certain organization. The importance of the IPV model is that it helps gain insight into the factors that dominate people's behaviour towards protecting information. These insights help the organization to manage the people aspects in an information security environment by developing countermeasures to handle the factors affecting the people. Therefore, it is important to ensure that the model can be generalized to the population as suggested by a group of researchers who question whether the model can be generalized to a large population or as individuals or groups (Alohali, Clarke, Furnell, & Albakri, 2018). If the model can be used with the general population, different management can implement the model in their organization to manage the human aspect of information security.

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