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A STUDY ON THE SATISFACTION OF SUPPLY CHAIN MANAGEMENT SYSTEM FROM THE VIEW OF JUSTICE AND VALUE

Szu-Yuan Sun¹, Pei-Ju Chao², Chang-Yao Wu³

¹Department of Information Management, National Kaohsiung First University of Science and Technology

^{2,3}Graduate School of Management, National Kaohsiung First University of Science and Technology

sunnyy@ccms.nkfust.edu.tw; u9428908@ccms.nkfust.edu.tw;

u9528906@ccms.nkfust.edu.tw

Abstract

Due to the common, most enterprises have utilized information technology (IT) to enhance their competition and performance. Meanwhile, governments in Taiwan have encouraged enterprises to adapt e-commerce by putting policies and facilitating technology. Nevertheless, only few literatures discuss or evaluate the satisfaction of E-SCM after establishing information systems by enterprises. This research attempts to integrate three well-founded theories – Information System Success model (ISS), Organization Justice Theory and Consumer Value to develop our model. Using Structural Square Modeling (SEM) analysis performed on results of a questionnaire given to the providers of SCM who have established the E-SCM in their enterprises. The results showed that the distributive justice, procedural justice and interactive justice in the organization justice theory have a significant effect on the performance outcome in the E-SCM. It also showed that the system and service quality in the IS success model and the cost and service value in shopping value have a significant effect on the satisfaction of the E-SCM. The contribution of this study can be further research in academic and practical.

Key words: Information System (IT), Electronic Supply Chain Management (E-SCM), Organization justice, Consumer value, IS success model (ISS).

Introduction

Electronic Supply chain management integrates many activities of the supply chain through improving the relationship between it in order to achieve constant competence. Some scholars [1] also suggest the goal of E-SCM is that customers simultaneously need to keep the balance between cost and customer satisfaction, through the integration of logistic and information flow among all of the supply chain. With the improvement of internet technology, the trend of globalization, the shortening of product life cycle, and the incensement

of customer service needs, the issue of supply chain management has become more focused.

Simultaneously, since the prosperity of internet, e-commerce has become a trend among all the enterprises and they applied information technology to promote their competence. Due to the encouragement of government policies, all the enterprises digitalize their supply chain management. From around 1980, Taiwan started to promote an industrial automation development plan. With the change of external factors, the focus on industrial automation gradually transformed to the digitalization in the business process. Some government authorities such as the Department of Industrial Technology, the Industrial Development Bureau, the Ministry of Economic Affairs, the Commerce office of the Ministry of Economic Affairs, and the Institute for Information Industry, have already foreseen the importance of the supply chain. They were actively promoting supply chain management related plans to industries, for instance, the A and B plan, the digitalizing plan among systems and within systems. This is especially the case in digitalization among manufacturing industry. So far till 2003, they have established 39 digitalizing industrial chain systems in all the key industries, which have driven the coordinative digitalization working mechanism among more than 7,000 small and medium enterprises.

However, there are very few related studies on the actual result of the system being built from the digitalization which were supported by the government. Therefore, the purpose of this study mainly focuses on supply chain management satisfaction. Based on related studies in the past, there were more studies that discussed the key success factors of suppliers adapting supply chain management than studies related to the satisfaction after suppliers successfully adapted the supply chain system. This study tend to integrate (1) the IS success model in the information management field, (2) the equity theory of organizational behavior and (3) consumer value in marketing to the theoretical study model. Also, this study is going to discuss the possible factors that might affect the satisfaction of

the E-SCM for the suppliers. From the successful model of Equity theory and value theory which are combined with the IS point of view, we are going to have a further discussion about the satisfaction of adapting the E-SCM. This related topic is rarely discussed either in Taiwan or overseas. Therefore, it is very original.

We chose company K to be the study example. Company K is the biggest motorcycle manufacturer in Taiwan, and it has been the best seller for six years. It is an epitome company with a completed supply chain and demand chain system. Company K joined the VNET project which was held by the Industrial Development Bureau, Ministry of Economic Affairs, and it helped Company K to build an E-SCM and provided it for all the suppliers. The purpose of Company K to build the E-SCM was to promote added value among enterprises with which it could also promote the company and its supplier's operational management. So, to evaluate the advantages and the disadvantages of E-SCM, the most direct approach is to evaluate the satisfaction of the users using the E-SCM. This will also helps us to understand the effective factors of the E-SCM and we can put these factors in consideration for further improvement of this system.

In sum, the purpose of this study is to mainly discuss suppliers' satisfaction after using the E-SCM provided by the central factories. The study methods covered is the information system, organization justice and the shopping value theory. The aims of this study are as follows: 1. To integrate the IS success model, the organization justice theory and the consumer value theory, in order to discuss the effects of the satisfaction after the suppliers adapted the E-SCM. 2. To verify the methods of the satisfaction of the E-SCM by survey research in order to discuss the relations among all the concepts in the method. 3. To provide a reference for enterprises who would like to introduce the E-SCM in the future and the factors that should be considered when designing the system according to the result of this study.

Theoretical background, Research model, and Hypotheses

This study integrated the related aspects from the ISS model, the Organization Justice Theory, Consumer Value Theory and the Consumer Behavior Intention. It established and discussed the effects of satisfaction of the E-SCM after the suppliers introduced the system. Figure1 depicts our research model and hypotheses.

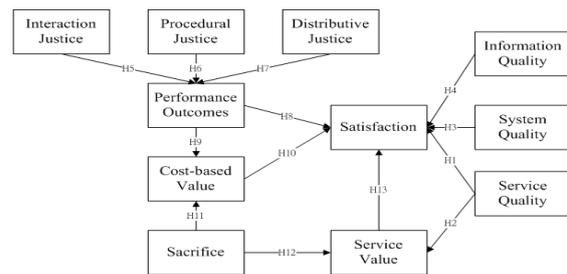


Figure 1. Research Model

Electronic Supply Chain Management

An ideal supply chain management model is highly combining products and information, simultaneously and equally entered and flowed in that supply chain while providing the same information to all the participants in that supply chain in order to promote its service and effects, and at the same time, lower the related costs [2]. Each enterprise must devote itself to enhance the cooperative relationship among all the members belonging to this supply chain by integrating their operations, techniques and cooperative relationships. In addition to this they should integrate their information sharing so that they can bring the effectiveness of the supply chain system to the extreme.

The purpose of the supply chain is to fulfill the goal of enterprises in order to practice a set of all the enterprise activities [3]. For example, the information of the relationship in the supply chain in traditional industries taking orders from the costumers immediately by either director or indirect method. In the meanwhile, to ensure quality satisfaction, each member should develop a trustworthy partnership between each other in the procedure of sending information in the supply chain. The Internet integrates all the information from the supply chain of each enterprise under prompt, accurate and abundant circumstances in order to advance the members to operate in coordination in the supply chain. The direct sources from the supply chain is send through internet and the aspects that is beneficial for an organization are as follow: increasing production ability, decreasing costs, cycle shortening, improving its quality and strengthening the relationship between customers.

Simultaneously, the rapid developments of information technology and internet techniques have made a new interpretation of supply chain management [4]. The big change is not only operating the updated internet technology, but more importantly to varied itself to deal with the operation model of an enterprise and its key procedures with the updated techniques. Enterprises must re-examine its internal procedures, establish the information flow in the integrated environment among suppliers, manufacturers, distributors, retailers, and costumers, in order to speed up the information flow between

the intranet and extranet of an enterprise, to achieve in the era of E-commerce.

User Satisfaction

The idea "User Satisfaction" was introduced firstly by in 1963 [5], it argued that if the information system could meet users need, it also could increase the user information satisfaction; however, if it failed, it failed the user information satisfaction, too [6] [7]." Some scholars believed that when the user satisfaction goes down in a certain level, its user is going to stop continue using the system. Some scholars [9] [10] [11] also both agreed that it will have a great impact on user satisfaction if the system can meet its user's expectation.

Consumer Satisfaction

Internal marketing means that enterprise treats its staff as the customers, and to take one step further by selling the organization to them [12]. On the other hand, "customer satisfaction", in fact, has various definitions from the scholars in different study fields. The beginning of the study of "Customer satisfactory" started with a study by consumer satisfaction [13]. Since then, the study increased the interest of scholars to study "customer satisfaction" further. Some scholars [14] concluded the different opinions from scholars of consumer satisfaction, and pointed out two of the aspects: Transaction-specific and Cumulative. Transaction-specific means the after-evaluation of the consumer's consumption experience or locations to determine the effects of a specific product or a specific service; Cumulative means the completed evaluation mainly of the service experience, the product experience and the consumption experience that can be the index for enterprises' operating performance. After integrating the opinions from scholars [15], indicated that consumer satisfaction comes from the anticipation and expectation towards the product before a consumer decide to purchase it and the recognition from a consumer after purchasing the product, its functional performance or the service of it after purchasing. Then to compare the level of happiness and disappointment of the two, there is a difference between the two since positive satisfaction or negative satisfaction can occur.

Related Literature of IS Success Model

After deeply explored and organized hundreds of articles [16][17] that had published on the information system journal, they raised the revised IS success system. They updated the model as follow: Service Quality, system quality, information quality, and claimed this model can be used in E-commerce.

Service Quality

After studying the related study articles and having in-depth interview with enterprises and customer groups, some scholars [18] had established a model. He thinks the good and the bad of a service can be determined by its service quality. The so called service quality is to have an evaluation that is judged over a long period of time and it can also be judged by the attitude towards a service. They added the definition of service quality in 1988 [19], they argued that a service quality should be ranked from the good and the bad of a service which happened when passing on procedures and the interaction between a customer and a service provider. They also emphasized that it is the customer that define the service quality, not a manager.

Scholars indicated service quality is the reason to form service value [20]. They also proved that service quality has a significant impact on service value awareness of the customer in the evidence research. Some scholar further raised service value as the top model due to the relations among service quality, service value, and customer satisfaction and the behavioral intention [21]. In this model, service value was interpreted into the exchanging compensation between the sacrifice of service quality and awareness. In addition, the recognition of service value is able to affect the purchasing will of a consumer.

Therefore, the service quality of a supply chain information system which is provided by a central factory will affect the satisfaction and the service value of the supply chain information system for the suppliers. For this reason, we raised two hypotheses as follows.

Hypothesis 1: The better the service quality of the E-SCM of a central factory, the higher the satisfaction of its supplier.

Hypothesis 2: The better the service quality of the E-SCM of a central factory, the higher the service value of the supplier.

System Quality

System quality was defined as a measurement of an information processing system [16]. Some scholars [22], however, defined system quality to whether you can find any bug in the system, the consistency of the user interface, the easy-to-use factor, the reaction rate of the interactive system, and the maintenance of the program code and its quality. Simultaneously, the service quality of URLS included the speed of reaction and accessibility of a system [23]. The former represents the waiting gap between the user and the URL he/she is using, the later represents the instant providing from the related system of a URL. This research showed that the reactive speed of a URL is the most significant effect judged by the user.

From the discussion above, we raised a hypothesis as follow:

Hypothesis 3: The better the service value in a E-SCM, the higher the satisfaction of the suppliers of the E-SCM.

Information Quality

Some scholars [24] [25] defined information quality as the information which is produced by the system that should meet the requirements of users, which includes: content, accuracy and formality. They measure covered the measurement of information quality. The index of this measurement was information accuracy, information completeness, information relevance, the need of information content, and the instant of information. According to our study, E-SCM is an information system [26]. Based on this discussion, we raised a hypothesis as follow:

Hypothesis 4: The better the information quality in an E-SCM, the higher the satisfaction of the suppliers in the E-SCM.

Organization Justice Literature Review

In a practical situation, "Organization Justice" is one of the key factors a manager needs to be concern of when giving an order. In a theoretical situation, "Organization Justice" is an important construct in organization management. The idea of organization justice was brought out through concepts of the Equity Theory and Distributing Justice which was brought out by a social psychologist [27], in addition, to expand and to integrate with theories from other scholars [28]. The key variable of organization justice is the objects chosen for comparison with the justice of organizing. These objects can be classified into three categories: Others, Systems, and Oneself.

A scholar [27] emphasized the recognition of the result of distribution equity, in other words, distributive justice. The model of both Equity Theory and Distributive justice, however, can not completely predict the reaction from the understanding of people who are treated unequally [29] [30]. Therefore, the following researches brought out the theory of procedural justice [31], which means the equity people sense during a series of procedures. The drawing of procedural justice expanded the study of distributive justice. According to the study, it showed that the awareness of rewarding distributive justice is not as important as the awareness of procedural justice [32]; some scholars [33] organized distributive justice and procedural justice related documents. According to a scholar [33], based on the experience, the scholars differentiated and connected the variables of organization justice, and they showed that there are two components in procedural

justice: Formal process and interactional justice. They [34] also brought out interactional justice, emphasized the treatment that the members of an organization received, and if the communication among them had produced the awareness of equity.

However, there are some scholars that think that interactional justice should belong to the third type of justice [35] [36] [37] [38] [39]. However, it is still not clear to determine if organization justice is able to narrate by using two or three factors [40]. Therefore, our study integrated all the point of views from the scholars mentioned above to start our research: Distributive justice, procedural justice, and interactional justice, to discuss the generality among the effects from different variables.

Work Performance

The Equity Theory [27] indicates the increase or the decrease of working performance of staff comes from the recognition of equity of gaining, which means when a staff compares the input and output with a certain object. If his/her ratio is equal to the comparative object, it is fair; if not, this staff is possible to experience unfairness, nervousness and even unhappiness in these emotions. Some scholars also introduce and expand the concept to organizations. The equity concept in the organizational field has more attention on the recognition of equity from its staff. As a result, with more recognition of organization justice and the more equal a manager treats its staff, helped staff to play other roles that are not in their field better. The staff also will also have a better working performance in return to the organization. In short, the increase of organization equity recognition helps to increase the working performance in an organization.

Distributive Justice

Many related researches mainly quote the Social Exchange theory to judge if it is equal enough [27]. Evidence in research showed that distributive justice can be flexibly applied in a different environment (from work to family, goals & from productivity to group interaction), and different motivations (from individual motivations to compelled motivations). Our research inferred that when a central factory changes its result aspect from a supplier's operating procedure, including: the way it acquire the orders, the numbers of orders, the amount of money from accounts receivable, it might affect the distributive justice recognition from psychological awareness, thus, affects the feeling result of the central factory to its information system. From the discussion above, our study raised a hypothesis:

Hypothesis 5: The better the distributive justice in a supply chain management, the higher the

performance out come from the supplier to its E-SCM.

Procedural Justice

Two important concepts of procedural justice were found out in litigation [41], they are: process control and decision control. Process control is the solution of a lawsuit that must go through a series of official law procedures, and before the decision is made, people have a right to express their opinions and be involved in the procedure. Decision control means whether a litigant has an actual control power to his/her decision making, the main concern is focus on the legal procedure aspect. Later, a scholar [33], transferred procedural justice from the traditional result-oriented to procedure-oriented, which means from “how much the reward is?” to “how to decide the reward.” He found out that even though at the end a person received unreasonable distribution, this person also recognizes it is fair because of procedural justice [42]. Therefore, our study inferred that when the operating procedure is fair enough in a central factory, there is more satisfaction from a supplier to the E-SCM of a central factory. From the discussion above, our study raised a hypothesis as follow:

Hypothesis 6: The better the procedural justice in a supply chain management, the higher the satisfaction of a supplier from an E-SCM.

Interaction Justice

“Interaction Justice” was firstly brought out by the scholars [34]. By reviewed the related literature [43], he raised up two constructive aspects of procedural justice, one is formal justice: a definition that is similar to the general definition of procedural justice; another one is interaction justice: an equality evaluation from a person when receiving an interpersonal relationship, which is either one-way or two-way. Interaction justice emphasizes on communication policy, an appropriate way for staff to complain when they are not satisfied with their work, a compensation policy, and the adjustment of false distribution. Therefore, whether a central factory provides a complaint procedure for a supplier in order to express a supplier’s feeling, it is going to have a great impact on a supplier’s awareness of his/her interaction justice. From the discussion above, we raised a hypothesis:

Hypothesis 7: the better the interaction justice in a supply chain management, the higher the performance outcome from a supplier to its E-SCM.

Value

“Value” was firstly mentioned in the marketing field. When a scholar raised the aspect of costumer-orientation, he suggested that a product in

order to please a customer creates “value” [44].scholars also suggested that Value is the comparison between receive and gain [45]. A scholar gave a completed definition to “Value”: [Value is a completed evaluation that consumers made for the effectiveness of a product, which is based on the recognition of costs and benefits. “Benefits” varies among people, for instance, some people want to benefit from quality, other want to benefit convenience. “Costs” is the same, some people are more concerned about time cost while some people are more concerned about money cost, or the energy it is going to cost them on a certain thing. So, “Value” represents the exchange after both obtaining and devotion.][46].

The Consumption Values concept model which was raised by a scholar [47], divided consumption value to three parts: cost-based value, quality, and performance outcomes. The “Value” aspect in the consumption value concept model [47] covered product value and service quality. Since this study is discussing the satisfaction of suppliers after using the E-SCM built by the central factory, this study tend to adapt and illustrate the service value, information value, and information quality in the IS success mode [16]. We are not going to have a further discussion about the independent variable, ideal standard, from a Value aspect in the Consumption Value Concept [47]. However, in supply chain management, a party with an advantageous position, for instance, the central factory, is about to require another party, like, the supplier, to join the establishment of an inter-organizational information system. Although the supplier in this framework plays a role of a consumer, it can only accept the information system which is organized by the central factory. It doesn’t have a chance to choose or compare it with other information systems. Due to this reason, we are not going to have a further discussion about the behavioral intension aspect from the satisfaction model of the consumer behavioral intention [21]. In this article, we only chose satisfaction as the independent variable of performance outcomes, cost-based value and sacrifices.

Performance Outcomes

The performance outcomes which are mentioned in consumption value model [47], indicated the period of time after a consumer consumes and the sacrifice happens to a consumer, after the comparison of his/her feelings. It is a comparison of explicitness, in terms of a consumer being able to use some of the standards in his/her mind as established standards to do comparison. After comparing with these cost and benefit standards, it transforms performance outcomes to a specific feeling, for instance, pleasure, monetary value, or a kind of utility. Consequently, after a supplier use the E-SCM, a supplier compares

it to the result of sacrifices, and it influences a supplier's point of view towards the satisfaction and cost-based value of the central factory's E-SCM. For this reason, our study raised the following hypotheses:

Hypothesis 8: *After a supplier using the E-SCM, the better the performance outcome is, the higher the satisfaction of the E-SCM is.*

Hypothesis 9: *After a supplier using the E-SCM, the better the performance outcome is, the higher the cost-based value is.*

Cost-based Value

In cost-based Value, we adapted the concept of transaction costs. Scholars [48] brought out the idea that when a buyer choosing to trade in a traditional marketing environment or E-commerce environment, this buyer has to take in consideration six related costs, these are: 1. Price of a product, 2. Searching costs, 3. Risk costs, 4. Delivery costs, 5. Business costs, and 6. Marketing entry costs. Consequently, the profits that a supplier receive after using supply chain management, compares with the related costs the supplier has to take, it is able to influence the satisfaction of a supplier from the central factory information system. Based on the discussion above, we raised a hypothesis as below:

Hypothesis 10: *The better the cost-based value of the E-SCM used by a supplier, the higher the satisfaction to the E-SCM.*

Perceived Sacrifice

A scholar [46] suggested that a sacrifice mainly includes perceived currency value and perceived non-currency value. Currency value is the actual price which is experienced after a supplier use an information service, like, an internet platform fee. In addition, the supplier perceived currency value is the transformed perception, for example, "expensive" or "cheap", from the actual price to a meaning form. On the other hand, the perceived non-currency value price includes the searching costs, time costs, and psychic costs that a supplier must pay when enjoying the information service. Cost-based Value in the model of consumption value [47] is the effectiveness of a product and service experienced by the supplier, but not its costs. Based on the discussion above, there are two hypotheses we raised:

Hypothesis 11: *The less the perceived sacrifices of the E-SCM used by a supplier, the higher the cost-based value to the E-SCM.*

Hypothesis 12: *The less the perceived sacrifices of the E-SCM used by a supplier, the higher the service value to the E-SCM.*

Service Value

"Values" is based on four of the following definitions: lower price, the benefits gained from a product, the exchange of price and quality, and the exchange of costs and benefits [46]. Scholars [20], moreover, suggested integrating these four definitions into one, which is: "based on the service effectiveness, consumers have an overall evaluation of the benefits they receive and the costs they pay. Hence, the service value produced by the supply chain information system from central factory used by a supplier is able to influence the satisfaction of central factory E-SCM to a supplier." Therefore, this study raised the following hypothesis:

Hypothesis 13: *The better the service value of E-SCM used by a supplier, the higher the satisfaction to it.*

Method

Research Methods

The methods of this study are an individual case in-depth interview of the qualitative method and quantitative method investigation research method. A scholar suggested this research method is very helpful when doing a study [49]. If it can be combined with the case study method in a qualitative analysis, it has a great improvement to the research result. The research method of this study verified the research hypothesis and the integrated model of the consumption value concept development, used the result of an individual in-depth interview and research method to test and verify the recycled questionnaires by analyzing the data and the models according to structural method.

Variable Measurement

The variables in this study can be categorized into a dependant variable, medium variable, and independent variable. The independent variable in the model are: service quality, system quality, information quality, distributive justice, procedural justice, interaction justice, performance outcomes, and sacrifices; the medium variable are: cost-based value, service value; the dependent value is measured by the performance outcome satisfaction of the E-SCM. Each measurement item is rated according to the Likert rating scale (from 1: very disagree to 5: very agree). In order to receive a questionnaire that has good credibility and effectiveness, the variable measurement is based on related literature, and adapts a rating scale that is credibility proved with efficient effectiveness. During the process of this questionnaire designing, there was a professor that had a careful and deep discussion of the content, in order to promote the face validity and content validity of this questionnaire. Finally, there was a

trail of this questionnaire, in order to reinsure the quality of it.

The Discovery and Result of Individual In-depth Interview

The choice between single case and multiple-case

The single case is adapted at the stage of exploratory in the beginning of a research and later as a theory of denial. The multiple-case design can be used in case comparison and analyzed to develop or extend theories [50] [51]. The verification of this study is based on the consumption value concept [47] and is built by the framework of the study of satisfaction of the E-SCM, in terms of observing the key factors that influence the satisfaction of suppliers. For the purpose of the study, it should go through the deep understanding of the multiple-case design in order to carry out cross case analysis to seek for a general principle and not to focus on the overall discussion on a single case. Therefore, it is appropriate for this study to adapt a multiple-case design.

The choice of cases

The study is based on suppliers' point of view to measure the conceptual framework of the satisfaction of the E-SCM. Therefore, the choice of samples focuses on the suppliers who have close cooperation with central factory. The businesses of suppliers are: frames, plastics, engines, electronics, and others. The multiple-case in-depth interview samples are mainly enterprises in southern Taiwan. They are wide spread in the industrial areas of Kaohsiung city, Kaohsiung county, and Tainan. When we choose our cases, we consider the scale of supplier enterprises and their willingness. We firstly interviewed them through phone calls to decide our interview objects. There were three electronics enterprises that accepted our request.

Data analysis and the Result

A case study is often criticized due to a weak generalization [52]. By posting and emailing the questionnaire, the study collects all the questionnaires answered by suppliers who use the E-SCM, then analyzed these questionnaire by SPSS and SEM to test and verify the data and models from the research models and hypotheses of this study.

Retrieved Questionnaire and sample characteristics

The sample in our study is majored in the suppliers who are using the supply chain management of KYMCO. We sent out a total of 374 questionnaires. Considering the low retrieval of the questionnaire, the person in charge of central factory supply chain system visited these objects in person or informed them by phone after posting the

questionnaires. Moreover, a notice was also sent out through email about the internet questionnaire to increase the numbers of samples. The details are as below: There were 110 questionnaires sent out by visiting objects in person, the number of retrieved questionnaire were 104 copies. Questionnaires sent by post: 60, retrieved: 55. Questionnaires sent by email: 204, retrieved: 93. The total amount of send out questionnaires was 374 and we retrieved 252 copies that is a retrieval rate of 67.3%. Deducting 10 copies of invalid questionnaires due to same reply, valid questionnaires were 242 copies with a valid retrieval rate of 64.7%.

This study is using ANOVA and General Liner variable analysis to have a satisfied analysis of the significance through the information from both individual and company traits. We found that the satisfaction showed in questionnaire-filling personal attribute, the most significant difference is the age group, specially the age group between 20s to 30s and 50s above. The group of 20s to 30s has a higher satisfaction with the E-SCM that is more than the group of 50s. Our research suggests that this is due to their motivation and acceptance in learning IT technology and how to use it.

In the attribute of computer skill level, objects who are very good at computer skills, the level of the satisfaction with the E-SCM is acceptable > passable > bad, this also presents a significant difference. Based on our analysis, the competence of computer skill could also influence the recognition of satisfaction among users. There are not any significant differences in other attributes; for instance, age, educational background, and the time spend on the internet. Therefore, from the finding of the questionnaire-filling personnel we can find that there is a connection between the two attributes mentioned above and the satisfaction ranking.

The verification of Questionnaire Credibility

This study carried out the analysis to the validity and credibility of information from valid questionnaires. First, we started analyzing the construct validity from the rating scale, then started analyzing convergent validity and discriminant validity. The analysis of information credibility, we measured and explained it according to Cronbach's alpha measurement instrument. The eleven aspects in our study's credibility range are between 0.880 and 0.948. Both of the figures is larger than 0.7; the overall figure of Cronbach's alpha is 0.975, which shows our questionnaires have a very high credibility. Consequently, the framework has reached a certain standard of credibility.

This study adapted all kinds of questions in supply chain management as a basis to extract the representative factors. It analyzed each question of

the questionnaire by principle component analysis, and used it as preparation work for factor analysis. We set up the eigenvalue greater than 1, and use varimax of orthogonal rotation as a factor rotation, and chose the question that the loading modulus greater than 0.5 after the rotation as the component. There were 67 questions and we drew out eleven main components. Total variance explained is 74.34%. Finally, we named each component according to the content of questions covered in each of them.

The examination of research model

Since Structural Equation Modeling (SEM) in expressing processing procedure is able to test and estimate the causal relationship by a series of structural formulas and able to frame a casual diagram through casual relation in order to have a clear understand of a research aspect [53]. Moreover, we tested and verified the suitability of the model by adapting EQS6.1 software, used the Maximum Likelihood to estimate the measurement model, and analyzed all the aspects which are the representative scores of the sum of all the questions.

After integrated all the questions by their aspects and analyzed through EQS, the index of matching rate from each aspect model, like, CFI, NFI, and IFI all reached to a perfect acceptable standard (CFI=0.946, NFI= 0.939, IFI= 0.947- these are all greater than 0.9); GFI= 0.898, NNFI= 0.859- these also close to the fitting standard, so is SRMR which is 0.066. Consequently, it shows the relations among all the aspects defined in the model fits the proved information. After confirmed the model has a certain fitting rate, we further inspected the relations among all the aspects, which are the hypotheses raised in this study. We integrated the routes and relations among all the aspects to figure 2.

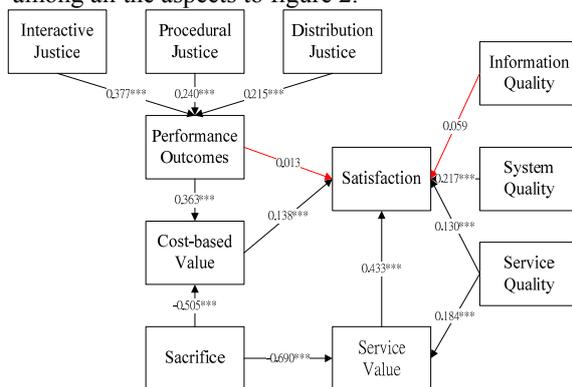


Figure 2. The analysis result of this research model, note: ***, p< 0.01

Illustration and Discussion

We are going to discuss and integrate the reasons and analyze the result of some hypotheses that are not supportive.

The relations between Information Quality and Satisfaction

When we were retrieving the questionnaires, we were informed by our team members that the carrying out of supplier informationalization doesn't bring any convenience or simplification on workload. However, they have to recruit people that have ability to work out the system with the central factory for promoting activities. Due to the frequency of information staff leaving their jobs due to the rapid changing of society, these supplier managers can only choose staff that has the same ability among the staff they already have to work on this practice. Due to the increasing workload, the staff who are chosen to work on this task can only try their best to process the information from the E-SCM provided by the central factory, but they are able to consider the information quality whether it is good or bad, and they have no extra time to discuss and improve the problem with the information staff in the central factory. Therefore, we can say that the information quality of the central factory doesn't influence the overall satisfaction of the E-SCM.

The relations between Performance Outcomes and Satisfaction

Performance outcomes means that after suppliers compared the external standards with their internal standards, the comparison transforms to some specific feelings, for instance, purchasing procedures, shortening of operation terms, the decrease of stocks, and the increase of actual delivery rate, shortening the order processing cycle, promoting delivery rate, improve the defection of products, and accounts receivable. Due to the fact that the items we mentioned are mostly beneficial to the enterprises themselves, the operators can not feel that they are benefited by that. Moreover, a dominant central factory requires their suppliers to compromise the introduction of the E-SCM. Consequently, to the suppliers, in order to get orders, they have no choice but to change their internal operating procedure in order to compromise the information system provided by the central factory. Some related studies in the past also indicated that there is a possibility of user denial when a new information system is introduced. So, the change of procedures to these suppliers might not be able to shorten their practical operation procedures and they have to do poorly-work done over again. Therefore, the better the performance outcome from a supplier, the better the satisfaction towards E-SCM does not exist.

Research Contribution

The contribution of this study can be classified into two categories as follow.

Integrating the satisfaction model theory framework

From the research in the past related to the satisfaction of the E-SCM, most of them used the supply chain partnership as a main subject and used the elements of cooperation, commitment, trust, conflicts, to discuss the satisfaction of suppliers. However, due to the lack of discussion of related topics, our study takes the supplier chain users' point of view, applied the IS success model, the organization justice theory, the consumption value concept and the consumer behavioral model as an integrated basis, to measure the satisfaction study model of E-SCM built by the central factory. Therefore, there is an importance and necessity to our study to integrate the different concerns of the satisfaction framework, to test and verify the casual relations among all factors.

Conformation of the key factors which influence a E-SCM

We can tell from the conclusion of our study, from a supplier user's point of view, that the distributive justice, procedural justice, and interaction justice, as three variables in the E-SCM have a great impact on the performance outcome in an E-SCM. The service quality, system quality in the IS success model and the Cost-based value and service value in the consumption value concept, these four variables has a great impact on the satisfaction of an E-SCM. On the other hand, the performance outcome and sacrifices of these two variables in the consumption value concept have a great impact on the service value in E-SCM. In conclusion, after integrating the illustrations above, this study suggests that if a central factory is about to foresee and understand and deal with these influential factors, they are more likely to be able to win higher support and satisfaction from suppliers in E-SCM.

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