# The Influence of Leadership Style Towards Technology Acceptance in Organization

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## *Abstract*

*This study examines the role of leadership style on technology acceptance among employees in organization. Based on Technology Acceptance Model (TAM), this quantitative study primarily examines direct relationship of authentic leadership with perceived usefulness and perceived ease of use in influencing users' intention to use technology. Data from 203 respondents from oil and gas firms in Malaysia was analyzed using multiple regression method utilizing SPSS Statistics software. The results indicate that authentic leadership style has positive correlation with perceived usefulness and perceived ease of use. In addition, this research shows that perceived usefulness and perceived ease of use has positive relationship with users' intention to use, thus supporting previous research on TAM. This study shows that the role of authentic leadership style is significance in managing technological changes in organizations.*

*Keywords: leader, technology, organization*

## 1. Introduction

In order to measure employees' acceptance on technology, Technology Acceptance Model (TAM) has been used extensively by scholars [1]. In laymen term, the model (TAM) was developed to anticipate and explain employee's technology acceptance. There are two factors that can explain employees' intention to use or accept technology, they are employee's perception of the technology's usefulness (perceived usefulness) and employees' perception the technology ease of use (perceived ease of use or PEOU) [2]. The individual perception on technology would eventually directly impact his or her intention in using the technology provided in the organization.

Nevertheless, the oil and gas industry is an aging industry whereby 71% of the workforce is over 50 years old and the employees are expected to retire in the next few years to come [3]. The current workforce is currently composed of a mixture of Millennial, Generation X and baby boomers. The World Economic Forum 2017 also agrees that there is a generational gap issues in the oil and gas industry, whereby some senior staff still refused to make paradigm shift to fully embrace digitalization transformation. Thus, WEF recommends for oil and gas industry to make digitalization a priority for senior executives [4]. Therefore, it has become more important for organization to be aware on the variety of generations included in their current workforce as well as their respective corresponding stereotypes [5].

Furthermore, strategic change management plan for effective technological implementation requires a functional leadership that could strategize the change and communicate the change effectively [6]. Past studies show that, the relationship between transformational and transactional leadership on leading effective organizational change, particularly in adopting technology [7]-[8]. However, there is lack of studies that look into authentic leadership style and how it influences employee's acceptance on technological change in an organization. Past studies specifically discuss on strategic leadership and technology adoption, though lack of studies have been conducted to find the interrelationship between authentic leadership characteristics and how it influences employees technological change acceptance [9].

Therefore, his study aims to delve further in finding out the interplay of authentic leadership and generational difference on employee's acceptance on technological change in terms of

perceived usefulness and perceived ease of use, both which are two components of Technological Acceptance Model (TAM).

## 2. Hypothesis Development
### 2.1. Relationship between Authentic Leadership and TAM

The issues related to leadership style and technology acceptance is not commonly discussed in literature. In fact, only a few researchers did study about leadership style and technology acceptance. The most common leadership style studied for technology acceptance is transformational and transactional leadership style in service firms whereby they used Theory Acceptance Model (TAM) as their measuring model. They argued that employees will find it more useful to use a technology if a leader implicitly states the usefulness or the benefit of using the technology [8]. The study found out that transformational leadership style shows positive correlation with perceived usefulness whereas transactional leadership displayed no significant effect.

The interrelation between transformational leadership (TL) style and technological acceptance was also studied in Enterprise Resource Planning (ERP) system efficiency [10]. The study uses TAM because the model allows fellow researches to add external variables and extensions. By adding self-efficacy as a mediating role between transformational leadership and user's intention to use, the study finds out that transformational leadership can positively influence perceived usefulness, either directly or indirectly, through assimilation of self-efficacy in oneself. In addition, by practicing self-efficacy evaluation, the result demonstrates that transformational leadership has direct and indirect impact on perceived ease of use. However, to date, studies related to direct or indirect relationship of authentic leadership with TAM remain scarce. Furthermore, previous studies gave no attention to the relationship of any leadership style with technology acceptance in oil and gas organizations. These particular reasons give strong motivation for this study to research more on the relationship of leadership style and technological acceptance in oil and gas organizations.

The motivation to look at authentic leadership style is because it is an emerging leadership style topic that needs to be studied even more in the literature. Transformational and translational leadership style, albeit popular and relevant, have been extensively studied. The notion of positive leadership style such as transformational, ethical and charismatic leadership is assumed to be rooted from authentic leadership [11]. Furthermore, looking at the nature of oil and gas industry where it is turbulent and dynamically changing, authentic leadership seems to fit the study because this leadership style is able to make fundamental change in organization by assisting personnel to learn meanings and connections in their work setting [10]. Since authentic leadership brings an alternative value-based model in leadership practice [12], studying the interrelation between authentic leadership style and technology acceptance through employees' point of view seems relevant because perceptions are often made based on employees understanding about the values of adopting the technology. Thus, authentic leadership style may be able to bring about positive psychology in the organization.

Therefore, based on the empirical evidences from past literature on the correlation between leadership style and TAM as well as from the research gap identified, the researcher hypothesized that:

*H1: There is a relationship between authentic leadership style and perceived usefulness*
*H2: There is a relationship between authentic leadership style and perceived ease of use.*

### 2.2. Relationship between Perceived Usefulness, Perceived Ease of Use and Intention to Use

Perceived usefulness (PU), perceived ease of use (PEOU) and intention to use are the variables that make up TAM model. This model argues that perceived usefulness and perceived ease of use are connected with a person's reactions towards the acceptance of new technology

and consequently shape his or her intention to use [13]. TAM model also assumes that technology is effortless to operate, it will naturally be perceived to be more useful. Therefore, it can be concluded that perceived usefulness is impacted by perceived ease of use [14]. Perceived usefulness, perceived ease of use and intention to use have been widely tested in different paths and organizations. This is supported by previous research that used PU, PEOU and intention to use in research related to the use technology in healthcare systems [15].

The construct of perceived usefulness and perceived ease of use was also tested on user acceptance for mobile payment in service sector in Europe [16]. In addition, previous research proved that there is interrelation between perceived usefulness and the intention to use in related to mobile payment [16]-[18]. In [19] mentioned that, there are only one out of seventy-two studies conducted in TAM model that did not demonstrate the influence of perceived usefulness on individual's attitude, behavioral intention or technology usage. Hence, the researcher concluded that perceived usefulness has a prime importance in influencing user acceptance of technology.

The researcher postulate that the use of TAM model relevant to use to test the applicability of the theory due to recent research [20]-[22] that used TAM model in education system. These studies have confirmed that there is relationship between PU, PEOU and the intention to use by users. Throughout the literature review, researcher found that the intention to use and technology adoption is used interchangeably.

Based on the empirical evidences mentioned above, the researcher hypothesized:

*H3: There is a relationship between PU and user's intention to use*
*H4: There is a relationship between PEOU and user's intention to use*

### 2.3. Conceptual Framework
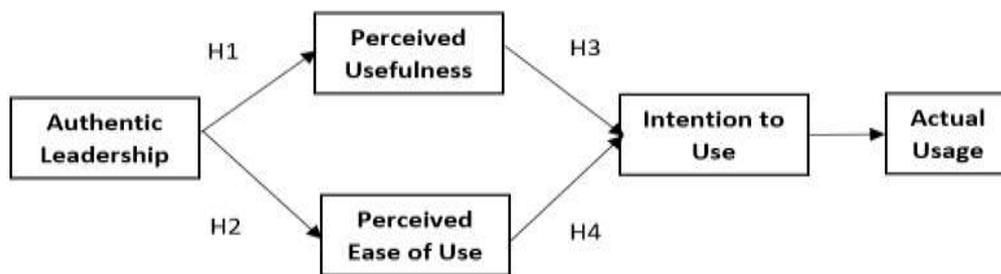


**Figure 1: Conceptual Framework**

Hypothesis:

H1: There is a relationship between authentic leadership style and perceived usefulness
H2: There is a relationship between authentic leadership and perceived ease of use
H3: There is a relationship between perceived usefulness and intention to use
H4: There is a relationship between perceived ease of use and intention to use

## 3. Methodology

This quantitative research using a cross-sectional survey design to collect information from participants on the variables of this study. This study was an exploratory study in which quantitative data were obtained through a web-based survey instrument completed by a sample of employees from the upstream business of oil and gas firms. The methodology that was employed was heavily designed and modeled after the research of [14] in the area of technology acceptance model. The researcher conducted the investigation from a technical and behavioral

perspective where by the instrument incorporated research areas on oil and gas employees' perceptions of perceived ease of use, perceived usefulness and intention to use.

In this research, convenient sampling is used with a preliminary question to target oil and gas employees in the upstream business reporting to a manager. Therefore, the responses received cover from the employees, the subordinates, employed in oil and gas firms in Malaysia, particularly in upstream business. The company chosen for this research has about 5,000 employees dedicated for upstream business in Malaysia. Hence, the required sample size for hypothesis test with 95% confidence level and 7 as confidence interval, the research uses a sample size of 250 to ensure that the number of responses received is at least usable 189 respondents. From 250 respondents, only 203 data are usable. The data gathered from the survey were then transferred to SPSS Statistic for statistical analysis. The purpose of using the 5-point Likert scale for each question associated to the variables is to provide a score for each response so that attitudinal measurement can be generated and inserted in computer program. SPSS Statistics features are able to calculate frequencies, cross-tabs comparison of means, linear and logistic regression, finding reliability using Cronbach's alpha, reordering data, making chi-square analysis and more.

## 4. Results and Analysis
### 4.1. Relationship between Authentic Leadership and Perceived Usefulness

**Table 1: Multiple Regression Analysis Result for H1**

| Relationship | Standardized Coefficient (b) | t-Value | Sig. (p-Value) | $R^2$ |
|---|---|---|---|---|
| AL → PU | 0.282 | 3.873 | 0.000152 | 0.079 |

Based on Table 1, the t-value is 3.873 and the p-value is $0.000 < 0.05$ for the relationship between authentic relationship and perceived usefulness. This clearly indicates that hypothesis H1 is supported and a significant relationship is found between authentic leadership style and perceived usefulness. The standardized coefficients value of 0.282 shows positive value hence, confirms that authentic leadership style influences perceives usefulness of technology by web-based tracking and monitoring users. Thus, it is proven that there is a substantial relationship between authentic leadership style and perceived usefulness.

### 4.2. Relationship between Authentic Leadership and Perceived Ease of Use

**Table 2: Multiple Regression Analysis Result for H2**

| Relationship | Standardized Coefficient (b) | t-Value | Sig. (p-Value) | $R^2$ |
|---|---|---|---|---|
| AL → PEOU | 0.312 | 4.335 | 0.000 | 0.097 |

Based on Table 2, the t-value is 4.335 and the p-value is $0.000 < 0.05$ for the relationship between authentic relationship and perceived ease of use. This clearly indicates that hypothesis H2 is supported and a significant relationship is found between emotional intelligence and innovative working behavior. The standardized coefficients value of 0.312 shows positive value hence, confirms that authentic leadership style influences perceives ease of use of technology by web-based tracking and monitoring users. Thus, it is proven that there is a substantial relationship between authentic leadership style and perceived ease of use.

### 4.3. Relationship between Perceived Usefulness and Intention to use

**Table 3: Multiple Regression Analysis Result for H3**

| Relationship | Standardized Coefficient (b) | t-Value | Sig. (p-Value) | $R^2$ |
|---|---|---|---|---|
| PU → ITU | 0.618 | 10.379 | 0.000 | 0.382 |

Based on Table 3, the t-value is 10.375 and the p-value is 0.000 < 0.05 for the relationship between perceived usefulness and user intention to use. This clearly indicates that hypothesis H5 is supported and a significant relationship is found between perceived usefulness and intention to use. The standardized coefficients value of 0.618 shows positive value hence, confirms that perceived usefulness influences web-based tracking and monitoring users' intention to use. Thus, it is proven that there is a substantial relationship between perceived usefulness and intention to use which directly supports previous studies on TAM.

**4.4. Relationship between Perceived Ease of Use and Intention to use**

**Table 4: Multiple Regression Analysis Result for H4**

| Relationship | Standardized Coefficient (b) | t-Value | Sig. (p-Value) | $R^2$ |
|---|---|---|---|---|
| PEOU → ITU | 0.473 | 7.087 | 0.000 | 0.224 |

Based on Table 4, the t-value is 7.087 and the p-value is 0.000 < 0.05 for the relationship between perceived ease of use and user intention to use. This clearly indicates that hypothesis H4 is supported and a significant relationship is found between perceived ease of use and intention to use. The standardized coefficients value of 0.473 shows positive value hence, confirms that perceived usefulness influences web-based tracking and monitoring users' intention to use. Thus, it is proven that there is a substantial relationship between perceived ease of use and intention to use which directly supports previous studies on TAM.

The summary of the following hypotheses is tabulated in the table below.

| Hypothesis | Result |
|---|---|
| H1: There is a relationship between authentic leadership style and perceived usefulness | **Accepted** |
| H2: There is a relationship between authentic leadership and perceived ease of use | **Accepted** |
| H3: There is a relationship between perceived usefulness and intention to use | **Accepted** |
| H4: There is a relationship between perceived ease of use and intention to use | **Accepted** |

## 5. Discussion and Conclusion

The result shows positive correlation between authentic leadership style and perceived usefulness.  The results of this study are in line with studies from previous literature where authentic leadership has high influence in contributing to employee' behavior through what we can call as influence model, which means authentic leaders will first create positive beliefs and perceptions among their employees when there is any change taking place at work place [23]. In this case, the change is technology application- the web-based data tracking and monitoring application. This result also suggests that by portraying their internal moral perspective trait, which is as leaders with integrity [24], authentic leaders can enhance employee's perception that technological changes will yield benefits to employees [25]. Therefore, perceived usefulness shows positive correlation with authentic leadership.

The results revealed that there is a positive relationship between authentic leadership and perceived ease of use. Authentic leadership has been associated to intrinsic motivation [24]. When a user perceived the usage of a technology as pleasant and enjoyable, it can be defined as intrinsic motivation [26]. Because authentic leadership often portrays positive attitude, mindset

and high self-confidence, the actions indirectly influence positive motivation in their employees. As a result, employees are more motivated to take the initiative in making improvement of themselves [27]. Despite new technology may seem daunting for some, with the guidance and positive engagement by authentic leadership, employees would have an increased desire to learn new technology and thus, master the technology until it becomes their working norm. Therefore, employees can perceive new technology as easy to use because it has become a norm to them.

Perceived usefulness and intention to use is adopted from the original variables of TAM. In this study, perceived usefulness and perceived ease of use correlate strongly with users' intention to use web-based data tracking and monitoring application at work. This result agrees with previous studies that tested TAM model. Overall, respondents feel that web-based data tracking and monitoring application at work is useful and easy to use. When an application is not only useful but also easy to use for their day-to-day tasks, it will attract more users to continuously utilize the technology provided at work. Users' intention to use is influenced by a combination of both constructs, perceived usefulness and perceived ease of use.

Looking at the prospect of businesses thriving in Industrial Revolution 4.0 era, technology is becoming more and more important in the business world. More technology will be introduced and adopted; hence the employees have to be ready to receive and utilize the technological change. This transition can be assisted with proper leadership management and change management. This research shows that authentic leadership style poses a significant role in influencing employees' perception on the usefulness and ease of use of a technology. Thus, oil and gas organizations have to take the initiative to nurture future leaders in embracing authentic leadership style. Furthermore, the ALQ questionnaire can also be adopted in organizations to assess the development of authentic leaders in the organization.

Relating to adopting new technology and assessing the right management style to lead the acceptance of new technology is on proper change management. The right leadership style not only influences employees to adopt and use new technology, but also in terms of managing expectations, facing failures and retaining the usage of technology in the organization. Thus, the results of this research contribute to oil and gas ontology in the importance of proper management of employee's expectation and behavior in accepting technology.

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