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Supply Chain integration and Sustainable supply chain performance: A case of Manufacturing firms from UAE

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Abstract

Sustainability is becoming a more important factor in the processes of organizations. Supply chains management (SCM) has acknowledged a great deal of interest by researchers and practitioners. The primary objective of the current research paper is to examine the relationship between internal integration and sustainable supply chain performance. In addition to that, the study has focused on the mediating effect of supplier integration and customer integration in the relationship between key between internal integration and sustainable supply chain performance. The study focuses on manufacturing enterprises of UAE under subject investigation and its relationship with sustainability goals. A detailed literature has been reviewed critically to develop the hypothesis of the study. A questionnaire survey was adopted to collect data from supply chain managers of manufacturing companies. Smart PLS 3 (SEM) is used to analyze the collected data. The results of the study have shown a great deal of agreement with the proposed hypothesis. Analysis of the study is divided into two major parts. Part one is based on an outer model assessment in which reliability and validity were examined. The second part is based on an inner model assessment in which hypotheses were tested. The result of the study will be useful for policymakers and researchers in understanding the emerging role of environmental concerns in strategic management and operational management.

Keywords: *Supply chains management, hypothesis*.

1. Introduction

Supply chain management (SCM) has received increasing attention from industrialists in light of strategic planning in design, maintenance, and operation of the supply chain process. Despite the improvements that have been achieved successfully with the help of SCM, some or-ganizations overlooked the environmental issues including global en-ergy, global warming, reverse logistic, and ecological concerns in global competition. With the increasing environmental concerns over the past decades, green supply chain management (GSCM) has recent-ly emerged to comply with regulations for environmental protection [2,7]. In order to fulfill environmental obligations, organizations rec-ognize that they cannot work in isolation. Since companies have often been charged with the environmental liabilities of their suppliers there has been an urgency to integrate environmental initiatives, not only within the walls of the company, but across the entire supply chain in order to ensure the company's sustainable performance [15].

The business sustainable performance happens when a company or firm creates ongoing value for its stakeholders and shareholders while keeping up with the environmental requirement [9]. Sustainability is a brilliant way of performing a business, and one of the essential parts of the sustainability transition process is developing innovative and constructive corporate culture through integration [12]. These healthy cultures would be able to create better organizational performance and make optimum use of existing assets for the good outcomes of eco-nomic, environment, and society [16]. The result from having econom-ic, environmental, and social sustainability would ensure satisfaction among the shareholders, supplier, customer, employee, and society.

Incomplete conceptualizations have generated inconclusive results about the relationship between supply chain integrations and firm's sustainable performance [20]. Prior studies [43] have separately inves-tigated internal and external characteristics when investigating the sup-ply chain and inter-organizational performance [39]. Previous studies have also been found to be limited in term of GSCI conceptualization by leaving out two important dimensions of GSCI namely logistic in-tegration and technology integration [40]. There is a need to investigate on the linkage of individual dimension of the supply chain and each dimension of firm's sustainability performance [38]. These situations demand further investigation on the association between supply chain practices and sustainable performance. According to [16], "sustainability consists of actions that extend socially useful life of the organiza-tion enhance the ability to maintain and renew viability of the bio-sphere and protect all living species, enhance ability of society to maitain itself and to solve its major problem and to maintain a decent of welfare, participation and personal freedom for present and future generations of humanity"

In contemporary, the characteristic of competition increasing to global business environments, Therefore, it is vital that manufacturing organizations to cooperate to attain common goals such as minimizing delivery cost, stock holding cost, increase punctuality, enhance quality, improved flexibility, and quickly respond to ensure profitability and customer satisfaction. Otherwise, the company will lose competence in extremely varied and fast change market. For instance, Zara, the Span-ish apparel organization provides a real illustration of the hybrid sup-ply chain. It is one of Spain's greatest and dynamic apparel organiza-tions, producing trendy apparel to a universal target market of 18 to 35-year old's. Since a major difficulty in most supply chains is lacked visibility in actual demand, so, forecast driven was better than demand driv-

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en. Therefore, Zara developed a quick response system for the industry to handle visibility problems.
[27] pointed out three criteria of sustainable performance; economic sustainable performance, environmental sustainable performance, and social sustainable performance. In 2001, the European Commission published a sustainable development strate-gy by emphasizing the importance of social cohesion, environ-mental protection, and economic growth to go hand in hand [27]. Guan, Cheng, and Ye addressed sustainable supply chain man-agement as "a modern management pattern emphasizing on the integration of the economy, environment, and society through all the processes including procurement, producing, packaging, transportation, storage, consumption and disposal of the end-life product, supported by supply chain management technology, and its final goal is to achieve the sustainable development of economy, environment and society".

2. Literature Review

2.1 Sustainable Supply Chain Performance

The proposed framework applied in this study to assess the sustainability performances can be divided into three main sustainability dimensions as proposed by Brentand Labuschagne. These dimensions are economic sustainability, environmental sustainability and social sustainability. Therefore, in embracing the whole concept of sustainability, these three pillars of sustainabil-ity is crucial to run a successful business not just for now but for the future [19].
Economic sustainability is continuing to be one of major goals for business firms. [20], economic sustainable performance is "evaluation of organizational cost reduction, promotes market shares, return on assets, improve income, and profits regarding the economic goals of performance". The implementation of SCM practices among manufacturing firms has resulted better economic performance [20]. The positive result from economic aspect can be achieved through multiple direct pathways of sus-tainable supply chain management. Previous research from [18] investigated on green supply chain initiative among Malaysian certified companies and the result has confirmed the positive re-lationship between economic performance and green supply chain initiatives. Consumers are the main driver of green practic-es implementation and playing huge role by demonstrating their influence and environmental conscious in choosing companies, increasing competitiveness, and economic performance [4].
Environmental concerns and conscious are driving business firms to look onto their operational impacts. Referring to Jun quera, Brío, and Fernández, environmental sustainable perfor-mance is defined as "the evaluation of organizational reduction for emissions, decrease of consumption for hazardous or harm-ful materials, and efficient energy or resources use". Environ-mental sustainable performance is 'achievements in reducing the resource usage, pollution emitted, and waste generated resulting from the undertaken efforts [9]. Environmental sustainable per-formance is also strongly related to environmental goals of or-ganization including the decrease of frequency for environmental accidents and solutions to improve an enterprise's environmental situation [13]. The environmental performance can also be a use-ful indicator in decreasing environmental risks, as well as sup-porting external communication and policy-making for both public and private sectors [24].
The business firms have a huge responsibility socially where they need to take care of their employees and societies. [36] de-fined social sustainable performance as "evaluation of organiza-tion on healthy work environment, social commitment and par-ticipation, education and training, and human resources devel-opment". He added that as awareness among consumers on cor-porate social performance increases, management increasingly recognizes their responsibility for implementing ethical pro-grams to enhance social welfare. There are several domains namely human resources, corporate governance, human rights, and environment that should be properly assessed [8]. Brent and Labuschagne referred social sustainable performance as 'achievements in creating social welfare (for various stakehold-ers including supplier, employee, customer and society) result-ing from the undertaken operational efforts. In detail, the man-agement have full responsibility in the implementation of social commitment and participation, social administrative policies, human resource management, and healthy working environment. Apart from that, United Microelectronics Corporation (quoted that the responsibility also includes employee benefits, staff rela-tions, talent development, working conditions, public welfare support, social concerns, and response. Exposure on social sus-tainable performance would ensure organization in achieving its mission and vision as well as to stay competitive in the market.

2.2 Supplier Integration

Supplier Integration Supplier refers to a party that provides materials, parts, services, and goods directly to a manufacturer [32]. The definition of supplier integration is "environmental collaboration between a firm and its suppliers in implementing environmental management practices" [38]. It is a phase where upstream segment of company's supply chain and product are focused [44]. Suppliers should be involved in the implementation of environmental practices in terms of material management procedures and purchasing processes [29]. The supplier's environmental performance is increasingly monitored by manufacturing organizations to ensure that the equipment or materials supplied have gone through environmental-friendly processes [29]. The main players in automobile industries like Toyota and Ford have required their suppliers to obtain ISO 14001 certifications in supporting the environmental initiatives. This is due to the rea-son that suppliers are important partners as they can be in a posi-tion to provide assistance to improve environmental performance of the supply chain [30].
RBV researchers assume that every firms hold diverse resources and capabilities that competitors find costly and difficult to duplicate and implement [22]. In today's global marketplace, to achieve competitive advantage, an organization's ability to be responsive to competition by focus on four competitive characteristics which is cost, quality, speed, and flexibility . Besides, supply chain relational capability is critical important factors on supply chain operational performance [28]. Meanwhile, IT capability and organizational culture capability are equally important.
In SCM study, several researchers found that supplier partnership, customer relationship, information sharing and information quality improved supply chain operational performance. The higher level of supplier partnership, customer relationship, and information sharing can lead to optimize supply chain costs [35], improved supply chain reliability [34], enhanced supply chain responsiveness [34], and flexibility in managing uncertainties in supply and demand.
Supplier partnership is critical for textile and apparel companies since it can provide quickly respond to a rapid changing market. The most basic benefit of partnering with suppliers is the buyer can assure quality materials consistently and timely deliveries from suppliers [3]. For instance, the partnership of Procter and Gamble (P&G) and Wal-Mart, P&G as an information and capi-tal rich manufacturer, while Wal-Mart as an information and capital rich retailers get a win-win cooperation of information sharing across their mutual supply chain and achieved mutual benefits and enhanced both supply chain performance). In short, they have concluded that a good partnership with suppliers posi-tively impact on operational performance of the organizations. Inversely, the low dependency on supplier partnership is led to the worst in the supply chain performance [11].

IT Capability and Supply Chain Operational Performance IT capability is considered as one of the major factors in SCM and which is a critical factor to improve supply chain performance. IT capability significant direct relationship with supply chain performance [41]. Specifically, several researchers observed that IT infrastructure was the most significant factor to minimize costs enhanced operational agility [23]. Besides, IT infrastruc-ture not only positively affected transparency, but also reducing corruption at the same time. In organizational perspective, IT personnel acts as important enabler of key IT products and ser-vices for smoothen the business operation flow. An appropriate technical solution is proposed by the IT personnel to solve busi-ness problems that related to IT applications. Basically, IT per-sonnel is utilized the flexibility of IT infrastructure in suggesting the solution to the management [10]. Therefore, IT personnel exhibit direct and positive effect on organization's agility per-formance [26].

Previous studies [38,37] have proved that supplier integration is positively related to organizational sustainable performance. [38] have found that collaboration with suppliers could improve sustainable performance of one organization economically and environmentally. Developing collaborative relationship with suppli-ers is also favorable for an effective adoption, development, and implementation of the GSCM toward social contributions [37]. [45] emphasized the significance of supplier integration and sustainable performance by stating that the lack of supplier collaboration would weaken sustainable performance improvements among manufacturing firms.

2.3 Customer Integration

Customer is one of the stakeholders, which are end consumers of the product or service being offered by any of the company [32].However, in the supply chain the customer is not the end user rather here distinction must be made between customer and consumer [32].In the scope of supply chain management, the customer is one which purchase the processed goods, it can be manufacturer, suppiier, retailer or any of them. [38].In supply chain management, the customer integration is linked with downside effect, which flow from supplier to buyer [40].

Previous study by [14] has shown that the main driver for manufacturers to improve their environmental practices and image is customer pressure. Apart from that, understanding the needs of customer is an important aspect in creating value. The business sustainable performance happens when a company or firm cre-ates ongoing value for its stakeholders and shareholders while keeping up with the environmental requirement [9]. There are few essential aspects of a firm's sustainable value which are; doing well for the environment and society, and more important-ly by keeping the customer and shareholders happy. According to [16], "sustainability consists of actions that extend socially useful life of the organization, enhance the ability to maintain and renew viability of the biosphere and protect all living species, enhance ability of society to maintain itself and to solve its major problem and to maintain a decent of welfare, participation and personal freedom for present and future generations of humani-ty"[21]. Sustainability is a brilliant way of performing a busi-ness, and transitions toward sustainable enterprises can be made by developing innovative and constructive corporate culture. These healthy cultures would be able to create high performance and make optimum use of existing assets in ways that have good outcomes for the economic, environment, and society [16].

Within a role of supply chain management, the sustainability can be viewed as a major environmental perspective. The sustainability in supply chain activities can be taken by green purchasing, green supply chain, reverse logistics, product stewardship, and logistics management [25]. Various studies reveal that waste management and recycling of goods initialized sustainability. However, the re-use or recycling of product lifecycle across supply chain activities pursues protective environment meas-urement. Moreover, the supply chain sustainability associated with the product life extension, product design, recovery pro-cesses at end-of-life, and manufacturing by-products produced during product use, and product end-of-life. The research of [1] suggests the implication of green initiatives to strengthen sus-tainable development. Thus, there is a positive relationship be-tween supply chain and sustainable development that can be ob-tained through environmental performance, corporate environ-mental practices, and social sustainability [25].

2.4 Internal Integration

Internal integration is referred to "environmental management practices conducted within a company" [29], [40] classified internal integration as "level of integration in combining and improving information and internal resources in the company to generate knowledge sharing beyond the boundaries of individual functions or departments in reducing and preventing pollutions". Communication and cooperation are crucial to successful environmental practices as GSCM involves all departmental boundaries between and within organizations[44]. also stressed about the influence of coordination across functional department with-in the entire supply chain to improve environmental manage-ment[17].

Most of the time the implementation and adoption toward environmental practices internally seem to be the main issue [45]. However, the GSCM practices like minimizing wastes and attracting customer cooperation for eco-design of product for instance, would require internal coordination mechanisms [45] There are many firms going toward environmental direction these days with their environmental management systems, environmental auditing of departments, internal evaluation of environmental reports, and certification of ISO 14001 [38];[45]. Therefore, cooperation from within the organization is essential to ensure sustainable performance, economically and socially as well as achieving environmental objectives[42].

Past study by [20] investigating GSCM among firms has shown that collaboration and cooperation from organization internally leads to a better overall sustainable performance. [18] added that the economic aspect could be gradually increased through efficient internal integration from the adoption of GSCM. Many companies which integrate with the GSCM are able to create competitive market shares and increase the profits [13]. Accord-ing to [45], lack of internal resource and managerial support lead to economic failure.

[18] have also found positive relationship between internal integration and environmental sustainable performance. Previously, [33] found that an environmental management system (EMS) adopted in organization positively affects operational performance measure such as production waste reduction.

The integration within manufacturer via sustainable design practice also improves income, employee's welfare, and profit. The internal coordination mechanisms like exposure of cross-functional cooperation and having specialized staff on environmental issues are correlated to social sustainable performance, including the likes of safer working environment, increased happiness, motivation, involvement, social commitment, and high participation among the staffs [45].

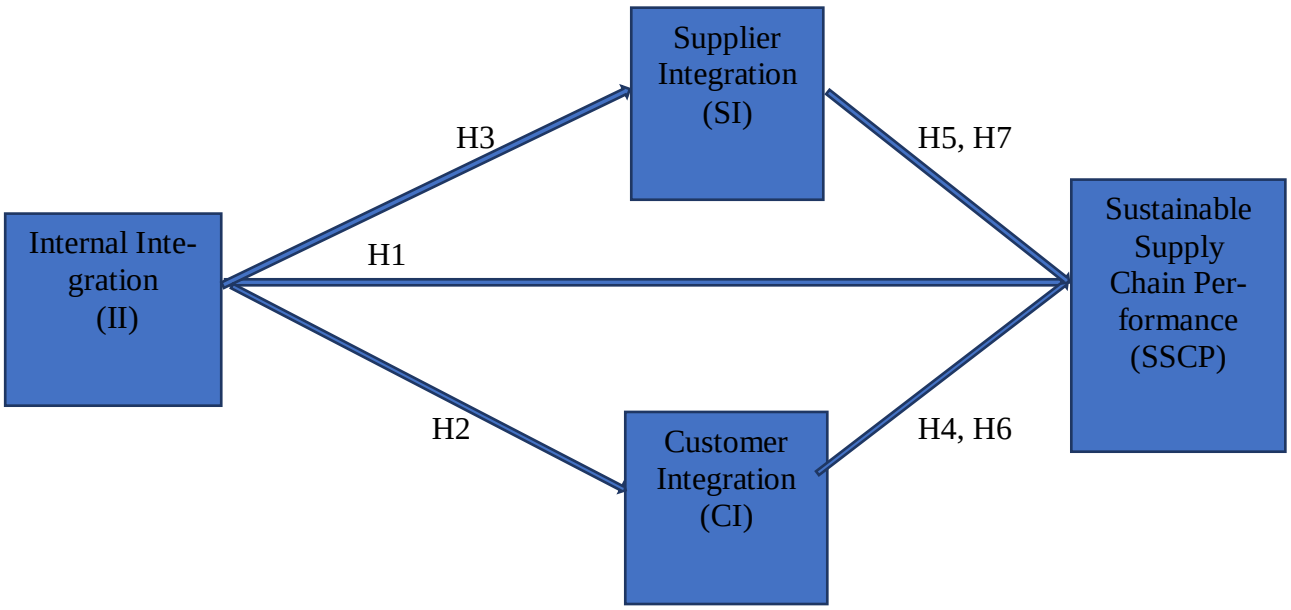


Fig. 1: Conceptual model

H1: Internal Integration has significant impact on Sustainable Supply Chain Performance.
H2: Internal Integration has significant impact on Cus-tomer Integration.
H3: Internal Integration has significant impact on Supplier Integration.
H4: Customer Integration has significant impact on Sustainable Supply Chain Performance.
H5: Supplier Integration has significant impact on Sustainable Supply Chain Performance.
H6: Customer Integration mediate the relationship between Internal Integration and Sustainable Supply Chain Performance.
H7: Supplier Integration mediate the relationship between Internal Integration and Sustainable Supply Chain Performance

3. Data Collection and Response Rate

Data is collected through mail and telephonic survey. The response Rate As described in the previous chapter, data were collected through postal and electronic mail, questionnaire survey. the data collected from questionnaires survey was subjected to examine the demographic variables through descriptive analysis. The total of 265 responses received from the total of 376 questionnaires distributed through mail and courier. Out of 265 questionnaires, 225 were found complete. Thus, the response rate is 63.3 percent.

4. Results Analysis

Structural equation modelling is one of the most acceptable technique to social science. It is most acceptable technique to test the hypothesis. As it is recommended by different prominent studies. Structural equation modelling is one of the most acceptable technique to social science. It is most acceptable technique to test the hypothesis. As it is recommended by different prominent studies. Therefore, this study adopted PLS SEM to analyze the data. Analysis of the study is divided into two major parts. Part one is based on an outer model assessment in which reliability and va-lidity were examined. The second part is based on an inner mod-el assessment in which hypotheses were tested.

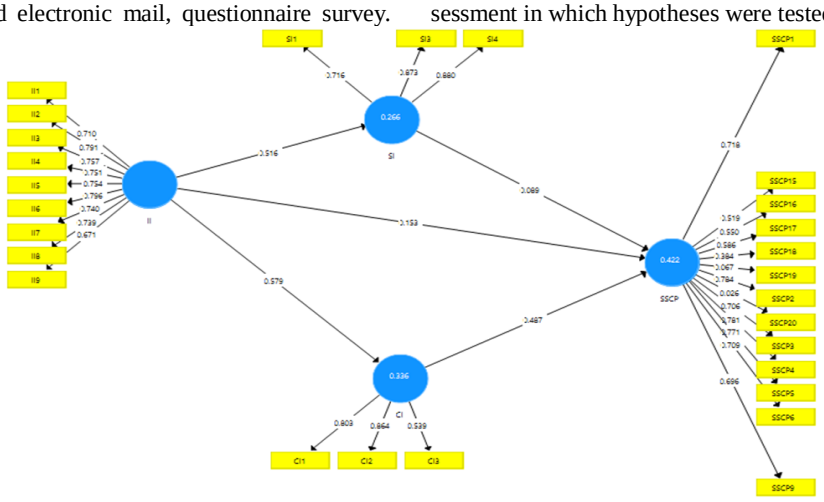


Fig. 2: Outer model assessment

Discriminant validity is shown in table 1. It was examined by the square root of average variance extracted (AVE). Measure-ment of discriminant validity through average variance extracted (AVE) was suggested by Fornell-Larcker [5,6,7]. Discriminant validity is attained through square root of average variance ex-tracted (AVE). It is shown in Table 1 that square root in bold form is more than all other values.

Table (1). Discriminant Validity

	Composite Reliability	Discriminant Validity			
		CI	II	SI	SSCP
CI	**0.787**	**0.749**			
II	**0.919**	0.579	**0.746**		
SI	**0.865**	0.621	0.516	**0.827**	
SSCP	**0.868**	0.631	0.481	0.470	**0.613**

After confirmation of reliability and validity, the SEM was used to analyses the hypothesis. Direct and indirect effect was examined. Indirect effect was examined to check the mediation. In this process, p-value was considered. While analyzing the data, 0.05 minimum level of p-value was considered to test the hypothesis. According to the direct results it is shown that all hypothesis has p-value less than 0.05. Therefore, it accepts H1, H2, H3, H4, and H5.

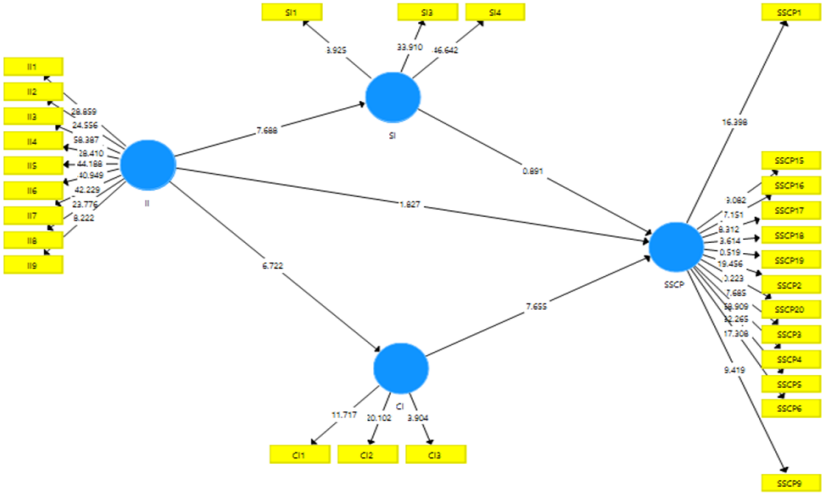


Fig. 3. Inner model assessment

According to the direct results it is shown that all hypothesis has p-value less than 0.05. Therefore, it accepts H1, H2, H3, H4, and H5.

Table 2. Direct Effect

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
CI -> SSCP	0.487	0.447	0.064	7.655	0.000
II -> CI	0.579	0.513	0.086	6.722	0.000
II -> SI	0.516	0.459	0.067	7.688	0.000
II -> SSCP	0.481	0.423	0.090	5.354	0.000
SI -> SSCP	0.089	0.098	0.099	0.891	0.414

Table4 highlights the mediation effect of customer integration, supplier integration , mediate the relationship between Internal Integration and sustainable supply chain performance. These results of mediation show that for logistic integration mediation hypothesis, the t-value is above 1.96 and p-value is below 0.05, whereas for the technology integration the value is below 1.96 which show rejections of our hypothesis. Thus the hypothesis H6 is accepted whereas the H7 is not accepted.

Table 3. In-Direct Effect through Mediation

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
II -> CI -> SSCP	0.282	0.230	0.054	5.200	0.003
II -> SI -> SSCP	0.046	0.045	0.050	0.922	0.399

Moreover, variance extracted is shown in Table 4. R-square value is 0.442 which is moderate according to It indicates that all the independent variables are expected to bring 74.1% change in dependent variable, namely; Supply Chain Operational Performance (SCOP)

Table .4: Expected Variance

	R^2
SSCP	44.2%

5. Conclusion

The results of the study reveals the fact that that internal integration has positive relationship and significantly influences sustainable performance. The internal integration was found to be the strong-est predictor of sustainable performance. These results indicated that great impacts can be made through internal integration in achieving organization' sustainable performance. Prior studies from Green and Sroufe have identified positive link between inter-nal environmental management and organization performance. Further investigation through this study supported by [20] and [33] findings which highlighted that through internal integration such as environmental reports for internal evaluation, management systems and certification of environmental, and cross-functional cooperation within management is positively and significantly as-sociated with multiple areas of sustainable performance namely economic, environmental, and social. The significance also rein-forced the proposition that internal integration is central to improve green operational performance [33]; [44] In addition to that, busi-ness firms that practice internal integration through information sharing across the functional areas obtain better coordination of operations to improve their performances .[31]

References

[1] Abbasi M.N. 'Sustainable practice in Pakistani manufacturing supply chains: Motives, sharing mechanism and perfo mance', Journal of Quality and Technology Management. 2012. 8(2):51-74.

[2] Abdullah, R., Hassan, M. G., & Johari, N. A. Exploring the Linkage of Supply Chain Integration between Green Supply Chain Practices and Sustainable Performance: a Conceptual Link. In 2014 4th International Conference on Future Environment and Energy IPCBEE. 2014.(61):22.

[3] Amad L.C., Hamid A.B.A., Salleh N. M., & Choy, C.S. Adapting buyer-Supplier relationship practices in the local industry. Asian Academy of Management Journal, 2008. 13(2).

[4] Andiç E., Yurt Ö., & Baltacıoğlu T. Green supply chains: Efforts and potential applications for the Turkish market. Resources, Conservation and Recycling, 2012. 58:50-68.

[5] Basheer M. F. Empowering women through microfinance: a case of Pakistan. 2017.

[6] Basheer M. F., KhorramI A. A. A., & Hassan S. G. Patronage factors of islamic banking system in Pakistan academy of Accounting and Financial Studies Journal, 2018. 22:1-9.

[7] Basheer M., Ahmad A., & Hassan, S. Impact of economic and financial factors on tax revenue: Evidence from the Middle East countries. Accounting, 2018. 5(2): 53-60.

[8] Bessire D., & Onnée S. Assessing corporate social performance: Strategies of legitimation and conflicting ideologies. Critical Perspectives on Accounting, 2010.21(6): 445-467.

[9] Brent A. C., & Labuschagne, C. Sustainable Life Cycle Management: Indicators to assess the sustainability of engineering projects and technologies. In Engineering Management Conference, 2004. Proceedings. 2004 IEEE International. 2004. 1: 99-103.

[10] Byrd T. A., & Turner E. D. An exploratory analysis of the information technology infrastructure flexibility construct. Journal of Management Information Systems, 2000. 17(1):167-208.

[11] Chen I. S., & Fung P. K. Relationship configurations in the apparel supply chain. Journal of Business & Industrial Marketing, 2013. 28(4): 303-316.

[12] Chen Y., Okudan G. E., & Riley D. R. Sustainable performance criteria for construction method selection in concrete buildings. Automation in construction, 2010. 19(2): 235-244.

[13] Chien M. K., & Shih L. H. An empirical study of the implementation of green supply chain management practices in the electrical and electronic industry and their relation to organizational performances. International Journal of Environmental Science and Technology, 2007. 4(3): 383-394.

[14] Christmann P., & Taylor G. Globalization and the environment: Determinants of firm self-regulation in China. Journal of international business studies, 2001. 32(3): 439-458.

[15] Hayeri, M., Mir Khalili, S., Sahraei Ardakani, S., Positive Judgement of Referring to an Intruder of God's Orders, Supplement No. 2, 2017, p. 681.

[16] Dunphy, D. Chapter 1 Conceptualizing Sustainability: The Business Opportunity. In Business and sustainability: Concepts, strategies and changes . Emerald Group Publishing Limited.2011:3-24.

[17] Ellram, L. M., Tate, W., & Carter, C. R. Applying 3DCE to environmentally responsible manufacturing practices. Journal of Cleaner Production, 2008.16(15): 1620-1631.

[18] Eltayeb T. K., Zailani S., & Ramayah T. Green supply chain initiatives among certified companies in Malaysia and environmental sustainability: Investigating the outcomes. Resources, conservation and recycling,2011. 55(5): 495-506.

[19] Eweje, G. A shift in corporate practice? Facilitating sustainability strategy in companies. Corporate Social Responsibility and Environmental Management,2011. 18(3): 125-136.

[20] Green Jr K. W., Zelbst P. J., Meacham J., & Bhadauria V. S. Green supply chain management practices: impact on performance. *Supply Chain Management: An International Journal*,2012. *17*(3): 290-305.

[21] Junquera B., del Brío J. Á., & Fernández E. Clients' involvement in environmental issues and organizational performance in businesses: an empirical analysis. Journal of Cleaner Production.2012. 37:288-298.

[22] Lim J. H., Stratopoulos T. C., & Wirjanto T. S. Role of IT executives in the firm's ability to achieve competitive advantage through IT capability. International Journal of Accounting Information Systems.2012. 13(1): 21-40.

[23] Lu B., Misra M., Jain M., & Ramamurthy S. U.S. Patent Application No. 11/851. 2011.339.

[24] Mazzi A., Mason C., Mason M., & Scipioni A. Is it possible to compare environmental performance indicators reported by public administrations? Results from an Italian survey. Ecological indicators.2012. 23: 653-659.

[25] Negi S. and Anand N.'Green and Sustainable Supply Chain Management Practices: A Study of Wal-Mart', Emerging Business Sustainability 2014:141-157.

[26] Neumann S., & Fink L. Gaining agility through IT personnel capabilities: The mediating role of IT infrastructure capabilities. Journal of the Association for Information Systems.2007. 8(8): 25.

[27] Pei Y., Amekudzi A., Meyer M., Barrella E., & Ross C. Performance measurement frameworks and development of effective sustainable transport strategies and indicators. Transportation Research Record: Journal of the Transportation Research Board, (2163).2010. 73-80.

[28] Ramayah T., & Omar R. Information exchange and supply chain performance. International journal of information technology & decision making.2010. 9(01):35-52.

[29] Rao P., & Holt D. Do green supply chains lead to competitiveness and economic performance?. International journal of operations & production management.2005. 25(9): 898-916.

[30] Seuring S., & Müller M. Core issues in sustainable supply chain management–a Delphi study. Business strategy and the environment.2008. 17(8): 455-466.

[31] Simpson D., Power D., & Samson D. Greening the automotive supply chain: a relationship perspective. International Journal of Operations & Production Management.2007. 27(1): 28-48.

[32] Slack N., Chambers S., & Johnston R. Operations management. Pearson education.2010.

[33] Sroufe R. Effects of environmental management systems on environmental management practices and operations. Production and Operations Management.2003. 12(3): 416-431.

[34] Sukati I., Hamid A. B. A., Baharun R., Tat H. H., & Said F. A study of supply chain management practices: An empirical investigation on consumer goods industry in Malaysia. International Journal of Business and Social Science.2011. 2(17): 166-176.

[35] Thatte A. A., Rao S. S., & Ragu-Nathan T. S. Impact of SCM practices of a firm on supply chain responsiveness and competitive advantage of a firm. Journal of Applied Business Research.2013. 29(2): 499.

[36] P. Byuvol, L. Gabsalikhova, I. Makarova, E. Mukhametdinov, G. Sadygova, "Improving the Branded Service Network Efficiency based on its Functioning Evaluation", Astra Salvensis, Supplement No. 2, p. 373, 2017.

[37] Azad N., Ghandvar P., Rahimi Z., "Online Search Behaviour of Customers in Shoe Market", Astra Salvensis, Supplement No. 2, p. 793, 2017.

[38] Mohammadzadeh, S., Zadkarim, S., Ammari H., Re-Engineering of Drinking Water Facilities of Villages of City of Saqqez for Water Loss Reduction Management, Supplement No. 2, 2017, p. 859.

[39] Popovici I., Metode interactive de predare a matematicii. Softwareul GeoGebra, Supplement No. 2, 2017, p. 875.

[40] Wu G. C. The influence of green supply chain integration and environmental uncertainty on green innovation in Taiwan's IT industry. Supply Chain Management: An International Journal.2013. 18(5):539-552.

[41] Xiao J., Li F., Gu W. Z., Wang C. S., & Zhang P. Total supply capability and its extended indices for distribution systems: definition, model calculation and applications. IET generation, transmission & distribution.2011. 5(8): 869-876.

[42] Yeung A. H., Lo V. H., Yeung A. C., & Cheng T. E. Specific customer knowledge and operational performance in apparel manufacturing. International Journal of Production Economics.2008. 114(2): 520-533.

[43] Zailani S., Jeyaraman K., Vengadasan G., & Premkumar R. Sustainable supply chain management (SSCM) in Malaysia: A survey. International Journal of Production Economics.2012. 140(1): 330-340.

[44] Zhu Q., & Cote R. P. Integrating green supply chain management into an embryonic eco-industrial development: a case study of the Guitang Group. Journal of Cleaner Production.2004. 12(8-10): 1025-1035.

[45] Zhu Q., Geng Y., & Lai K. H. Circular economy practices among Chinese manufacturers varying in environmental-oriented supply chain cooperation and the performance implications. Journal of Environmental Management.2010. 91(6): 1324-1331.