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## **Leadership communication styles, information sharing and performance among selected supply chain managers of private companies**

**Rommel E. Maulanin, Ernesto A. Serrano Jr., Antonio R. Yango**

University of Perpetual Help System, Philippines

c18-1832-432@uphsl.edu.ph, serrano.ernesto@uphsl.edu.ph,  
yango.antonio@uphsl.edu.ph

**Abstract.** This study attempted to determine the leadership communication styles, information sharing and performance among selected supply chain managers of private companies in Laguna. Specifically, it investigated the supply chain managers' leadership communication style, level of information sharing, and level of performance. Further, the study probed the relationship between the supply chain managers' leadership communication style and level of information sharing, leadership communication style and level of performance, level of information sharing and level of performance. Finally, it probed the predictive ability of the supply chain managers' leadership communication style, and level of information sharing, taken singly or in combination, of level of performance. The descriptive-correlational research design was employed in this investigation. The respondents of this study were composed of employees working in the supply chain of selected private companies in Laguna consisting of 100 employees. The researcher used Raosoft sample size calculator with a 10% margin of error and 90% confidence level to come up with the sample size of 80. The respondents were selected through stratified random sampling technique. The study findings showed that that an average weighted mean of 3.22 revealed the supply chain managers' leadership communication style was good, an average weighted mean of 3.21 revealed the supply chain managers' level of information sharing was high, an average weighted mean of 3.21 revealed the supply chain managers' level of performance was high, there was a significant relationship between the supply chain managers' leadership communication style along competency ( $p=0.000$ ), consistency ( $p=0.000$ ), commitment ( $p=0.000$ ) and level of information sharing. The probability value of 0.000 was less than the 0.01 significance level. However, no significant relationship was noted between command and control and level of information sharing. The probability value of 0.470 was greater than the 0.05 significance level, there was a significant relationship between the supply chain managers' leadership communication style along competency ( $p=0.000$ ), consistency ( $p=0.000$ ), commitment ( $p=0.000$ ) and level of performance. The probability value of 0.000 was less than the 0.01 significance level. However, no significant relationship was noted between command and control and level of performance. The probability value of 0.470 was greater than the 0.01 significance level, and there was a significant relationship between the supply chain managers' level of information sharing and level of performance. The probability values of 0.000 was obtained which was less than 0.01 level of significance. On the other hand, a probability value of 0.000 indicates a high level of prediction of the dependent variable (level of performance). The obtained R square of 0.782 shows that independent variables (supply chain managers' leadership communication style and level of information sharing) explain the variability of the dependent variable (level of performance). Further, the ANOVA shows that the independent variables the supply chain managers' leadership communication styles along command/control

and competency as well as their level of information sharing statistically significantly predicted the dependent variable level of performance with an F-value of 53.151 and a probability value of 0.000 which is less than the 0.05 significance level. It was concluded in the study that the supply chain managers' leadership communication style was good for they can effectively direct people to obey instructions with little or no question and to resist change, manage situations, performing within a strictly delineated framework where everything is neatly organized and structured, their level of information sharing was high for they can precisely articulate ideas, concepts and negotiations that are aligned to their work objectives in order to reach their goals, their level of performance was high for they possess a consistent, reliable, and steady communication style, the better the supply chain managers' leadership communication style along competency, consistency, and commitment, the higher is their level of information sharing, the better the supply chain managers leadership communication style along competency, consistency, and commitment, the higher is their level of performance, and the higher the supply chain managers level of information sharing, the higher is their level of performance. Likewise, the independent variables the supply chain managers' leadership communication styles along command/control and competency as well as their level of information sharing are the drivers of supply chain managers' level of performance.

**Keywords.** Leadership Communication Styles, Information Sharing and Supply Chain Performance, Supply Chain Managers of Private Companies

## **Introduction**

Supply chain management (SCM) represents an effort by suppliers to develop and implement supply chains that are as efficient and economical as possible. Supply chains cover everything from production to product development to the information systems needed to direct these undertakings. Globally, COVID-19 is not a typical risk event for supply chain management. The scale of its impact eclipses anything most supply chain managers will have seen before. The speed of the escalation requires continuous end-to-end assessment, optimization and monitoring. Companies need to respond rapidly and confidently to shape and execute a short-term tactical plan that will mitigate the risks to human health and protect the functioning of global supply chains. In doing so, strong data and analytics capabilities are crucial in understanding complexity, anticipating potential disruption, and quickly developing a response (James, 2022). From these grounds, various organizations need to strengthen the supply chain management of their companies focusing on supply chain managers' leadership communication styles, information sharing and performance which are deemed important in the daily operations of their business.

Communication among Supply chain partners drive the development of collaborative partnerships and improvement of firm's performance. Simply communication is everything to SCM as it requires proactive communication between partners to whatever and whichever approach. In Minnesota, SC Managers were attributed as directors since they regularly schedule conference calls with suppliers, and email customers to preempt issues with orders and delivery. They also optimized communication and information sharing through implementation of SIOP and creation of collaborative partners which reduce inventory and back orders. Following recommendations were then penned: (a) enhancement of IT Infrastructure to improve communication and collaboration, (b) usage of safety stock for seasonality of demand, and (c) foster of long-term collaborative partnerships with suppliers and customers (Falks, 2018).

Crews et al. (2019) conducted a study which aimed to investigate the effects of leadership styles on communication styles among employees in manufacturing organizations within South Africa. Respondents were a purposive sample of 564 employees of South African

manufacturing organizations (females = 45%; white = 45.4%). Results indicated that idealized influence as perceived leadership style had an effect on all four communication styles; namely preciseness, verbal aggressiveness, emotionality, and impression manipulativeness. Additionally, these communication styles were significantly predicted by contingent rewards and passive management-by-exception as perceived leadership styles. These findings indicate that leaders can utilize a specific communication style to enhance the relationship with subordinates. This could encourage communication behavior for improved organizational outcomes among employees within a South African manufacturing environment.

Technological development played a crucial role in retails as it streamlined the flow of goods, services, and information. Accordingly, Asnordin, et al. (2021) revealed that Malaysian firms have high level of information sharing due to the internet. They even illustrated the evolution of supply chain towards online business communities and emphasized the long-term benefit of all parties through cooperation and information sharing.

On the other hand, Maskey (2018) refuted the claim when he found out that SC firms in Nepal have low level of information sharing. While the country continues to make efforts to improve internal and external information sharing, their progress is still slow as SCM develops at a slow pace. It was also affected by a range of factors such as relational, organizational, and environmental categories and its reliance on customary ways such as meetings and incentives.

Reddy et al. (2019) conducted an investigation to about performance measurement system which is a framework to measure the efficiency of the supply chain. The purpose of the study was to review the dearth of research into performance measurement systems in the context of the supply chain by reviewing the contemporary literature for the last two decades and evoking the potential avenues for future research. For this purpose, the authors have considered and classified the supply chain performance measurement systems as approaches and techniques and followed a systematic literature review procedure. Finally, this paper disclosed that simulation techniques are more suitable than other performance techniques and approaches for the supply chain performance measurement in a volatile environment. The study also provided a strong basis for future researchers and academicians in applying the performance measurement systems in the context of the dynamic supply chain.

Meanwhile, Hong, Zhou, Li, et al. (2020) found high level of SC performance due to its positive practices in supply quality management, internal quality management, and customer quality management. These practices indirectly increase performance through controlling quality safety performance. Sel, Soysal, & Cimen (2018) then asserted that asset manipulation is cost-efficient and beneficial to food and beverage industry as it deducts them at least 36% costs and 23% waste costs and leads them to earn a greater net income to sustain their business operation.

Various studies have already been conducted showing the interrelationship between and among the supply chain managers' leadership, information sharing and performance, to wit: Mugo (2018) revealed indirect association between leadership communication style and information sharing in Kenya. In fact, despite increase of communication tools, there's still a regression on the information sharing in Kenya. Staffs are then encouraged to share information through emails at the workplace to have a repository of their retrieved information for future needs. Kim & Lee (2021) then found a positive correlation between leadership communication style and information sharing which indicated that communication strengthen the trading relationship between suppliers due to its provision of accurate information. SC Companies should then communicate and collaborate with each other to strengthen information sharing and to establish mutual communication. Elango (2018) also concluded direct relationship between

leadership communication style and performance in supply chain areas that proved that communication increase capabilities of supply chain and decrease inefficiency in supply operation. Meanwhile, Musheke & Phiri (2021) revealed a positive relationship between leadership communication style and organizational performance. While communication styles serve as biggest barrier on effective communication, still it makes and breaks organization. Therefore, communication and conflict management training should be given to employees, timely delivery of information should be practiced, feedback should be encouraged to ensure understanding of management goals and objectives, and employees' tasks.

However, despite the numerous studies that conducted supply chain management, no study yet had been conducted particularly in private companies in Laguna that investigated the leadership communication styles, information sharing and supply chain performance among selected supply chain managers in aforementioned locale.

Thus, this study aimed at determining the leadership communication styles, information sharing and supply chain performance among selected supply chain managers of private companies Laguna. This study could serve as pointer for the supply chain managers in private companies in Laguna to realize the significance of having commendable leadership communication style that may possibly build good rapport among the members of the organization particularly with the employees which in turn may motivate them to be more productive in the workplace. Thus, this could serve as a platform on which the companies can plan or strategize on what to do to improve the supply chain managers' communication style, ways of information sharing which have great impact in their performance. Likewise, this study could serve as basis for policy decision-making relative to the strategic inventiveness that will ensure improvement in the supply chain management of the companies.

### **Methods**

The researcher utilized the descriptive-correlational method of research with the help of survey questionnaire as the main source of data. Statistical method will be used to give credence and reliability to the study. This is one in which information is collected without changing the environment (i.e., nothing is manipulated). It is used to obtain information concerning the current status of the phenomena to describe "what exists" with respect to variables or conditions in a situation. The methods involve range from the survey which describes the status quo, the correlation study which investigates the relationship between variables, to developmental studies which seek to determine changes over time (Polka, 2018). The researcher used the gathered data and documentary data for the conduct of the study. The data were acquired from the respondents of the study who are the employees under the supervision of supply chain managers of selected private companies in Laguna.

The respondents of this study were composed of employees working in the supply chain of selected private companies in Laguna consisting of 100. The researcher used Raosoft sample size calculator with a 10% margin of error and 90% confidence level to come up with the sample size of 80. The respondents were selected through stratified random sampling technique.

The basic tool that the researcher used was a questionnaire in a form of checklist. The questionnaire was self-made instrument based on the reading found in related literature and studies. The researcher believed that through checklist it could gather the necessary information needed for the study. The first part of the questionnaire was comprised of statements about the supply chain managers' leadership communication style along: command and control, competency, consistency and commitment, the second part focused on statements that

determined the supply chain managers' level of information sharing, and the third part dealt with statements which were used to determine the supply chain managers' level of performance. The questionnaire was validated by the experts in the field of business management, research and statistics. The researcher took this step in order to find out if the questionnaire could be easily understood by the employees of selected private companies in Laguna who served as the respondents of the study. After thorough validation, the research instrument was subjected to pilot testing with fifteen (15) respondents who were excluded in the actual conduct of the study. Result of pilot testing was presented to the research adviser and validators that served as their basis for allowing the researcher to finalize the questionnaire. Cronbach's alpha measure of internal consistency was used to measure the consistency or repeatability of the instrument and the results were: supply chain managers' leadership communication styles (0.098), level of information sharing (0.734), and level of performance (0.856).

To determine the the supply chain managers' leadership communication styles along: command and control, competency, consistency and commitment, the following measures were used:

Assigned Points	Numerical Ranges	Categorical Responses	Verbal Interpretation
4	3.25-4.00	Strongly Agree(SA)	Very Good
3	2.50-3.24	Agree (A)	Good
2	1.75-2.49	Disagree (D)	Poor
1	1.00-1.74	Strongly Disagree(SD)	Very

To determine the the supply chain managers' level of information sharing and level of performance, the following measures were used:

Assigned Points	Numerical Ranges	Categorical Responses	Verbal Interpretation
4	3.25-4.00	Strongly Agree	Very High
3	2.50-3.24	Agree	High
2	1.75-2.49	Disagree	Low
1	1.00-1.74	Strongly Disagree	Very Low

The researcher secured a letter of request asking permission from the concerned officials of the selected private companies in Laguna for the conduct of the study. Upon the approval of the request, the questionnaires were personally administered by the researcher to the respondents of the study following the safety protocols which are the use of face masks and face shields, as well as the enforcing social distancing to adhere to the health protocols set by the Inter-agency Task Force (IATF) related to the COVID - 19 pandemic. The researcher explained to the respondents about the nature of their participation in the investigation and discussed with them the instructions to follow for easy and convenient ways of answering the survey forms. The respondents were assured that the information that they provided with the researcher would be treated with confidentiality as part of the ethical considerations of the study. Individual consent of the respondent was obtained explaining to them that this investigation was simply an

academic requirement and would be kept with utmost privacy. The accomplished questionnaires were collected right after they had answered by the respondents and the gathered data were tallied, tabulated, analyzed and interpreted. The following statistical tools were employed in the study, weighted Mean was used to determine the supply chain managers' leadership communication style along: command and control, competency, consistency and commitment, level of information sharing, and level of performance. Pearson r was used to determine the relationship between and among the supply chain managers' leadership communication styles in terms of command and control, competency, consistency and commitment, level of information sharing, and level of performance. Stepwise Multiple Regression Analysis was used to test the validity of the assessment of each independent variable's statistical significance sequentially in a linear regression Model. Stepwise regression seeks to identify a group of independent variables that have a substantial impact on the dependent variable using a series of tests (such as F-test and t-test).

### Results and Discussion

These are the gathered data which were analyzed and interpreted for the better understanding of the study. The framework of the analysis and interpretation is guided by the problems stated in Chapter 1.

#### 1. The Supply Chain Managers' Leadership Communication Style

**Table 1**

#### The Supply Chain Managers' Leadership Communication Style: Command and Control

<b>Command and Control The supply chain manager ...</b>	<b>Weighted Mean</b>	<b>Verbal Interpretation</b>	<b>Rank</b>
1. effectively manages every team on the supply chain like the manufacturers, contractors, vendors, suppliers, etc.	3.26	Very Good (Strongly Agree)	3
2. is able to share information and resources.	3.43	Very Good (Strongly Agree)	2
3. relies on predictive analytics to see the direction the supply chain is heading.	3.50	Very Good (Strongly Agree)	1
4. an make an impromptu decision with the aid of innovation.	3.25	Very Good (Strongly Agree)	4
<b>Average</b>	<b>3.36</b>	<b>Very Good (Strongly Agree)</b>	

Table 1 presents the supply chain managers' leadership communication style: command and control, as seen in the table, indicator 3 "Relies on predictive analytics to see the direction the supply chain is heading" had obtained a weighted mean of 3.50, verbally interpreted as "strongly agree " and was ranked 1, indicator 2 "Is able to share information and resources"

obtained a weighted mean of 3.43, verbally interpreted as “strongly agree” and was ranked 2 and indicator 1 “Effectively manages every team on the supply chain like the manufacturers, contractors, vendors, suppliers, etc.” got a weighted average of 3.26, verbally interpreted as “strongly agree” and was ranked 3.

To sum up, an average weighted mean of 3.36 revealed that the supply chain managers’ leadership communication style: command and control was very good . The results imply that the supply chain managers can effectively direct people to obey instructions with little or no question and to resist change, manage situations, performing within a strictly delineated framework where everything is neatly organized and structured.

The findings support the study of Mishra (2020), wherein they stated that Swedish firm heads were found to be effective communicators. This is beneficial to the sector as technical writing skills were needed to track, evaluate, and manage a project as per schedule, within budget, and of quality. Data interpretation and decode requires structured and strategic communication to convey progress in a clear, correct, and concise way; hence a communicator is a big help to a group. More so, a communicator has relational nature of leadership needed for effective and efficient management of people through crisis and transitions – changes to achieve project performance. To conclude, the executives were asked to apply right leadership style at appropriate time and measure.

**Table 2**  
**The Supply Chain Managers’ Leadership Communication Style: Competency**

<b>Competency The supply chain manager ...</b>	<b>Weighted Mean</b>	<b>Verbal Interpretation</b>	<b>Rank</b>
1. effectively leads the demand and supply planning to ensure the continuous availability of raw materials and equipment on a continuous basis.	3.34	Very Good (Strongly Agree)	1
2. effectively negotiates with suppliers for the business across procurement and logistical requirements.	3.33	Very Good (Strongly Agree)	2
3. able to source alternative raw materials and equipment.	3.25	Very Good (Strongly Agree)	4
4. effectively manage 3PL, overseeing supply chain network from importation, warehousing, logistics, and outlet operation.	3.30	Very Good (Strongly Agree)	3
<b>Average</b>	<b>3.30</b>	<b>Very Good (Strongly Agree)</b>	

Table 2 presents the supply chain managers’ leadership communication style: competency. Indicator 1 “Effectively leads the demand and supply planning to ensure the continuous

availability of raw materials and equipment on a continuous basis” obtained a weighted mean of 3.34, verbally interpreted as “strongly agree ” and was ranked 1, indicator 2 “Effectively negotiates with suppliers for the business across procurement and logistical requirements” had obtained a weighted mean of 3.33, verbally interpreted as “strongly agree” and was ranked 2 and indicator 4 “Effectively manage 3PL, overseeing supply chain network from importation, warehousing, logistics, and outlet operation” had obtained a weighted mean of 3.30, verbally interpreted as “strongly agree” and was ranked 3.

To sum up, an average weighted mean of 3.30 revealed the supply chain managers’ leadership communication style: competency was very good. The results imply that the supply chain managers’ can precisely articulate ideas, concepts and negotiations that are aligned to their work objectives in order to reach their goals.

The findings support the study of Nwagbara (2018), communicating for organizational leadership and effective complaints management is essential for educational organizations to achieve leadership communication. This is particularly the case in recent time when poor communication poses grave danger to business success and leadership. A properly harnessed leadership and communication strategies brings about leadership communication, which anticipates as well as takes cognizance of approaches to avert or curb miscommunication, bad leadership and frequency of complaints for organizational success.

**Table 3**  
**The Supply Chain Managers’ Leadership Communication Style: Consistency**

<b>Consistency The supply chain manager ...</b>	<b>Weighted Mean</b>	<b>Verbal Interpretation</b>	<b>Rank</b>
1. builds trust and credibility along with the peers, suppliers, and customers.	3.16	Good (Agree)	2
2. is able to resolve significant and/or critical issues.	3.23	Good (Agree)	1
3. is able to predict the results and behaviors.	3.09	Good (Agree)	4
4. achieves goals/KPI and delivers on expectations.	3.10	Good (Agree)	3
5. achieves a world class on time delivery performance.	3.06	Good (Agree)	5
<b>Average</b>	<b>3.13</b>	<b>Good (Agree)</b>	

Table 3 presents the supply chain managers’ leadership communication style: consistency, whereas, indicator 2 “Is able to resolve significant and/or critical issues” obtained a weighted mean of 3.23, verbally interpreted as “agree” and was ranked 1, indicator 1 “Builds trust and credibility along with the peers, suppliers, and customers” had obtained a weighted mean of 3.16, verbally interpreted as “agree” and was ranked 2 and indicator 4 “Achieves goals/KPI and delivers on expectations” obtained a weighted mean of 3.10, verbally interpreted as “agree” and was ranked 3.

To sum up, an average weighted mean of 3.13 revealed the supply chain managers’ leadership communication style: consistency was good. The results imply that the supply chain managers’ possesses a consistent, reliable, and steady communication style.

The findings support the study of Shannon (2018), as he explained that employees' skills were enhanced to perform on current and future jobs. For continuity, executives were asked to have consistency in messaging and acknowledging positive behaviors to increase performance. One-on-one trainings, webinars, interactive training, and instructor-led training should also be implemented.

**Table 4**  
**The Supply Chain Managers' Leadership Communication Style: Commitment**

<b>Commitment</b> <b>The supply chain manager ...</b>	<b>Weighted Mean</b>	<b>Verbal Interpretation</b>	<b>Rank</b>
1. is a communicator and is able to communicate a message, idea or thought clearly without any ambiguities to the rest of the employees.	3.08	Good (Agree)	3
2. is accountable in all their dealings with staffs in the office or outside the office.	3.03	Good (Agree)	4
3. is a solution provider and is able to take effective decision in the wake of any issues without shifting blames to other team members.	2.89	Good (Agree)	5
4. is able to efficiently organize and manage the supply chain keeping every step under control and delivering an excellent end result.	3.21	Good (Agree)	1
5. is charismatic, disciplined and has a firm hold on his supply chain leadership role showing exceptional resilience and excellent leadership skill.	3.18	Good (Agree)	2
<b>Average</b>	<b>3.08</b>	<b>Good (Agree)</b>	

Table 4 presents the supply chain managers' leadership communication style: commitment. Indicator 4 "Is able to efficiently organize and manage the supply chain keeping every step under control and delivering an excellent end result" obtained a weighted mean of 3.21, verbally interpreted as "agree" and was ranked 1, indicator 5 "Is charismatic, disciplined and has a firm hold on his supply chain leadership role showing exceptional resilience and excellent leadership skill" had obtained a weighted mean of 3.18, verbally interpreted as "agree" and was ranked 2, and indicator 1 "Is a communicator and is able to communicate a message, idea or thought clearly without any ambiguities to the rest of the employees" had obtained a weighted mean of 3.08, verbally interpreted as "agree" and was ranked 3.

To sum up, an average weighted mean of 3.08 revealed the supply chain managers' leadership communication style: commitment was "good". The results imply that the supply chain managers' have the dedicated to fostering productivity and efficiency in a team and raising staff morale to produce results despite upcoming challenges.

The findings support the study of Brint et al. (2019), wherein some leaders were also connoted as director as they provide constant training and coaching to their members and suppliers. They're also willing to share information, give constructive feedback, and communicate frequently with them. They also monitor and keep track of their performance through comparing set of pre-determined agreements and enforcing potential corrective actions with suppliers which result to the latter adherence to regulations to reduce potential lose and complication.

**Table 5**  
**Composite Table for the Supply Chain Managers' Leadership Communication Style**

<b>Indicators</b>	<b>Weighted Mean</b>	<b>Verbal Interpretation</b>	<b>Rank</b>
1. Command and Control	3.36	Good (Agree)	1
2. Competency	3.30	Good (Agree)	2
3. Consistency	3.13	Good (Agree)	3
4. Commitment	3.08	Good (Agree)	4
<b>Overall Average</b>	<b>3.22</b>	<b>Good (Agree)</b>	

Table 5 presents the composite table for the supply chain managers' leadership communication style. Indicator 1 "Command and Control" obtained a weighted mean of 3.36, verbally interpreted as "agree" and was ranked 1, indicator 2 "Competency" had obtained a weighted mean of 3.30, verbally interpreted as "agree" and was ranked 2 and indicator 3 "Consistency" obtained a weighted mean of 3.13, verbally interpreted as "agree" and was ranked 3.

To sum up, an average weighted mean of 3.22 revealed the supply chain managers' leadership communication style was good. The results imply that the supply chain managers' have the ability to identify and understanding each subordinate's objectives as well as their preferences also aids in resolving disagreements. An open and positive relationship between leaders and their subordinates' is fostered by effective communication skills, and this improves output and efficiency.

The findings support the study of Bergman (2020), the communicators addressed organizational issues such as understanding the role and clarification of role for themselves. They also supported their leaders through being a mainstay trainer of their colleagues and through adding insights into the communicative needs of the firm. Further research is also suggested for an in-depth understanding of communicative leadership development.

## **2.The Supply Chain Managers' Level of Information Sharing**

**Table 6**  
**The Supply Chain Managers' Level of Information Sharing**

Indicators	Weighted Mean	Verbal Interpretation	Rank
1. Sufficient information systems connections exist with customers	3.40	Very High	3
2. Frequent and systematic communication among colleagues and peers within the organization.	3.41	Very High	2
3. Frequent and systematic communication with stakeholders and suppliers outside of the organization.	3.09	High	8.5
4. Information applications are highly combined within the company	3.15	High	5
5. Information systems are highly integrated throughout the supply chain	3.25	Very High	4
6. Willingness to share information among supply chain members	3.44	Very High	1
7. Up-to-date information systems satisfy supply chain communication requirements	3.11	High	7
8. Senior level managerial interaction among supply chain members	3.14	High	6
9. Sharing of technical expertise with customers and suppliers	3.05	High	10
10. Use of supply chain teams with members from multiple companies.	3.09	High	8.5
<b>Average</b>	<b>3.21</b>	<b>High</b>	

Table 6 presents the supply chain managers' level of information sharing. Indicator 6 "Willingness to share information among supply chain members" obtained a weighted mean of 3.44, verbally interpreted as "very high" and was ranked 1, indicator 2 "Frequent and systematic communication among colleagues and peers within the organization" had obtained a weighted mean of 3.41, verbally interpreted as "very high" and was ranked 2, and indicator 1 "Sufficient information systems connections exist with customers" obtained a weighted mean of 3.40, verbally interpreted as "very high" and was ranked 3.

On the other hand, indicator 9 "Sharing of technical expertise with customers and suppliers" had obtained a weighted mean of 3.05, verbally interpreted as "high" and was ranked 10, indicators 2 and 10 that states "Frequent and systematic communication with stakeholders and suppliers outside of the organization" and "Use of supply chain teams with members from multiple companies" had obtained a weighted mean of 3.09, verbally interpreted as "high" and were ranked 8.5 respectively.

To sum up, an average weighted mean of 3.21 revealed the supply chain managers' level of information sharing was high. The results imply that the supply chain managers' were able to disseminate essential and crucial information that their subordinates can use in order to accomplish specific tasks.

The findings support the study of Morrakot and William (2018), their research focuses on one cornerstone of a successful collaboration, information sharing for the researcher believes that it is a useful way of lowering costs, improving overall accuracy of public data and allowing organizations and individuals alike to have access to information that they might need and entertainment that they want to experience. The idea is to help companies who are considering a collaborative opportunity to evaluate the value of the information that would be shared so efforts are only expended on potential collaborations that have an acceptable reward for the risk.

### 3.The Supply Chain Managers’ Level of Performance

**Table 7**  
**The Supply Chain Managers’ Level of Performance**

Indicators	Weighted Mean	Verbal Interpretation	Rank
1. Cost of purchased items	2.98	High	9
2. Company profitability	3.51	Very High	1
3. Inventory costs	3.28	High	5
4. Overall product cost	3.11	High	6.5
5. Productivity	3.39	Very High	2
6. The cost of new product development	3.34	Very High	4
7. Transportation costs	3.04	High	8
8. Ability to handle unexpected challenges	3.35	Very High	3
9. Market penetration	2.96	High	10
10. On-time delivery/due-date performance	3.11	High	6.5
Average	3.21	<b>High</b>	

Table 7 presents the supply chain managers’ level of performance, whereas, indicator 2 “Company profitability” obtained a weighted mean of 3.51, verbally interpreted as “very high” and was ranked 1, indicator 5 “Productivity” had obtained a weighted mean of 3.39, verbally interpreted as “very high” and was ranked 2 and indicator 8 “Ability to handle unexpected challenges” obtained a weighted mean of 3.35, verbally interpreted as “very high” and was ranked 3.

On the other hand, indicator 9 “Market penetration” had obtained a weighted mean of 3.11, verbally interpreted as “high” and ranked 10, indicator 1 “Cost of purchased items” had obtained a weighted mean of 2.98, verbally interpreted as “high” and ranked 9 and indicator 7 “Transportation costs” got a weighted mean of 3.04, verbally interpreted as “high” and ranked 8.

To sum up, an average weighted mean of 3.21 revealed the supply chain managers’ level of performance was high. The results imply that the supply chain managers’ is able to apply the performance measurement systems in the context of the dynamic supply chain.

The findings support the study of Redyy et al. (2019), he described that in today's fierce global environment, continuous performance measurement is the key mantra for any kind of business successes. The performance measurement system is a framework to measure the efficiency of the supply chain and their research discloses that simulation techniques are more suitable than other performance techniques and approaches for the supply chain performance measurement in a volatile environment.

#### 4. Relationship between the Supply Chain Managers' Leadership Communication Style and Level of Information Sharing

**Table 8**  
**Relationship between the Supply Chain Managers' Leadership Communication Style and Level of Information Sharing**

Leadership Communication Style	Pearson r value	p-value	Interpretation
Command and Control	0.082 Negligible correlation	0.470	Not Significant
Competency	0.484** Moderate correlation	0.000	Significant
Consistency	0.502** Moderate correlation	0.000	Significant
Commitment	0.546** Moderate correlation	0.000	Significant
**Significant @ 0.01			

As shown in the table 8, there was a significant relationship between the supply chain managers' leadership communication style along competency ( $p=0.000$ ), consistency ( $p=0.000$ ), commitment ( $p=0.000$ ) and level of information sharing. The probability value of 0.000 was less than the 0.01 significance level. This means that the better the supply chain managers' leadership communication style along competency, consistency, and commitment, the higher is their level of information sharing.

However, no significant relationship was noted between command and control and level of information sharing. The probability value of 0.470 was greater than the 0.05 significance level. This means that the supply chain managers' leadership communication style in terms of command and control has nothing to do with their level of information sharing.

The result supports the study made by Kim & Lee (2021), were they found a positive correlation between communication and information sharing. This means that communication strengthen the trading relationship between suppliers due to its provision of accurate information. SC Companies should then communicate and collaborate with each other to strengthen information sharing and to establish mutual communication.

In contrast, Mugo (2018), showed an indirect association between communication and information sharing in Kenya. In fact, despite increase of communication tools, there's still a

regression on the information sharing in Kenya. Staffs are then encouraged to share information through emails at the workplace to have a repository of their retrieved information for future needs. Likewise, availability of ICT tools should go in unison to the measures incorporated on research organization processes and knowledge. Budgetary allocations should be ensured for internet and intranet connectivity and update.

### **5. Relationship between the Supply Chain Managers' Leadership Communication Style and Level of Performance**

**Table 9**  
**Relationship between the Supply Chain Managers' Leadership Communication Style and Level of Performance**

<b>Leadership Communication Style</b>	<b>Pearson r value</b>	<b>p-value</b>	<b>Interpretation</b>
Command and Control	0.327** Low correlation	0.470	Not Significant
Competency	0.598** Moderate correlation	0.000	Significant
Consistency	0.577** Moderate correlation	0.000	Significant
Commitment	0.498** Moderate correlation	0.000	Significant
**Significant @ 0.01			

As shown in the table 9, there was a significant relationship between the supply chain managers' leadership communication style along competency ( $p=0.000$ ), consistency ( $p=0.000$ ), commitment ( $p=0.000$ ) and level of performance. The probability value of 0.000 was less than the 0.01 significance level. This means that the better the supply chain managers' leadership communication style along competency, consistency, and commitment, the higher is their level of performance.

However, no significant relationship was noted between command and control and level of performance. The probability value of 0.470 was greater than the 0.01 significance level. This means that the leadership communication style in terms of command and control has nothing to do with their level of their performance.

The result supports the study made by Musheke & Phiri (2021), they revealed a positive relationship between communication style and organizational performance. While communication styles serve as biggest barrier on effective communication, still it makes and breaks organization. Therefore, communication and conflict management training should be given to employees, timely delivery of information should be practiced, feedback should be encouraged to ensure understanding of management goals and objectives, and employee's tasks.

## 6. Relationship between the Supply Chain Managers' Level of Information Sharing and Level of Performance

**Table 10**  
**Relationship between the Supply Chain Managers' Level of Information Sharing and Level of Performance**

	<b>Pearson r value</b>	<b>p-value</b>	<b>Interpretation</b>
The Supply Chain Managers' Level of Information Sharing and Level of Performance	0.830** High correlation	0.000	Significant
**Significant @ 0.01			

As shown in Table 10, there was a significant relationship between the supply chain managers' level of information sharing and level of performance. The probability value of 0.000 was obtained which was less than 0.01 level of significance; this means that the higher the supply chain managers level of information sharing, the higher is their level of performance. The result supports the study of Arnordin (2021), which revealed that Malaysian firms have high level of information sharing due to the internet. They even illustrated the evolution of supply chain towards online business communities and emphasized the long-term benefit of all parties through cooperation and information sharing. All of these were attributed to the fact that knowledge sharing facilitates modern supply chains and promote greater integration of suppliers and customers.

## 7. Multiple Regression between Supply Chain Managers' Leadership Communication Style, Level of Information Sharing taken Singly or in Combination of the Level of Performance

**Table 11**  
**Multiple Regression between Supply Chain Managers' Leadership Communication Style, Level of Information Sharing taken Singly or in Combination of the Level of Performance**

<b>Predictor</b>	<b>Dependent Variable</b>	<b>R<sup>2</sup></b>	<b>F</b>	<b>p-value</b>	<b>β</b>	<b>t</b>	<b>p-value</b>
Command and control	Level of Performance	0.782	53.151	0.000	0.324	2.551	0.013*
Competency					0.298	2.947	0.004*
Consistency					-0.043	-0.316	0.753
Commitment					-0.089	-1.188	0.239
Information sharing					0.727	11.230	0.000*
*Significant @ 0.05							

As shown in Table 12, there was a multiple correlation between the supply chain managers' leadership communication style, level of information sharing, and level of performance. A probability value of 0.000 indicates a high level of prediction of the dependent variable (level of performance). The obtained R square of 0.782 shows that independent

variables (supply chain managers' leadership communication style and level of information sharing) explain the variability of the dependent variable (level of performance). Further, the ANOVA shows that the independent variables the supply chain managers' leadership communication styles along command/control and competency as well as their level of information sharing statistically significantly predicted the dependent variable level of performance with an F-value of 53.151 and a probability value of 0.000 which is less than the 0.05 significance level. This implies that the independent variables the supply chain managers' leadership communication styles along command/control and competency as well as their level of information sharing are the drivers of supply chain managers' level of performance, which further means that the chain managers work with a defined order where everything is well structured and arranged, and continually learn and demonstrate relevant knowledge and expertise, mostly in these technical competencies. Likewise, they share the needed information to the employees that would make them aware of what is going on in the workplace and in the organization as well which may help them to become more productive in the dispense of their work.

### **Conclusions and recommendations**

Based on the findings of the study, the study conclusions were drawn. The supply chain managers' leadership communication style was good for they can effectively direct people to obey instructions with little or no question and to resist change, manage situations, performing within a strictly delineated framework where everything is neatly organized and structured. The supply chain managers' level of information sharing was high for they can precisely articulate ideas, concepts and negotiations that are aligned to their work objectives in order to reach their goals. The supply chain managers' level of performance was high for they possess a consistent, reliable, and steady communication style. The better the supply chain managers' leadership communication style along competency, consistency, and commitment, the higher is their level of information sharing. The better the supply chain managers' leadership communication style along competency, consistency, and commitment, the higher is their level of performance. The higher the supply chain managers level of information sharing, the higher is their level of performance. The independent variables the supply chain managers' leadership communication styles along command/control and competency as well as their level of information sharing are the drivers of supply chain managers' level of performance.

Supply chain managers should have commendable skills to direct people in giving instructions and managing different situations and should maintain it in order to control and have an organized process in the work place. Supply chain managers are encouraged to have high level of information sharing so that they can precisely articulate ideas, concepts, and negotiations so that it can contribute to the success of their business or company. Supply chain managers should maintain very good communication style and process in the workplace. Avoid miscommunication to have harmonious relationship among the members of the organization. Though leadership communication style in terms of command and control is unaffected by the information sharing, it is recommended that supply chain managers should consider other strategies that are aligned with this kind of communication style so as maintain rapport in the organization. Supply chain managers should maintain their way of directing as well as considering some ideas or suggestions from their subordinates which may contribute to the betterment of the operations of the organization. Supply chain managers must maintain high level of information sharing by using repository system on cloud for the team to easy access the information. Supply Chain Managers must maintain high level of Leadership communication

style by using modern communication app to the team for consistent high level of performance. Future researchers may duplicate the present investigation considering other variables not mentioned in the study such as productivity, performance and skills of the supply chain managers in a wider scope.

## References

- [1] Akhter, A., Uddin, M.B., & Jahan, L.B. (2018). *Supply Chain Management: A Critical Analysis*. 46. <https://www.icmab.org.bd/wp-content/uploads/2019/12/04.Theories-of-Supply.pdf>
- [2] Amentae, T. (2018). *Supply Chain Management Approach to Reduce Food Losses: Empirical Results of Selected Food Commodities in Ethiopia*. [Doctoral Dissertation, Swedish University of Agricultural Sciences]. [https://pub.epsilon.slu.se/15462/7/amentae\\_t\\_k\\_180514.pdf/](https://pub.epsilon.slu.se/15462/7/amentae_t_k_180514.pdf/).
- [3] Asghari, M. (2019). *Supply Chain Visibility in the Last Mile of Delivery: A case study of the National Family Planning Supply Chain in Zimbabwe*. [Master's Thesis, KTH Royal Institute of Technology].
- [4] Asnordin, N. A., Noranee, S., & Sundram, V. P. K. (2021). The effect of Information and Communication Technology and Procurement towards Supply Chain Integration. *Turkish Journal of Computer and Mathematics Education*, 12 (14), 1138 – 1147.
- [5] Atanoza, V. E. & Camasura, J. M. (2018). The Information Seeking Strategies of Digitized Resources in Cebu Technological University, Philippines. *JPAIR Multidisciplinary Research Journal*, 8(1). Retrieved from <http://ejournals.ph/form/cite.php?id=7512>
- [6] Backstrom, S.L. & Karlsson, J. (2018). *Corporate Sustainability and Financial Performance -The influence of board diversity in a Swedish context*. [Master's Thesis, Uppsala University]. <http://www.diva-portal.org/smash/get/diva2:822784/FULLTEXT01.pdf>.
- [7] Bacud, D. C. (2018). Supply Chain Improvement for the Banana (Saba) Industry in Cagayan Valley: An Evaluation Research. *ISU-Cabagan Journal of Research*, 20(1). Retrieved from <http://ejournals.ph/form/cite.php?id=7579>
- [8] Bergman, S. (2020). The Dynamics of Developing Leadership Communication in Organizations. <http://www.diva-portal.org/smash/get/diva2:1474318/FULLTEXT01.pdf>.
- [9] Brint, A., Genovese, A., Kumar, N., & Mokhtar, A. R. M. (2019). Supply Chain Leadership: A Systematic Literature Review and a Research Agenda. *International Journal of Production Economics*. doi: 10.1016/j.ijpe.2019.04.001.
- [10] Borazon, E. Q. & Supangco, V. T. (2018). Effect of Supply Chain Integration on the Business Performance and Competitiveness of the Philippine Small and Medium Enterprise. *Philippine Institute for Development Studies*.
- [11] Calibuso, K. L., Hernandez, P. S., Labios, E. D., Poquiz, M. M. & Villaluna, A. C.. (2019). LEADERSHIP STYLE OF REGIMENT OFFICERS AS MOTIVATIONAL INDICATOR FOR STUDENT DISCIPLINARY COMPLIANCE IN AIMS. *Helm and Rudder: School of Maritime Affairs Official Research Journal*, 1(1). Retrieved from <http://ejournals.ph/form/cite.php?id=16714>
- [12] Chen, I. J., Lado, A. A., & Paulraj, A. (2018). Inter-organisational communication as competency: Antecedents and performance outcomes in collaborative communicative

- buyer-supplier relationships. *Journal of Operations Management*, 26 (1), 45 - 64. <https://doi.org/10.1016/j.jom.2007.04.001>.
- [13] Chen, Q. (2018). *Study of the Impact of Quality Management System on Chinese Baby Dairy Product Industry*. [Doctoral Dissertation, University of Central Lancashire].
- [14] Dapula, G. F.. (2018). Leadership Traits, Leadership Styles and Job Satisfaction in Selected Parochial Schools in Manila. *The Paulinian Compass*, 4(4). Retrieved from <http://ejournals.ph/form/cite.php?id=15670>
- [15] Dufwa, L. & Hammarstrom, M. (2018). *Corporate Sustainability and the Financial Implications for the European Basic Materials Industry*. [Bachelor's Thesis, University of Gothenburg]. <https://core.ac.uk/reader/43560350>.
- [16] Elango, G. S. M. (2018). The Impact of Information and Communications Technology on Supply Chain Management in South Indian Small-Scale Grocery Sector. [Master's Thesis, National College of Ireland]. <http://norma.ncirl.ie/3369/1/gauthamsachinmarappanelango.pdf>.
- [17] El-Roy Crews et al., (2019) Transformational and transactional leadership effects on communication styles, *Journal of Psychology in Africa*, 29:5, 421-428, DOI: 10.1080/14330237.2019.1675996
- [18] Falks, M. S. (2018). *Supply Chain Management Strategies in the Manufacturing Industry*. [Doctoral Dissertation, Walden University]. <https://scholarworks.waldenu.edu/cgi/viewcontent.cgi?article=7135&context=dissertations>.
- [19] Garrido-Pela et al., (2018) Shall We Collaborate? A Model to Analyse the Benefits of Information Sharing, <https://dl.acm.org/doi/abs/10.1145/2994539.2994543>
- [20] Gebreyesus, N. (2018). *Employees' Perception on the Effects of Supply Chain Management Strategy on Firm Performance: The Case of MOHA Soft Drinks Industry S.C.* [Master's Thesis, Addis Ababa University]. <http://etd.aau.edu.et/bitstream/handle/123456789/6698/Natnael%20gebreyesus.pdf?sequence=1&isAllowed=y>.
- [21] Giles, H. (2018). Communication Accommodation Theory. *The International Encyclopedia of Communication Theory and Philosophy*, 1–7. <https://doi.org/10.1002/9781118766804.wbiect056>.
- [22] Guillaume, J., Gustafsson, F., & Svensson, A. (2019). Collaborative Supply Chain Performance Measurement Systems: A Multiple Case Study on the OTD-Process of Manufacturing Smes in the Swedish Lighting Industry. [Master's Thesis, Linnaeus University].
- [23] Gołaś, Z. (2020). Effect of inventory management on profitability: evidence from the Polish food industry: Case study. *Agricultural Economics (Zemědělská ekonomika)*, 66 (5), 234 – 242.
- [24] Gringco, M. B. (2018). Evaluation of the Pharmaceutical Supply Chain Management Implementation Process in the Rural Health Units of Region XI: Basis for Formulation of Strategic Plan. *Tin-aw*, 2(1). Retrieved from <http://ejournals.ph/form/cite.php?id=13705>
- [25] Gules, H. K., & Burgess, T. F. (2018). Manufacturing technology and the supply chain: Linking buyer supplier relationships and advanced manufacturing technology. *European Journal of Purchasing & Supply Management*, 2 (1), 31 - 38.

- [https://doi.org/10.1016/0969-7012\(95\)00014-3](https://doi.org/10.1016/0969-7012(95)00014-3).
- [26] Haass et al., (2018) A Case Study for Threat Information Sharing, <https://dl.acm.org/doi/abs/10.1145/2808128.2808135>
- [27] Hajar Fatorachian & Hadi Kazemi (2021) Impact of Industry 4.0 on supply chain performance, *Production Planning & Control*, 32:1, 63-81, DOI: 10.1080/09537287.2020.1712487
- [28] Hong, J., Zhou, Z., Li, X., et al. (2020). Supply Chain Quality Management and Firm Performance in China's Food Industry - The Moderating Role of Social Co-Regulation. *International Journal of Logistics Management* 31(1), 99 - 122.
- [29] Huang et al., (2022) Identifying Emergent Leadership in OSS Projects Based on Communication Styles, <https://arxiv.org/abs/2201.11897>
- [30] Kale, P., Singh, H., & Perlmutter, H. (2018). Learning and protection of proprietary assets in strategic alliances: Building relational capital. *Strategic Management Journal*, 21 (3), 217 - 237. [https://doi.org/10.1002/\(SICI\)1097-0266\(200003\)21:3<217:AID-SMJ95>3.0.CO;2-Y](https://doi.org/10.1002/(SICI)1097-0266(200003)21:3<217:AID-SMJ95>3.0.CO;2-Y).
- [31] Kelly & MacDonald, (2018) A Look at Leadership Styles and Workplace Solidarity Communication, <https://journals.sagepub.com/doi/abs/10.1177/2329488416664176>
- [32] Kim, S. & Lee, C. (2021). Collaborative Communication, Information Sharing and Supply Chain Performance. *The Journal of Industrial Distribution & Business*, 12 (5), 27 – 36.
- [33] Kumar, A., Singh, R. & Modgil, S. (2020). Exploring the Relationship Between ICT, SCM Practices and Organizational Performance in Agri-Food Supply Chain. *Benchmarking* 27, (3), 1003-1041.
- [34] Latifah Abdul Latif & Arman Hadi Abdul Manaf, (2019) EXPLORING WOMEN'S LEADERSHIP COMMUNICATION STYLES, TRAITS AND TEAM EFFECTIVENESS: A HIGHER EDUCATION PERSPECTIVE, [http://www.ajssh.leena-luna.co.jp/AJSSHPDFs/Vol.8\(3\)/AJSSH2019\(8.3-03\).pdf](http://www.ajssh.leena-luna.co.jp/AJSSHPDFs/Vol.8(3)/AJSSH2019(8.3-03).pdf)
- [35] Lee Matolo, (2018). Influences of Administrators' Leadership and Communication Skills on Teachers' Empowerment and Students' Achievement. *Interdisciplinary Research Journal*, 7(1). Retrieved from <http://ejournals.ph/form/cite.php?id=15341>
- [36] Lima-Juniora & Carpinettib, (2018) Quantitative models for supply chain performance evaluation: A literature review, <https://www.sciencedirect.com/science/article/abs/pii/S0360835217304400>
- [37] Ilkka Sillanpää, (2018). Empirical study of measuring supply chain performance, <https://www.emerald.com/insight/content/doi/10.1108/BIJ-01-2013-0009/full/html>
- [38] Maestrini et al., (2018). Supply chain performance measurement systems: A systematic review and research agenda, <https://www.sciencedirect.com/science/article/abs/pii/S0925527316303292>
- [39] Maskey, R. (2018). *Factors Affecting Information Sharing Between Supply Chain Partners and the effect of Information Sharing on Supply Chain Performance – A Context of Nepal*. [Doctoral Dissertation, University of Tasmania]. [https://eprints.utas.edu.au/28608/1/Maskey\\_whole\\_thesis.pdf](https://eprints.utas.edu.au/28608/1/Maskey_whole_thesis.pdf).
- [40] Mishra, V. (2020). *Achieving Project Success Through Leadership Communication: A Study on Construction Industry*. [Master's Thesis, Uppsala University].
- [41] Morrakot & William, (2018), Information sharing in supply chain collaboration, <https://www.sciencedirect.com/science/article/abs/pii/S0360835218304583>

- [43] Mugo, M. W. (2018). Influence Of Information and Communication Technology on Knowledge Sharing in Research Organizations: A Case of Centers for Disease Control and Prevention in Kenya. [Master's Thesis, Strathmore University]. <https://su-plus.strathmore.edu/bitstream/handle/11071/6164/Influence%20of%20information%20and%20communication%20technology%20on%20knowledge%20sharing%20in%20research%20organizations.pdf?sequence=3&isAllowed=y>.
- [44] Muhammad Iskandar Hamzah, (2018) The influence of leadership styles on employee engagement: The moderating effect of communication styles. [https://d1wqtxts1xze7.cloudfront.net/57896388/IASE\\_IJAAS2017\\_Comm\\_styles\\_Engagement-with-cover-page-v2.pdf?Expires=1651496823&Signature=Z2mkHklyJKLFS-](https://d1wqtxts1xze7.cloudfront.net/57896388/IASE_IJAAS2017_Comm_styles_Engagement-with-cover-page-v2.pdf?Expires=1651496823&Signature=Z2mkHklyJKLFS-)
- [45] Musheke, M. M. & Phiri, J. (2021). The Effects of Effective Communication on Organizational Performance Based on the Systems Theory. *Open Journal of Business and Management*, 9 (2). <https://doi.org/10.4236/ojbm.2021.92034>.
- [46] Nguyen, D. H. (2018). Analysis of Supply Chain Management (SCM) in Haiha Confectionery Joint-Stock Company (HAIHACO) and Developing Plan for its System. [Bachelor's Thesis, Satakunta University of Applied Sciences]. <https://core.ac.uk/download/pdf/80989878.pdf>.
- [47] Nwagbara, U. (2018). Leading by Interaction in Educational Organizations: The Imperatives of Leadership Communication and Complaint Management. *LUMINA*, 22(2). Retrieved from <http://ejournals.ph/form/cite.php?id=7342>
- [48] Olnesa et al., (2018) Blockchain in government: Benefits and implications of distributed ledger technology for information sharing, <https://www.sciencedirect.com/science/article/abs/pii/S0740624X17303155>
- [49] Paul Eric Dossou & Meriem Nachidi, (2018) Modeling Supply Chain Performance, <https://www.sciencedirect.com/science/article/pii/S2351978917303943>
- [50] Reddy K. et al., (2019) A review on supply chain performance measurement systems, <https://www.sciencedirect.com/science/article/pii/S235197891930037X>
- [51] Ruomeng Cui et al., (2018) Information Sharing in Supply Chains: An Empirical and Theoretical Valuation, <https://pubsonline.informs.org/doi/abs/10.1287/mnsc.2014.2132>
- [52] Schuppen, J. V. (2018). The Bullwhip Effect Under the Presence of Competitive Markets. <https://edepot.wur.nl/448946>.
- [53] Sel, Ç., Soysal, M. & Çimen, M. (2017). A Green Model for the Catering Industry Under Demand Uncertainty. *Journal of Cleaner Production*. 167, 459 - 472.
- [54] Shannon, C. W. (2018). *Effective Management Communication Strategies*. [Doctoral Dissertation, Walden University]. <https://scholarworks.waldenu.edu/cgi/viewcontent.cgi?article=7058&context=dissertations>.
- [55] Shegelman, I., Kirilina, V. & Vasilev, A. et al. (2020). Supply chain management application in functional food industry. *International Journal of Supply Chain Management*, 9(3), 537-549.
- [56] Shekhar, M. & Saxena, M. (2018). Harnessing Information and Technology for Disaster Response Decision-Making Units. *IAMURE International Journal of Ecology and Conservation*, 2(1). <http://dx.doi.org/10.7718/ijec.v2i1.89>
- [57] Stefan Laube & Rainer Böhme, (2018) Strategic Aspects of Cyber Risk Information Sharing, <https://dl.acm.org/doi/abs/10.1145/3124398>

- [58] Taghipour et al., (2018) SUPPLY CHAIN PERFORMANCE EVALUATION IN THE IT INDUSTRY, [https://www.researchgate.net/profile/Mohammad-aghipour-7/publication/338558430\\_SUPPLY\\_CHAIN\\_PERFORMANCE\\_EVALUATION\\_IN\\_THE\\_IT\\_INDUSTRY/links/5e1ccf3692851c8364cbc041/SUPPLY-CHAIN-PERFORMANCE-EVALUATION-IN-THE-IT-INDUSTRY.pdf](https://www.researchgate.net/profile/Mohammad-aghipour-7/publication/338558430_SUPPLY_CHAIN_PERFORMANCE_EVALUATION_IN_THE_IT_INDUSTRY/links/5e1ccf3692851c8364cbc041/SUPPLY-CHAIN-PERFORMANCE-EVALUATION-IN-THE-IT-INDUSTRY.pdf)
- [59] Topal, B. & Sahin, H. (2018). The Influence of Information Sharing in the Supply Chain Process on Business Performance: An Empirical Study. *Studies in Informatics and Control*, 27 (2) 203 – 214. ISSN: 1220-1766 eISSN: 1841-429X.
- [60] Vidal, E., De Vera, A. & Rubrica, M. (2018). The Development of College of Arts, Sciences, and Technology Online Information Systems. *Lagumlalang: A Refereed Journal of Interdisciplinary Synthesis*, 1(1). Retrieved from <http://ejournals.ph/form/cite.php?id=1085>
- [61] Viernes Jr., F. O., Cabbigat, C. D., Garingan, E. G. & Bautista, R. G.. (2018). PERSPECTIVES OF SHARING PHOTOS, INSIGHTS, AND COMMENTARIES TO THE ONLINE PORTAL. *QSU-CTE Journal of Education Practices and Standards*, 2(1). Retrieved from <http://ejournals.ph/form/cite.php?id=11819>
- [62] Wachira, R. N. (2018). *Financial Sustainability Determinants of Government Owned Entities in Kenya*. [Doctoral Dissertation, Jomo Kenyatta University of Agriculture and Technology]. [http://ir.jkuat.ac.ke/bitstream/handle/123456789/4840/Print%20Copy%20final%20thesis%20%20Rosaly%20N%20\\_ONedits.pdf?sequence=1&isAllowed=y](http://ir.jkuat.ac.ke/bitstream/handle/123456789/4840/Print%20Copy%20final%20thesis%20%20Rosaly%20N%20_ONedits.pdf?sequence=1&isAllowed=y).
- [63] Wan-Hsiu Sunny Tsai & Linjuan Rita Men, (2018) Social CEOs: The effects of CEOs' communication styles and parasocial interaction on social networking sites, <https://journals.sagepub.com/doi/abs/10.1177/1461444816643922>
- [64] Yongping Xie et al., (2020) Intelligent supply chain performance measurement in Industry 4.0, <https://onlinelibrary.wiley.com/doi/abs/10.1002/sres.2712>
- [65] Zaheer, N. & Trkman, P. (2018). An information sharing theory perspective on willingness to share information in supply chains. *The International Journal of Logistics Management*. 28. In press. 10.1108/IJLM-09-2015-0158.