

# Antecedents of Cloud Computing Adoption in Business Organizations A Saudi Arabia Case

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**Abstract:** In recent times, Information System (IS) has transformed from custom-coded and proprietary pre-packed applications to cloud computing. Modern development and convergence of IT and IS structures towards internet-centric platform evolved the concept of cloud computing. This innovative computing platform improved the performance of modern businesses by offering diversified on-demand cost effective computing services by reducing development and implementation cost. However, the developing countries were unable to reap the benefits associated with this transformation of modern technology. Literature review reveals that the lack of cloud computing adoption is one of the key concerns in business growth to meet the international standards. This study identifies two key factors that enhance this adoption level in Saudi business organizations. Technology Acceptance Model (TAM 3) has been chosen and adapted and enriched by identified two moderating factors and four general contributing key-factors. The newly proposed model is evaluated by using a comprehensive survey. A total number of 405 valid responses from six different business organizations were collected and analyzed using Confirmatory Factor Analysis in Smart PLS3. A practical session on the usage of cloud computing is conducted and two focus groups were also held to obtain a qualitative data set. Results indicate that the technology adaption level and the proposed factors are strongly correlated. Hence, research study validates the hypothesis that these proposed factors contribute the adoption positively. The findings will help business decision-makers and cloud developers to enhance the adoption level of cloud computing services in their business organizations.

**Keywords:** Technology Acceptance Model, Confirmatory Factor Analysis, Behavioral Intention, Perceived Ease of Use, Perceived Usefulness etc.

## INTRODUCTION

Information Systems have advanced from traditional custom-coded proprietary applications to pre-packaged or off-the-shelf applications. In recent times, with the development of Internet based applications and the convergence of Information Technology (IT) and Information systems (IS) infrastructure to an Internet-centric environment actually evolved the concept of cloud computing to emerge. Recent developments in computing have moved the world to a level where cloud computing has become an essential part of modern computing. Cloud technology is an innovative computing platform, which technologically transformed IS based business platforms like trading, real estate, academics, banks, healthcare, IT companies and government sector organizations. This computing platform offers diversified on-demand provisions of computing services for business sector to improve the business performance, lower the development, procurement, implementation and maintenance cost. In recent past, research studies have shown that regardless of importance and benefits of cloud computing, its adoption level is very low in developing countries. Today businesses are adopting fully automated ISs with minimum human intervention to configure the general business process including intelligence level components that make the user task easier in the process of making business decisions (Hofman, Aronow and Nilles, 2016). This shows the importance of back-end cloud computing infrastructure to process the

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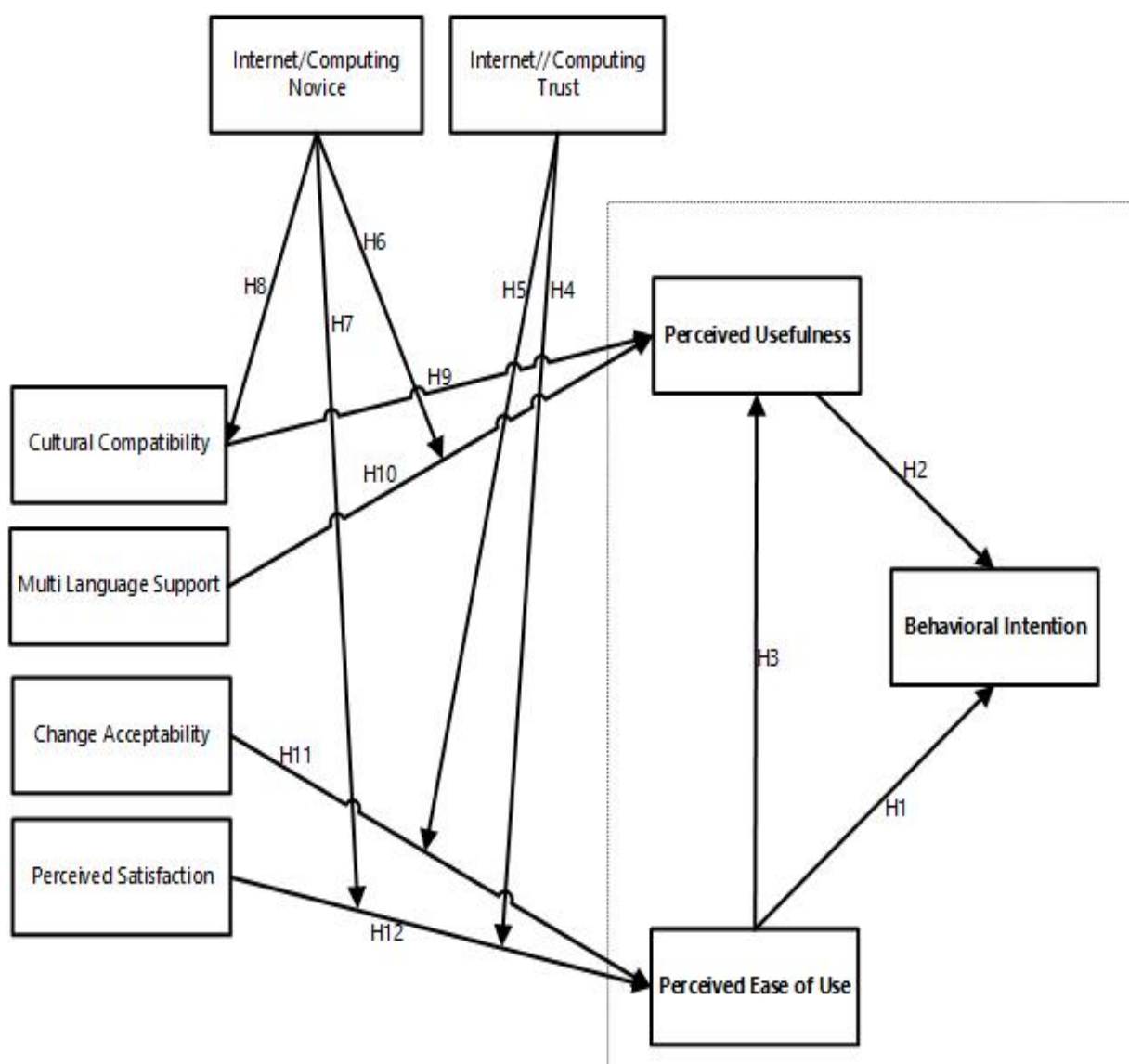


Figure 1: Proposed Model for Research Study  
**QUANTITATIVE DATA ANALYSIS**

Firstly, the Partial Least Squares-Structural Equation Modeling (PLS-SEM) measurement model is selected and applied to assess and evaluate item based internal consistency and reliability, convergent validity and discriminant validity and at the end detail results of structural model are presented for proving the significance of the path coefficients. Following is the detail:

**Results of Analysis:** Based on the factor analysis, the entire items on each factor relationship on the hypothesis are correctly loaded to their constructs. The content validity of the measures is presented in Table 5. It is evident from the table, that the items loaded significantly to their respective constructs and the measures of content validity are confirmed (15).

**The Convergent Validity Analysis:** The entire items loadings were examined and confirmed to be above 0.70 by (16).

The factor loadings were all significant with 0.01 level of significance, shown in table 5. For this study, the Cronbach Alpha values fall well above the threshold value while composite reliability values fall



























