Effect of Information Security Management in Automotive Supply Chains to Reduce appetite Boosting Orders

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Abstract

The purpose of this study was to evaluate the impact of supply chain management, information security, Iran's auto industry is doing hide Strengthen accountability orders. With these two issues in the study of literature, various factors were identified with the help of factor analysis, factors were determined in the automotive industry. Furthermore, the correlation analysis, how the ISMS impact on supply chains has been Strengthen accountability orders. Studies of the impact of various aspects of the ISMS coordination of information, accuracy of information, training, etc. causing Strengthen accountability creating custom orders, such as classification, physical and informational delays, disabled equipment, etc.

Keywords*: information security management, supply chain management, Strengthen accountability orders, Automotive industry in Iran*

Introduction

With the increasing usage of Internet, data exchange and integration costs for information management Nowadays, there is a comprehensive system for monitoring and exchange of information and data security management, more than ever, it is [34]. Physical capital was raised from the issue of security, information security issues arose (since the information is considered a form of capital). The two knew each other can support the combined company to provide security control framework [30].

Due to the variation in Organizational Business Processes companies survive and maintain its competitive position requires use of information technology to exchange information and transactions are monitored [35]. Large and small organizations, more than ever, the technology used to control and accelerate their businesses have, especially in the automotive industry due to extensive physical and information required to use the system in financial processes supply chain management and information exchange is felt. One of the most important parts that are involved in organizational effectiveness, supply chain management.

Efficiency of supply chain management has a direct impact on organizational performance. Since supply chain management, a range of organizational processes such transactions, physical and information from suppliers to customers is the need for a precise system control, data

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accuracy and also physical exchanges are controlled. In this context, information security management for the development and exchange of information and physical security, based on a management system based on standards such as BS7799, ISO / IEC 27001 and the technical report ISO / IEC TR 13335, which is the leading standards Technical guidelines are considered in this context [3] operates. One of the issues in the supply chain, strengthen accountability and review of the order or whip effect. Strengthening taking orders, reflecting changes in the value chain from customer demand and order over the top of it.

Information Security Management System (ISMS) via standardization, concentrating management information systems, based on factors such as the number of orders strengthen accountability Creator, waiting time, material and information and be effective. It is expected that the ISMS ensure achieving accurate and timely information to a central control system and precise orders strengthen accountability have an influence on the decrease and increase supply chain efficiency is [18]. This research was developed to answer the question: Is there a connection between the use of ISMS and strengthen accountability orders?

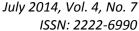## Literature Information Security Management System

With the advent of the Information Security Management Standard in 1995, systematic approach to the issue of immunization data exchange environment [3].and planned to monitor the creation, transfer and exchange of information within his or her collection [4]. Information security management through the use of standards and management systems are information security in organizations. British Standards Institution, a set of management standards (BS 13335) for immunization data exchange environment in the organization has to offer.

The purpose of information security management in an organization, maintain its assets (software, hardware, information and communication, and human resources) against any threat (including unauthorized access to information systems and environmental risks, and risks from users) and to achieve this goal, requires an integrated program [26].monitoring activities and review activities, and 4) improving - maintenance and continuous improvement activities [15,16]. One of the characteristics of information security management system, continuing the process of monitoring and evaluation system through periodic review system and so on. Other security measures are therefore more confident in the long term [4].

The most important to implement an information security management system in the field of infrastructure required to support management and manpower expert noted. Among the reasons that may hinder the implementation of these systems in organizations, absence of infrastructure, information technology in organizations [34].

Strengthen accountability order (whip effect)

In recent years, a large increase in the little bag has been shared information throughout the supply chain. The emergence of logistics software, such as SAP (SAP), which allows businesses to share their own databases [31]. Most industry analysts believe that such systems despite huge investments, financial savings are great looking. For example, auto industry analysts indicate that improving the quality of information sharing between "original equipment manufacturers" at the highest levels of the supply chain, would save about one billion dollars [28]. One reason for reducing the whip effect.

First time, J. Forster, now that we can detect these effects and their possible reasons outlined. He is also the computer model showed that even if the average demand is constant, random fluctuations in demand and limited capacity of the plant can be customized Strengthen accountability reasons. According to the phenomenon whip effect more things done in the area of inventory management by is concerned [9]. his observations of Strengthen accountability orders with "drinking games" reported that, in fact, a supply chain has four levels. In this chain, each of the levels, independent of other levels just downstream according to orders, decisions are being taken. Thus, the results of these laboratory games, whip effect was confirmed [32]. Interpretation based on model analysis Forster, now, remove one or more intermediate levels in the supply chain dynamics suggest that decreased levels of reduced overhead costs. According to him, the third step in the process of supply chain integration strategy, which was proposed by Stevens [38, 39] and in its internal integrity management, materials management, production and distribution is concerned [33]. Interpretation with Manson - Jones again on the actual demand transparency in the supply chain information sharing is emphasized. According to them, many enterprises have focused only on improving the flow of materials and strategies have overlooked the importance of information flow lines [23]. Hong Min and colleagues in their research through simulations showed that the harmful effects of information throughout the supply chain can be followed. So planners who have a vast amount of information, must know how to use them. When the variance leads to additional costs in the form of increased holdings increased, the speed, or lack of goods to the customers, as it is a concern for distribution chains [13]. Therefore, in recent years, some researchers have examined the reasons Strengthen accountability orders, Lee and colleagues have identified five main factors of operational Strengthen accountability orders that are received for processing requests, waiting time, orders on hand, price volatility, and rationed games and deficiency [20,21].significant reduction in orders Strengthen accountability knows [2].

Materials and Methods

As a result of this research, and applied, including the. The study of the review, identify and describe relationships between variables in more. Situation is concerned, the categories are descriptive. The study also. Categories are included in the correlation studies. The instrument used in this study, questionnaires. Based on a Likert range quintuple its spatial domain of automotive companies, suppliers and service providers then sell them in Iran. In this. Accordingly, a questionnaire including factors necessary to implement safety management systems. Strengthen accountability information and orders were prepared. To achieve a good reputation in the questionnaires. And reduce the risk of diversion questionnaire results from a pilot study of the use.   Evaluation of the pilot took a pretest in which 13 experts participated in the planning and production manager. Test survey was conducted in real terms. Given that the population size is almost unlimited and undetectable, respectively (99% and accuracy of 10% confidence level) Minimum sample size shall be 171 patients [7]. After the initial survey, 171 questionnaires were collected in the second phase. About 45 percent of respondents had a graduate more than five years and has been in the automotive industry.

Given the parameters of the papers obtained were checked and confirmed its validity. It also appears to confirm the validity of the content of the questionnaire, a number of university

professors and experts in the samples collected to investigate it, and the feedback correction was applied. Evaluation of reliability using Cronbach's alpha was SPSS16 SPSS. Cronbach's alpha for the scale ISMS (1 = 0.831α), and for orders Strengthen accountability Questionnaire (2α), respectively, 831/0 and 803/0, and the following factors, some variables were excluded from the study, re reliability was calculated using and final alpha, respectively, 838/0 and 807/0 to [24]. Since alpha 7/0 is more, reliability is confirmed [10].

KMO index was used for the sampling adequacy [17] that the value of 6/0 is greater, will be approved sampling adequacy [11.14].

Statistical Analysis
Factor Analysis

Factor analysis, as a basis for creating a new set of variables that specific provider. The nature of these variables provides variables in [19]. In this methods, new variables can present problems associated with the large number of variables and dependencies. New to significantly reduce high among them [8]. In this paper, the objective of the application of factor analysis, factors reducing the ISMS and custom chain Strengthen accountability Provide for the identification of important factors is higher. In this study, in order to preserve the structure. And the proposed model, confirmatory factor analysis was used [19].

But before doing this analysis, to ensure the adequacy of the sample, KMO test should be performed. Generally, KMO should be greater than 5/0 but in this article to ensure. 0/6 is considered [12].

As shown in Table 3, KMO index equal to 809/0 and 791/0 were. As previously mentioned, the number of samples (questionnaire) for factor analysis Enough. The value of Bartlett's test, was less than 5%, indicating that Factor analysis is a suitable tool for identifying the structure factor model fit assumed to be known and the correlation matrix (the correlation matrix of the same unit) is rejected.

Table 1. Validation analysis to evaluate the adequacy of the sampling

Consideration	factors		
Criterion "lack of data loss due to human error or system failure" Delete and 812/0 were KMO = c.	14	0/809	Information Security Management
	7	0/791	Strengthening taking orders (the whip)

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Then, using rotation to examine the role of variables is discussed. In this section, as the absolute value of this coefficient, the more relevant factor greater role in all variables will be considered.

TABLE 2. Indicates factor analysis on the Strengthen accountability.

decision	Indicates factor	Factors	Row
Accept	0.734	request processing update	1
Accept	0.768	classification order (Bvrbyj effect)	2
Denied	0.474	rationed and scarce games	3
Accept	0.842	physical delays	4
Accept	0.631	data delays	5
Accept	0.832	downtime machinery	6
Accept	0.865	Slippage	7
Accept	0.738	number of levels in the chain	8

Correlation Analysis

To analyze the correlation between two variables (information security management and Strengthen accountability order) of the Spearman correlation coefficient was used. The results of these tests are given in Table 3. Each of the values listed in the table represents a test of significance (sig) is. To accept the default correlation between two variables, the sig should be less than 05/0. Variables were correlated with each other at a table marked with an asterisk .

Table 3. Results of correlation analysis of factors related to strengthening accountability ISMS order (whip effect with 99% confidence)

number of levels in the chain	Slippage	machinery	downtime	physical delays	rationed and scarce games	request processing update	Strengthening Accountability Orders

							ISMS
0/014*	0/071	0/069	0/019*	0/027*	0/023*	0/006*	Coordination of information
0/821	0/408	0/425	0/751	0/595	0/604	0/918	
0/020*	0/048*	0/048*	0/078	0/031*	0/068	0/063	To avoid human error and hardware
0/738	0/512	0/512	0/387	0/583	0/445	0/456	
0/014*	0/025*	0/244	0/006*	0/007*	0/256	0/027*	Accuracy
0/823	0/595	0/065	0/918	0/893	0/070	0/596	Information
0/121	0/235	0/254	0/232	0/006*	0/254	0/068	Precise control Physical movement
0/089	0/073	0/064	0/075	0/918	0/064	0/445	
0/347	0/098	0/067	0/343	0/257	0/235	0/019*	Training ground for users
0/008	0/387	0/456	0/009	0/067	0/073	0/752	
0/031*	0/025*	0/029*	0/035*	0/025*	0/012*	0/048*	Understand and build a system to suit their needs
0/510	0/595	0/543	0/533	0/595	0/773	0/512	

* The first number in each cell indicates the significance test and the second number represents the Spearman correlation coefficient.

Results

In this section, the main results obtained in Section IV, are also studied. The results of the statistical assumptions is shown in Figure 1. The results of the test showed that the effect of harmonization of data on five factors: demand signal processing orders Strengthen accountability classification of orders, delays physical and information, and the number of levels. Coordination, the biggest impact on the processing demand (r_s = 0/92) is. Interpretation (1999), the better the prediction of each member according to actual demand, have noted [40]. Peek also refers to the various levels in the supply chain, there are three causes (updated demand forecast, delaying the purchase, and the classification order) are the main reasons for Strengthen accountability orders. So, to share information that is trusted by every level, could be a better match supply and demand [25]. This research can be considered similar result.

The accuracy of the information has the greatest impact on the causes of delays and physical levels. After a system according to their individual needs, the impact of all factors causing Strengthen accountability orders. Smart (1996), the impact of price fluctuations on the proper information system and physical delays noted [29] that this result can be corroborated these results.

Conclusions and suggestions for future research

In this paper, we first identify the dimensions of information security management and Strengthen accountability orders in supply chain is discussed. The update process requests, handle orders, physical delays, delays, information, equipment failure, fluctuating prices and the number of levels in the chain were identified. Continuing with the review of the relationship between variables and factors Strengthen accountability orders ISMS, ISMS influence on how the order Strengthen accountability automotive industry supply chains were identified. The results of these studies demonstrate the effectiveness of the ISMS on all orders Strengthen accountability causative factors.

After data synchronization request signal processing, classification orders, delays physical and intelligence levels are affected. Next stop human error and hardware, has the greatest impact on a number of levels. The accuracy of the information, equipment failures and has great influence on the physical delays. Physical movement is controlled by touching the physical delays. After training ground for users will demand improved symptoms and appropriate systems on all orders Strengthen accountability cause has an effect. Finally, according to the results obtained in this study, the use of the Information Security Management System Orders Strengthen accountability decrease in the supply chain has impact. Compare with other organizations in the supply chain through co-payments or previous condition. On the other hand, researchers can use these results to evaluate the impact of standards on supply chain efficiency and effectiveness of information security management systems, enterprise business would.

References

1.   Bourland K.E., Powell S.G., Pyke D.F., (1996). Exploiting timely demand information to reduce inventories. *European Journal of Operational Research*, 92, 239–253.
2.   Broderick, J. S. (2006). ISMS, security standards and security regulations, *information security technical report*. 11: 26 –31.
3.   BS 7799-2, BS ISO/IEC 27001, (2005). *Information technology-Security techniques-Information security management systems–Requirements (First edition)*.
4.   Butman, J. (2002) "A pain in the (supply) chain, "*Harvard Business Review*, 80(5), 31–44.
5.   Childhouse, P., Towill, D.R. (2003). Simplified material flow holds the key to supply chain integration. *Omega.* 31(1), 17–27.
6.   Edwards, J. E., Thomas. M. D., Rosenfeld. P., Booth-Kewley, S. (1997). *How to Conduct Organizational Survey: A Step-by-Step Guide*. Thousand Oaks, CA: Sage.
7.   Fathian, M., Akhavan, P., Hoorali, M. (2008). E-readiness assessment of non-profit ICT SMEs in a developing country: The case of Iran. *Technovation*. 28, 578–590.

8. Forrester, J. (1958). Industrial dynamics: A major breakthrough for decision makers. *Harvard Bus*. Re. 36, 37–66.

9. Hair J. F., Anderson, R. E., Tathman, R. L. Black, W. C. (1995). *Multivariate Data Analysis*. *Prentice Hall.* NJ: Englewood Cliffs.

10. Hanafizadeh, M. R., Hanafizadeh, P., Saghaei, A. (2009). The pros and cons of digital divide and e-readiness assessments. *International Journal of E-Adoption,* 1(3), 1-29.

11. Handfield, R. B., Nichols, E. L. (1999). *Introduction to Supply Chain Management*. *Upper Saddle River, NJ. , Prentice-Hall.*

12. Hong-Minh, S.M., Disney, S.M., Naim, M.M., (2000). The dynamics of emergency transshipment supply chains. *Int Journal of Physical Distribution and Logistics Management.* 30 (9), 788–815.

13. Hutcheson, G. D. Sofroniou, N. (1999). *The Multivariate Social Scientist: Introductory statistics using generalized linear models*. London.

14. ISO/IEC 27001, 2005. (2005)*. Information technology-Security techniques-Information security management systems–Requirements (First edition)*.

15. ISO/IEC 27005, 2008. (2008) *Information technology - Security techniques-Information security risk management (First edition)*.

16. Kaiser, H. F. 1958. The Varimax criterion for analytic rotation in factor analysis. *Psychometrika*, 23(3), 187–200.

17. Kannan, V.R., Choon, K. (2005). Just in time, total quality management, and supply chain management: understanding their linkages and impact on business performance. *Omega,* 33, 153–162.

18. Kline, P. (1994).An Easy Guide to Factor Analysis. Routledge.

19. Lee, H., P. Padmanabhan, S. Whang. (1997b). Information distortion in a supply chain: The bullwhip effect. *Management Sci*. 43,546–558.

20. Lee, H., P. Padmanabhan, S. Whang.(1997a). Information distortion in supply chains. *Sloan Management Rev*. 38, 93–102.

21. Li, S., Ragu-Nathan, B., Ragu, T.S., Subba R.S. (2006). The impact of supply chain management practices on competitive advantage and organizational performance, *Omega.* 34, 107 – 124

22. Mason-Jones, R. and Towill, D.R. (1999). Using the Information Decoupling Point to Improve Supply Chain Performance *, International Journal of Logistics Management,* 10(2),13-26

23. Nunnally J. (1988).*Psychometric theory*. NY: *Mc Graw -Hill.*

24. Paik, S.K., (2003). Analysis of the causes of bullwhip effect in a supply chain: A simulation approach. Ph.D. Dissertation, The George Washington University.

25. POA. (2003). *Asset Protection and Security Management Handbook*. Auerbach Publications. POA Publishing LLC.

26. Potter. A., Disney, S.M. (2006). Bullwhip and batching: An exploration. *Int Jour on Production Economics,* 104(2),408-418.

27. Scheck, S. (1998). Net tools could save automakers $1 billion .*Electronic News.* 14 (September). 104.

28. Smart, T. (1996) "Jack Welch's Cyber-Czar", Business Week, August .15, 82-83.

29. Solms, R.V. (1996). Information Security Management: The second Generation. *Computers & Security*. 15, 281-288.

30. Stein, T. (1998). SAP targets apparel. Information Week 140(May 4).
31. Sterman, J., (1989). "Modeling managerial behavior : Misperceptions of feedback in a dynamic decision making experiment". *Management Science.* 35(3), 321–339.
32. Stevens, G. (1989) .Integrating the Supply Chain. *Int Journal of Physical Distribution and Material Management,* 19(8),3-8.
33. Sungho, K., Jang. S., Lee, J., Kim, S. (2007). Common defects in information security management system of Korean companies, *The Journal of Systems and Software.* 80(10),1631–1638.
34. Tan, K.C., Lyman, S.B., Wisner, J.D. (2002). Supply chain management: a strategic perspective. *International Journal of Operations and Production Management*. 22(6), 614–31.
35. Taylor, D.H., (1999). "Measurement and Analysis of Demand Amplification across the Supply Chain" *International Journal of Logistics Management,* 110(2), 55–70.
36. Tipton, H.F., Krause, M. 2003. *Information Security Management Hand Book* (5th *Ed*). 2. CRC Press LLC.
37. Towill, D.R. (1991). "Supply Chain Dynamics", *Int Jour of Computer Integrated Manufacturing*, 4(3)197-208.
38. Towill, D.R. (1992). "Supply Chain Dynamics-the Change Engineering Challenge of the mid 1990s", Proc. Inst. Engr, Part B: *Journal of Engineering Manufacture*, 206.233-245.
39. Towill, D.R. and McCullen, P. (1999). "The Impact of Agile Manufacturing on Supply Chain Dynamics", *International Journal of Logistics Management,* 10(1),.83-96.
40. Wei Fung, A.R., Farn, K.J., and Lin, A.C. (2003). A study on the certification of the information security management systems. *Computer Standards & Interfaces*. 25, 447–46.