Intelligent System Usages and Service Performance for Manufacturing Organization

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Abstract. The purpose of this research was to explore possible relationship between the Intelligent System usage and the service performance in the manufacturing organizations. The hypothesis for this research was: There was a significant relationship between the Intelligent System usage and the service performance in the manufacturing organizations. The method employed quantitative research method in conducting this study was measure the use of Intelligent System in various manufacturing organizations and provided an overview of the method of Intelligent System use in manufacturing organizations’ service performances. The research participants were 50 owners/managers in manufacturing organizations. The Spearman Rank Correlation Coefficient and descriptive statistics were used to test the research hypothesis. Research result supported the research hypothesis that there was a significant relationship between the Intelligent System usage and the service performance in the manufacturing organizations. Research result also indicated that this relationship between the Intelligent System usage and the service performance was positive.

Keywords: manufacturing, intelligent system usage, service performance.

1. Introduction

1.1. Purpose of the research
The purpose of this research was to explore possible relationship between the Intelligent System usage and the service performance in the manufacturing organizations.

1.2. Research hypothesis
The hypothesis for this research was: There was a significant relationship between the Intelligent System usage and the service performance in the manufacturing organizations.

1.3. Significance of research
Intelligent System is an invaluable tool in nearly every organization[1]. An organization that cannot utilize Intelligent System both as productivity tool and as a marketing tool may have a tremendous disadvantage compared to its competitors. This exploratory study investigated the possible relationship between the Intelligent System usage and the service performance of particular manufacturing organizations. This study may offer important information about the impact of Intelligent System use and service performance for manufacturing organizations.
2. Methodology
The purpose of this research was to explore possible relationship between the Intelligent System usage and the service performance in the manufacturing organizations. The study employed survey research to determine whether an impact exists between the dependent variable—Intelligent System usage—and the independent variable—service performance in the manufacturing organizations, measured by the Survey of the Impact of Intelligent System Use in the Organization.

2.1. Research design
The method employed quantitative research method in conducting this study was measure the use of Intelligent System in various manufacturing organizations and provided an overview of the method of Intelligent System use in manufacturing organizations’ service performances. The goal of this study was to help manufacturing organizations’ owners/managers understand how important it was to integrate Intelligent System into their business.

A correlation research design was utilized to test the research hypothesis. The hypothesis for this research was: There was a significant relationship between the Intelligent System usage and the service performance in the manufacturing organizations. The independent variable in this hypothesis was service performance of the manufacturing organizations and the dependent variable in this hypothesis was Intelligent System usage.

2.2. Sample and participants
The research samples were 50 manufacturing organizations in China. The participants of this research were one owner/manager from each sample manufacturing organization.

2.3. Data collection
In this research, the author was use survey instrumentation to collect the research data. This research was focus on the manufacturing organizations. The data collected from manufacturing organizations’ owners/managers from each sample manufacturing organization.

2.4. Instrumentation
The instrument for this research was a valid, reliable questionnaire. The instrument of this research employed Survey of the Impact of Intelligent System Use in the Organization made by author. The author states that this instrumentation could test the impact of Intelligent System applied in the manufacturing organization. Coefficient Alpha measured this instrument for the reliability and experts modified this instrument for validity. The information of reliability and validity will be discussed in next section of this Section.

The survey instrument that measured the manufacturing organizations’ satisfaction with the performance of Intelligent System consisted of 30 items, designed to ask about the impact of Intelligent System use in the organization. This questionnaire included six scales. The questionnaire design followed the purpose of the research and the research hypothesis to explore the possible relationship between the Intelligent System usage and the service performance in the manufacturing organizations.

2.5. Reliability and validity
Instrument reliability for Survey of the Impact of Intelligent System Use in the Organization was based on the fact that the author used Crobach to measure the reliability of his study scale. The reliability of each scale was assessed by Coefficient Alpha Crobanch $\alpha$ over 0.6. The minimum acceptable level of reliability is 0.5 [2]. Instrument validity for Survey of the Impact of Intelligent System Use in the Organization, according to the author, to ensure face validity of the instrument the questionnaire was sent to some of owners/managers of manufacturing organizations. In light of discussion and feedback, the questionnaire was modified. An instrument possesses content validity if its scales are representative of all aspects of the attributes being measured[3]. Evaluating content
validity is basically a question of judgment. During a pilot study phase in early 2001, an initial questionnaire was given to thirty chief owners/managers of manufacturing organizations by mail. Finally, 25 questionnaires were received from chief owners/managers of manufacturing organizations. The evidence from the discussion has provided a content validity of this instrument. The responses received from the pilot study of 25 chief owners/managers of manufacturing organizations are in line with the responses measured by the instrument for this study.

2.6. Data analysis
Statistical procedures were conducted to determine the possible existence of a relationship of Intelligent System use and the service performance of manufacturing organizations. Descriptive statistics was used to analyze the impact of Intelligent System applied in the manufacturing organizations. The Spearman Rank Correlation Coefficient was used to test the research hypothesis for whether there is or is not a relationship of Intelligent System usage and the service performance of manufacturing organizations.

The accepted level of significance in research has been established at the 0.05 level of significance [4]. The Statistical Package for the Social Sciences (SPSS) computer software program was used to complete the analysis of data. The results of data analysis are presented in Section Four and Five.

3. Presentations and analysis of data
The purpose of this Section was to present a description of the research data and to analyze the data relating to the research hypothesis of the study. The hypothesis for this research was: There was a significant relationship between the Intelligent System usage and the service performance in the manufacturing organizations.

The findings in this Section contain the raw data, and the narrative results relating to the research. The results are organized and discussed in four sections: source of data, descriptive statistics, analysis of data, and summary.

3.1. Source of data
The research was conducted with 50 owners/managers in 50 manufacturing organizations. Each participant completed the Survey of the Impact of Intelligent System Use in the Organization.

3.2. The return rate of this research was 100%.

3.3. Descriptive statistics for total sample
This section provides descriptive statistics results for total sample of impact of Intelligent System applied in the manufacturing organizations. There were 50 manufacturing organizations’ owners/managers who (N=50) answered these questions. The descriptive statistics was employed to test the impact of the use of Intelligent System and service performance in the manufacturing organizations.

Results indicated that manufacturing organizations’ owners/managers were agree and strongly agree for there was significant impact of Intelligent System usage and service performance in their manufacturing organizations in following:

1. Through the use of Intelligent System, online transactions can reduce the cost of operation in manufacturing organizations.
2. Through the use of Intelligent System, online transactions can enhance a competitive position in industry.
3. Through the use of Intelligent System, manufacturing organizations can reduce expenses of printing.
4. Through the use of Intelligent System, manufacturing organizations can reduce personnel expenses.
5. Through the use of Intelligent System, manufacturing organizations can reduce the need for fax.
6. Through the use of Intelligent System, employees can immediately share information in manufacturing organizations.
7. Through the use of Intelligent System, manufacturing organizations’ customers can immediately obtain the updated information.
8. Through the use of Intelligent System, manufacturing organizations’ information is more vivid due to multimedia.
9. Through the use of Intelligent System, there is frequent interaction in manufacturing organizations.
10. Through the use of Intelligent System, manufacturing organizations are known for their customer service.
11. Through the use of Intelligent System, manufacturing organizations are constantly improving their services.
12. Through the use of Intelligent System, manufacturing organizations’ service goals are consistently met or exceeded.
13. Through the use of Intelligent System, manufacturing organizations know who their customers are.
14. Through the use of Intelligent System, manufacturing organizations develop services to match their customers’ needs.
15. Through the use of Intelligent System, manufacturing organizations are efficient.
16. Through the use of Intelligent System, manufacturing organizations’ employee’s productivity is high.

In summary, the results found that there was a significant impact of the use of Intelligent System and service performance in manufacturing organizations.

3.4. Analysis of data
This section includes an analysis of the data obtained using the research instrument. The analysis of the data for research results provides information necessary to answer the hypothesis posed.

The sample consisted of 50 manufacturing organizations’ owners/managers (N=50). The survey instrument, The Survey of the Impact of Intelligent System Use in the Organization, consisted of 30 items designed to determine the impact of Intelligent System use in the organization. The responses from the surveys were entered into the Statistical Package for the Social Sciences (SPSS) and a series of statistical tests were run using a significance level of 0.05. The hypotheses are listed below.

The study contained a major hypothesis. There was a significant relationship between the Intelligent System usage and the service performance in the manufacturing organizations. This hypothesis was examined as follows. The Spearman Rank Correlation Coefficient was used to examine the relationship between the Intelligent System usage and the service performance in the manufacturing organizations. Correlation is a statistical technique that is used to measure and describe an impact between two variables. The Spearman Rank Correlation Coefficient is used to discover the strength of a link between two sets of data [5]. The Spearman Rank Correlation Coefficient is identified by letter $\rho$.

These analyses were based on research data and compiled from the responses to the Survey of the Impact of Intelligent System Use in the Organization. Correlation between the Intelligent System usage and the service performance in the manufacturing organizations, Spearman $\rho$ had a value of 0.541 ($p = 0.000$) for the total sample. This result supported the research hypothesis that there was a significant relationship between the Intelligent System usage and the service performance in the manufacturing organizations. The result also indicated that this relationship between the Intelligent System usage and the service performance was positive.
3.5. Summary
The Spearman Rank Correlation Coefficient results were used to test the primary research hypothesis: There was a significant impact of the Intelligent System use on the service operations in manufacturing organizations. The Spearman Rank Correlation Coefficient results supported the following research hypothesis: There was a significant relationship between the Intelligent System usage and the service performance in the manufacturing organizations. Section Four contained the interpretation and presentation of the data in narrative, tabular, and statistical form. Section Five contains conclusions, and recommendations.

4. Conclusions and recommendations
The purpose of this Section is to present and discuss the results of the study. The Section is divided into the following major categories: finding, conclusions, and recommendations.

4.1. Findings
This section describes the finding of this research. All findings are based on descriptive statistics and the Spearman Rank Correlation Coefficient.

The descriptive statistics indicated that most manufacturing organizations’ owners/managers agree or strongly agree that the Intelligent System usage could have important impact on their service performances. Therefore, the analysis supported the research hypothesis: There was a significant relationship between the Intelligent System usage and the service performance in the manufacturing organizations.

The major focus of the study was to determine if there was relationship between the Intelligent System usage and the service performance in the manufacturing organizations. Research hypothesis was examined. Specifically, the research hypothesis stated that there was a relationship between the Intelligent System usage and the service performance in the manufacturing organizations. Research participants were surveyed and tested scores to determine the relationship. A Spearman Rank Correlation Coefficient was conducted to determine if relationship existed between the Intelligent System usage and service performances of manufacturing organizations. The data revealed there was a significant relationship between the Intelligent System use and service performances of manufacturing organizations (p = 0.001). The two variables, the Intelligent System use and service performances of manufacturing organizations, were shown to have a significant and positive relationship (ρ = 0.541). This positive relationship suggested that as the use of Intelligent System increased, the impact of service performance increased. Therefore, there was a positive significant relationship between the Intelligent System usage and the service performance in the manufacturing organizations. The finding supported the research hypothesis: There was a significant relationship between the Intelligent System usage and the service performance in the manufacturing organizations.

4.2. Conclusions
The goal of this study was to help owner and manager in manufacturing organization understand how important it is to integrate Intelligent System into their stores. The study showed the existence of a significant positive relationship between the Intelligent System usage and the service performance in the manufacturing organizations. What are the implications of these findings? The results substantiated the existence of relationship between the Intelligent System usage and the service performance in the manufacturing organizations.

Overall, the study accomplished the task of establishing the relationship between the Intelligent System usage and the service performance in the manufacturing organizations. The results of this research supported the research hypothesis: There was a significant relationship between the Intelligent System usage and the service performance in the manufacturing organizations.
4.3. Recommendations

The study provided a starting point for investigating the relationship between the Intelligent System usage and the service performance in the manufacturing organizations. While providing useful information, further research should be conducted to obtain more concise information in the use of Intelligent System. For some of the manufacturing organizations involved in the study, it would be interesting to investigate further with larger groups of participants, focusing on different kind of manufacturing organizations around the world. The future research also could focus on the impact of Intelligent System usage in the any kinds of manufacturing organizations around the world.

The impact has been established in this study. The challenge now is to assist manufacturing organizations plan for the use of Intelligent System to exceed service goals in their stores. However, with the following recommendations, the manufacturing organizations in China can effectively utilize Intelligent System to gain competitive advantages:

1. Determine the types of resources that the manufacturing organization intends to utilize and the services that the manufacturing organization will be providing using Intelligent System.
2. Determine what types of Intelligent System connection best suits the manufacturing organization’s needs.
3. Determine what types of hardware and software are needed for use of Intelligent System in the manufacturing organization.
4. Train manufacturing organization’s owners/managers and employees on the proper use of Intelligent System applications.
5. Emphasize the nature of Intelligent System and the importance of manufacturing service operation and service performance.

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