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Title: Supply Chain Automation in the Retail Sector

Abstract:

Retail industry supply chain partners are increasing their use of information technology to support and improve their supply chain management initiatives. This trend started in the 1980's with electronic data interchange and the use of scanning barcodes to keep more accurate track of sales throughout the industry. With more accurate data and a faster way of transmitting these data, information technology has helped increase the speed of activities within the retail supply chain. The ability to respond to customer changes and other sources of supply chain variability has become more efficient with the use of technology.

The increasing need for efficient management of goods and assets in supply chains has led to the development of automatic identification systems, particularly the recent growth in RFID (Radio Frequency Identification) technology. RFID allows for the identification, data collection, and information storage on assets and goods. Development in IT and the IT-enabled technologies enhanced the growth / interest in its usage but equally presented (persistently inherent) challenges to understanding the extent to which an individual accepts a specific technology. Given that, in the line of research that suggests that behavioral models of technology acceptance failed to serve equally across the cultures (national), within cultures (within groups), across the individual's personal and external factors (demographic and institutional factors), this study intends to present the conceptual model that delineated the barriers and drivers of an individual's acceptance behavior towards RFID usage within a retail supply chain context.

Primarily, drawing upon social cognitive theory (SCT) and the technology acceptance models (TAM), the study integrated the predictors of acceptance belief from the theory of reasoned action (TRA), TAM2, the decomposed theory of planned behavior (DTPB) and the unified theory of acceptance and usage technology (UTAUT). In addition, the model also incorporated the theories of task technology fit (TTF), Bem's Sex Role Inventory (BSRI), and Hofstede's theory of national culture. In doing so, the coherent model answered the research question of the present study.

The contribution of the study is an exploration of the importance of various cultural theories that have a direct and indirect effect on an individual's cognitive behavior. Specifically, section (2.12) presents introduction of culture, and section (2.13) reviews Hofstede's cultural theory, which includes dimensions of power distance (PD), individualism-collectivism (IC),

masculinity-femininity (MF), and uncertainty avoidance (UA). Section (2.14 to 2.16) presents the influence of the Hofstede's theory in the technology acceptance studies across cultures, with substantial criticism.

The diversity of an individual's acceptance behavior is examined at an individual level within the context of a single South Asian developing country (i.e., India) in a single organizational context level (i.e., the retail organizations). In doing so, a brief overview of the country profile with justifications for the selection is discussed.

The target population for the study is employees working in the supply chain function of retail organizations in India. The size of the sample has been carefully selected keeping in consideration data analysis techniques-to-sample rules. The minimum sample size using non-probability random sampling method is estimated to be 370. A survey questionnaire is developed in this study following the steps of content and operational-items relevancy to the objective of the research, along with proper wording and layout management. The data collection process is based on two techniques i.e., self-administrative and e-mail questionnaire survey method. For purposes of data analysis, a brief introduction about the preliminary statistical techniques to examine the descriptive statistics results, and structural equation modeling (SEM) with PLS to examine the structural paths is presented.

Data Analysis is a preliminary analysis of the pilot study and a rigorous analysis of the findings of the main study. The aim is to empirically examine the potential predictors of behavioral intention to accept RFID technology in supply chains in retailing context. In doing so, the structural model was evaluated with and without the moderating effects of demographic and cultural dimensions. Section (5.6.1) delineates the introduction of the structural equation modeling (SEM) techniques, practical considerations and justifications to use PLS in this study.

In alignment with the data analysis, discussion is made for possible justifications of the significance and insignificance of the relationships proposed in the conceptual model. Specifically, followed by the introduction, section (6.1) presents a discussion of the findings of the basic extended model, which aims to answer the question of how predictors of perceived behavioral beliefs, social and control beliefs, management support at departmental and organizational level, and task characteristics influence individuals' beliefs towards acceptance of RFID technology. Section (6.2) presents a discussion of the findings obtained by examining the moderating impact of demographic and cultural characteristics. This helps to understand how the moderating impact of demographic characteristics (age, gender, organizational type, occupational position, educational level, experience usage and voluntariness) and cultural dimensions (MF, IC, PD, UA) influence the individuals' perceptions when accepting RFID technology.

Recommendations and suggestions are presented as an outcome of the research which may be considered by the Retail Supply Chain Industry for implementation.