

A study on the effectiveness of MIS and its impact in Operations with special reference Sastha Technologies.

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ABSTRACT

Management Information Systems (MIS) in Operations Management has been a topic of significant interest to researchers and practitioners. This review of literature examines the effectiveness of MIS in operations by analyzing and synthesizing findings from various studies. The review reveals that MIS enhances operations by providing timely and accurate information for decision-making, improving communication and collaboration among stakeholders, increasing efficiency and productivity, and enabling real-time monitoring and control of operations. Additionally, the review identifies the challenges of implementing MIS in operations, such as high cost, technical complexity, resistance to change, and inadequate training and support. The review suggests that to fully realize the benefits of MIS in operations, organizations should adopt a holistic approach that aligns MIS with their business strategy, integrates MIS with other systems, emphasizes user participation and engagement, and provides continuous training and support.

INTRODUCTION

The role of Management information system (MIS) is vital now-a-days in business environment because it has evolved over time to become an integral part of its business operations. The use of management information system has increased for last few years not only by firms, but also by individuals and even governments. Because of the today's global environment where competition is very high, it is the basic requirement of the organization to install management information system to compete the market and to earn more profitability, invest in innovation in their products, and to grow their businesses. This study aims to investigate the effectiveness of MIS in Operations and its impact on organizational performance. The study will examine the current state of MIS implementation in Operations, evaluate the benefits and challenges associated with using MIS in Operations, and identify areas for improvement.

COMPANY PROFILE

Sastha Technologies is one of the contract manufacturers who takes contracts and also make products on client's request. It's been 3 years since the company was founded which is on 2020. The Company mainly works on laser cutting edge technologies to make frames and LCD & LED machine bonding which contains the latest technology that can bond and repair LED and LCD screens. Sastha Technologies previously had a company called Sastha Computers which was founded in 2007 which distributed computer accessories and parts and already have experience in LCD and LED bonding from that company. They closed down the Sastha Computers and started new company called Sastha Technologies.

INDUSTRY PROFILE

Laser cutting is a manufacturing process that uses a high-powered laser to cut materials such as metal, plastic, and wood. The laser beam is directed by a computer-controlled system to produce complex shapes and patterns with a high degree of precision and accuracy. Laser cutting is widely used in various industries, including automotive, aerospace, electronics, medical, and architecture. Laser cutting is a rapidly growing industry with significant potential for innovation and growth. As new technologies emerge and become more widely adopted, laser cutting is likely to become an even more integral part of the manufacturing process across various industries. The global laser cutting market was valued at USD 4.2 billion in 2020 and is expected to grow at a CAGR of 6.4% from 2021 to 2028. The increasing demand for automation and high-quality production processes in various industries is driving the growth of the laser cutting market.

REVIEW OF LITERATURE

Le et al. (2019), MIS can be vulnerable to cyberattacks such as malware and phishing attacks, which can compromise sensitive data and disrupt operations. Therefore, organizations need to take steps to secure their MIS systems and protect their data from cyber threats. **Sharma and Choudhary (2019)** found that MIS can improve quality management in operations by enabling real-time monitoring of quality metrics, facilitating communication and collaboration among quality management teams, and providing data-driven insights for continuous improvement. The study also found that MIS can improve customer satisfaction and loyalty by ensuring high-quality products and services.

A study by **Amiri and Gharakhani (2019)** says, MIS can support quality management by providing real-time data on key quality metrics such as defect rate, customer complaints, and rework rate. Additionally, MIS can support the implementation of quality improvement initiatives such as Total Quality Management (TQM) and Kaizen by providing real-time data and analytics on process performance.

A study by **Luo et al. (2020)** found that cloud-based MIS can improve communication and collaboration among team members, leading to improvement in operational performance.

MIS can also support sustainability initiatives by enabling managers to monitor and improve the environmental and social impact of their operations. **Kabir et al. (2021)**, MIS can support sustainability initiatives by providing real-time data on energy consumption, waste generation, and greenhouse gas emissions. Additionally, MIS can support the implementation of sustainability initiatives such as Green Supply Chain Management (GSCM) by enabling data sharing and collaboration among supply chain partners.

OBJECTIVE OF THE STUDY

Primary Objectives

- To study on the effectiveness of MIS and its impact in Operations with special reference Sastha Technologies

Secondary Objectives

- To identify the current state of MIS implementation in the organization and evaluate its effectiveness in supporting operations.
- To assess the level of employee engagement and training in MIS usage and identify potential areas for improvement.
- To provide insights and best practices to implement or improve MIS in their Operations functions.

RESEARCH DESIGN

The research design used for the study is descriptive. Descriptive research studies are those, which are concerned with describing the characteristics of a particular individual or group. The studies concerned with specific prediction with narration of facts and characteristics concerning individual group or situation are all examples of descriptive research studies.

SAMPLING TECHNIQUE

Convenience Sampling, it is a definite plan for obtaining a sample from a given population. It refers to the technique the researcher adopts in selecting items for the sample. The respondents are selected based on convenient sampling.

STRUCTURE OF QUESTIONNAIRE

Questionnaire was divided into two sections. First part was designed to know the general information about customers and the second part contained the response about the level of impact of MIS on operations.

SAMPLE SIZE

The total sample size is 153 which is taken from Sastha Technologies.

SAMPLE AREA

The samples are collected in Thanjavur.

DATA COLLECTION

The data which are collected for this research are

PRIMARY DATA

From Observations and Questionnaire given to 153 respondents.

SECONDARY DATA

Websites and online journals, published reports, & review of literature from published article.

PERIOD OF STUDY

The period of time taken to conduct the survey and preparation of the research paper is Jan 2023 to Mar 2023

TOOLS FOR ANALYSIS.

CHI SQUARE

The Chi-Square test is a statistical procedure for determining the difference between observed and expected data. This test can also be used to determine whether it correlates to the categorical variables in our data. It helps to find out whether a difference between two categorical variables is due to chance or a relationship between them.

CORRELATION

Correlation refers to a statistical measure that expresses the degree to which two variables are related or associated. In other words, it is a way to measure the strength and direction of the linear relationship between two variables. A correlation coefficient is a number between -1 and 1 that reflects the degree of correlation between two variables.

ANOVA

ANOVA stands for Analysis of Variance. It is a statistical method used to compare the means of two or more groups to determine if there is a significant difference between them. ANOVA tests the null hypothesis that there is no difference between the means of the groups against the alternative hypothesis that there is at least one mean that is different from the others.

LIMITATION OF THE STUDY

For anything there should be some limitations like that my project also have certain limitations. The following are some limitations what I faced:

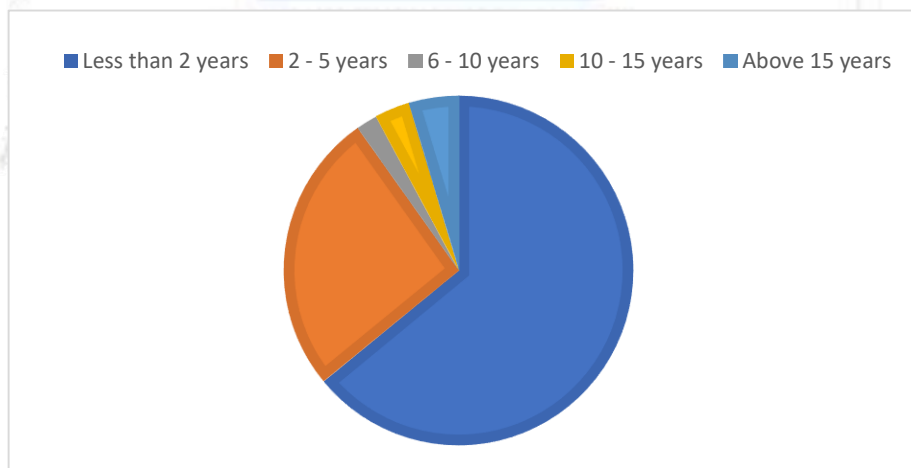
- The study is confined to Thanjavur District only.
- The study is based upon the study on the effectiveness of MIS and its impact in Operations with special reference Sastha Technologies.
- The data collected for the research is fully on primary data given by the respondents.
- There is chance for personal bias. So, the result is not accurate.
- Due to storage of time and other constraints, the study has been limited 153 respondents only.

DATA ANALYSIS AND INTERPRETATIONS

WORK EXPERIENCE OF THE RESPONDENTS

S.no	Work Experience	Respondents	Percentage
1	Less than 2 years	98	64.1
2	2 - 5 years	40	26.1
3	6 - 10 years	3	2.0
4	10 - 15 years	5	3.3
5	Above 15 years	7	4.6
TOTAL		153	100

CHART REPRESENTS WORK EXPERIENCE OF THE RESPONDENTS



Interpretation

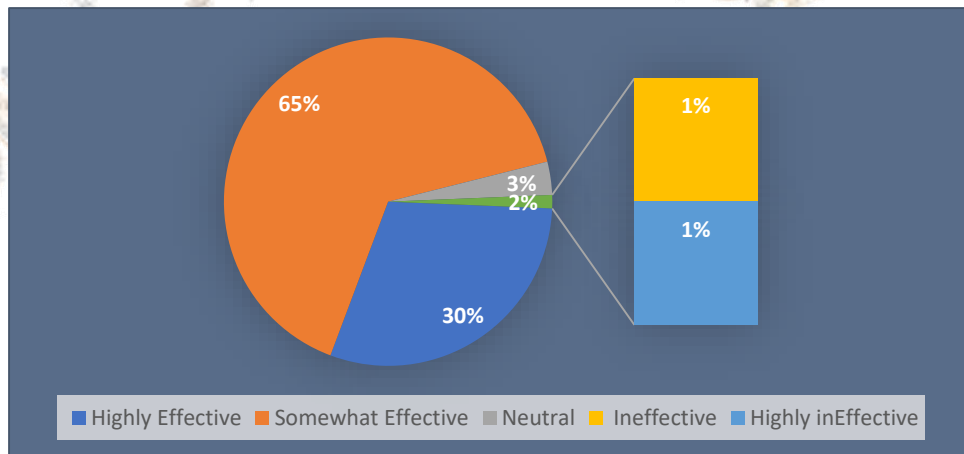
From the above table, 64.1% of respondents have Less than 2 years of experience, 26.1% have 2-5 years, 2% have 6-10 years, 3.3% have 10 – 15 years, 4.6% have Above 15 years of experience in this field of work.

RESPONDENTS OPINION ABOUT THE EFFECTIVENESS OF MIS IN THE COMPANY

S.no	Particulars	Respondents	Percentage
1	Highly Effective	46	30.1
2	Somewhat Effective	100	65.4
3	Neutral	5	3.3
4	Ineffective	1	0.7
5	Highly ineffective	1	0.7
TOTAL		153	100

CHART REPRESENTS RESPONDENTS' OPINION ABOUT THE EFFECTIVENESS OF MIS IN THE COMPANY

Interpretation:

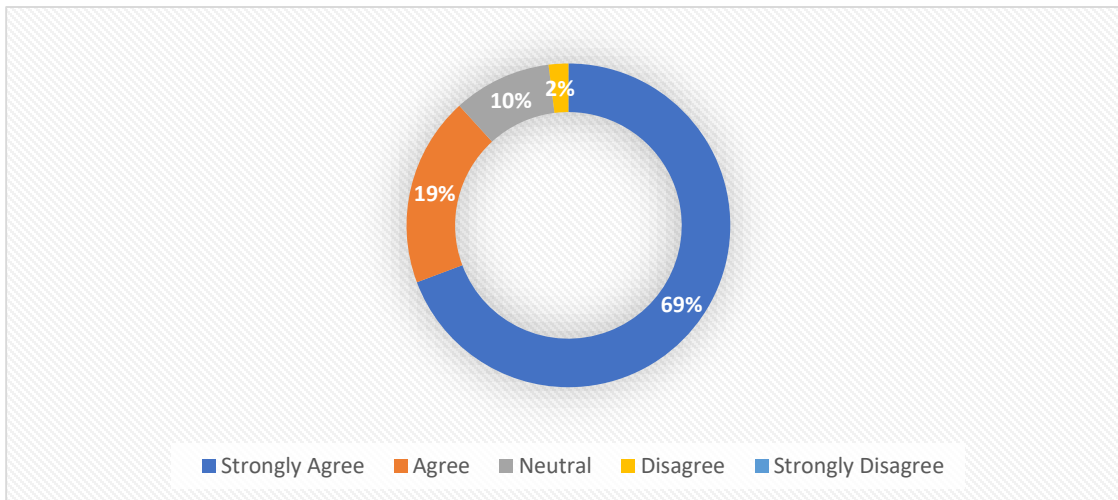


From the above table, 46% of respondents chose highly effective, 100% chose somewhat effective, 5% chose neutral, 0.7% chose somewhat ineffective and highly ineffective.

RELATIONSHIP BETWEEN MANAGEMENT INFORMATION SYSTEM WITH GROWTH OF THE COMPANY

S.no	Particulars	Respondents	Percentage
1	Strongly Agree	106	69.2
2	Agree	29	19
3	Neutral	15	9.8
4	Disagree	3	2
5	Strongly Disagree	0	0
TOTAL		153	100

CHART REPRESENTS RELATIONSHIP BETWEEN MANAGEMENT INFORMATION SYSTEM WITH GROWTH OF THE COMPANY



Interpretation:

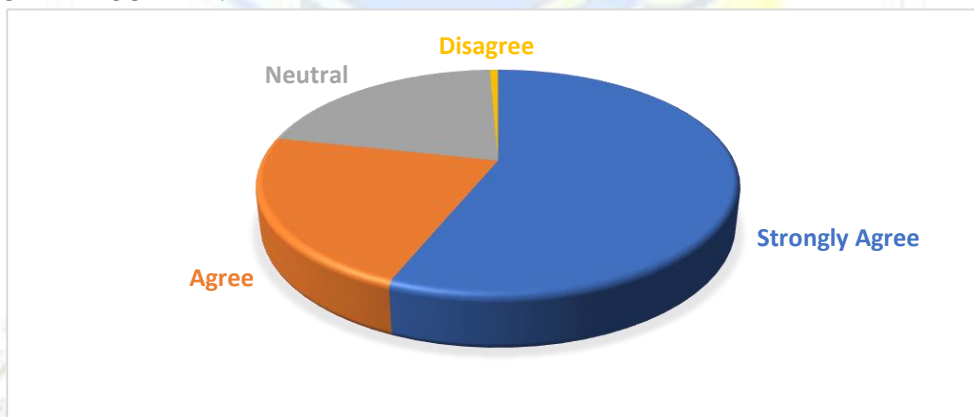
From the above table, 69.2% respondents strongly agree, 19% respondents agree, 9.8% respondents are neutral, 2% respondents disagree and, 0% of the respondents strongly disagree.

RELATIONSHIP BETWEEN MANAGEMENT INFORMATION SYSTEM WITH PROFITABILITY OF THE COMPANY

CHART REPRESENTS RELATIONSHIP BETWEEN MANAGEMENT INFORMATION SYSTEM WITH

S.no	Particulars	Respondents	Percentage
1	Strongly Agree	86	56.2
2	Agree	34	22.2
3	Neutral	32	20.9
4	Disagree	1	0.7
5	Strongly Disagree	0	0
TOTAL		153	100

PROFITABILITY OF THE COMPANY



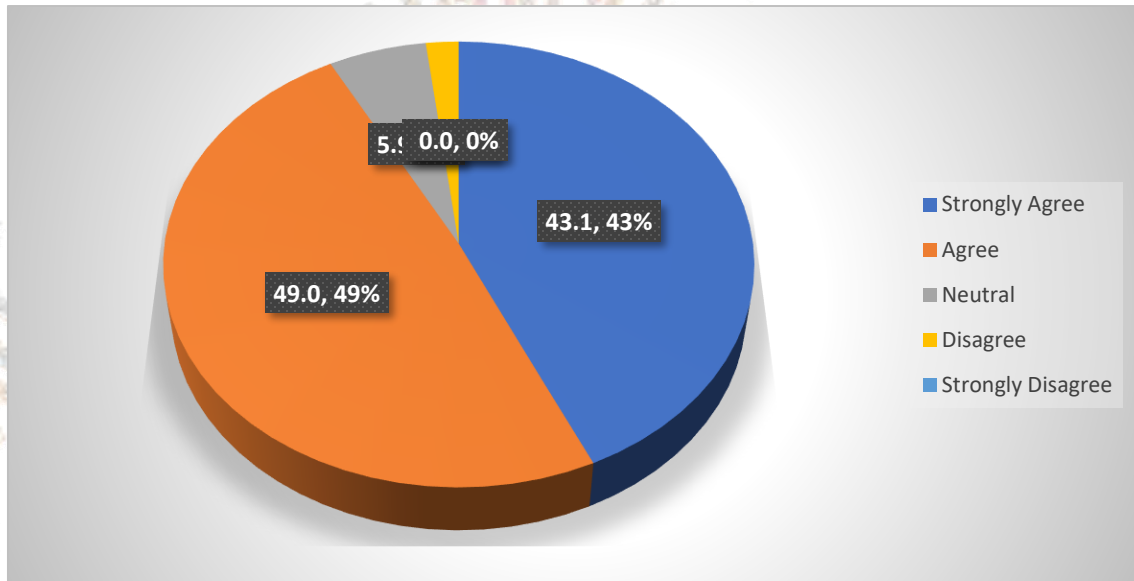
Interpretation:

From the above table, 56.2% respondents strongly agree, 22.2% respondents agree, 20.9% respondents are neutral, 0.7% respondents disagree and, 0% of the respondents strongly disagree.

RELATIONSHIP BETWEEN MANAGEMENT INFORMATION SYSTEM WITH PROFITABILITY OF THE COMPANY

S.no	Particulars	Respondents	Percentage
1	Strongly Agree	66	43.1
2	Agree	75	49.0
3	Neutral	9	5.9
4	Disagree	3	2.0
5	Strongly Disagree	0	0.0
TOTAL		153	100

CHART REPRESENTS RELATIONSHIP BETWEEN MANAGEMENT INFORMATION SYSTEM WITH PROFITABILITY OF THE COMPANY



Interpretation:

From the above table, 43.1% respondents strongly agree, 49% respondents agree, 5.9% respondents are neutral, 2% respondents disagree and, 0% of the respondents strongly disagree.

CHI-SQUARE

Ho - There is a significance difference between Work Experience and Performance of the staff after MIS.

H1 - There is no significance relationship difference Work Experience and Performance of the staff after MIS.

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
* Does the Performance of the staff become improved after using Management Information System?	153	100.0%	0	0.0%	153	100.0%

Work Experience * Does the Performance of the staff become improved after using Management Information System?

		Does the Performance of the staff become improved after using Management Information System?			
		1	2	3	Total
Less than 2 years	Count	41	43	9	93
	Expected Count	51.1	34.0	7.9	93.0
2 - 5 years	Count	37	5	3	45
	Expected Count	24.7	16.5	3.8	45.0
6-10 years	Count	2	1	0	3
	Expected Count	1.6	1.1	.3	3.0
10-15 years	Count	3	1	1	5
	Expected Count	2.7	1.8	.4	5.0
15 years	Count	1	6	0	7
	Expected Count	3.8	2.6	.6	7.0
Total	Count	84	56	13	153
	Expected Count	84.0	56.0	13.0	153.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	27.606 ^a	8	.001
Likelihood Ratio	30.102	8	.000
Linear-by-Linear Association	.291	1	.589
N of Valid Cases	153		

a. 10 cells (66.7%) have expected count less than 5. The minimum expected count is .25.

Interpretation:

Since the P value (0.001) is less than the significance value (0.05), we reject null hypothesis and accept alternate hypothesis. Hence, there is no significance relationship difference Work Experience and Performance of the staff after MIS.

CORRELATION

Ho – There is a positive relationship between Effectiveness of MIS in Operations and the Growth and the profitability of the company.

H1 - There is a negative relationship between Effectiveness of MIS in Operations and the Growth and the profitability of the company.

Correlations

	How effective do you believe MIS has been in improving Operations processes?	Is there any direct relationship between Management Information System with growth of the Company?
How effective do you believe MIS has been in improving Operations processes?	Pearson Correlation	.058
	Sig. (2-tailed)	.477
	N	153
Is there any direct relationship between Management Information System with growth of the Company?	Pearson Correlation	1
	Sig. (2-tailed)	.477
	N	153

Interpretation:

Since P value is (0.58), more than the significance value (0.05). we accept null hypothesis and reject alternate hypothesis. Hence There is a postive relationship between Effectiveness of MIS in Operations and the Growth and the profitability of the company.

4.2.3 ANOVA

Ho – There is a significance difference between Sped up internal communication and effectiveness of MIS in increase in production.

H1 - There is no significance difference between Sped up internal communication and effectiveness of MIS in increase in production.

Does Management Information System speedup the internal communication?

Duncan^{a,b}

Does the Management Information System helpful in the increase of Production of products?	N	Subset for alpha = 0.05		
		1	2	3
Strongly Agree	79	1.19		
Agree	57		1.67	
Neutral	13			2.31
Disagree	4			2.50
Sig.		1.000	1.000	.407

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 11.201.

b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

Interpretation:

Since P value is (0.407), more than the significance value (0.05). we accept null hypothesis and reject alternate hypothesis. Hence, there is a significance difference between Sped up internal communication and effectiveness of MIS in increase in production.

CONCLUSION

FINDINGS

- Majority (51.6%) of the respondents Strongly agree that the Management Information System helpful in the increase of Production of products.
- Majority (53.6%) of the respondents feels very helpful that MIS system integrate with other systems used in Operations, such as inventory management or production planning.
- Majority (56.2%) of the respondents agree that the control system been more effective than before using Information System.
- Majority (69.3%) of the respondents strongly agree that there is a direct relationship between Management Information System with growth of the Company.
- Majority (56.2%) of the respondents strongly agree that there is a direct relationship between Management Information System with Profitability of the Company.

SUGGESTIONS

- Company must use MIS to eliminate the communication gap between top level management, middle level management and lower-level management.
- Workers and staff should be aware of MIS and should know how to use it for the development of the company.
- Company should create more awareness on MIS to the staffs to improve the effectiveness of the MIS.
- Management should know how to efficiently use MIS for the company to reduce the cost of maintenance.

CONCLUSION

From the analysis we have reached the conclusion that Management Information System (MIS) is helpful to enhance performance of the organization in the sense of profitability, innovation, and growth. Sastra Technologies had manufactured good quality products for the customers and there are so many competitions for this industry now, and since some of the employees just started working and some lack experience and some refuse to adapt to new technologies and MIS, the company cannot get its full potential. Since the city is developing it is hopeful to say that the employees will adapt towards the new technologies to compete in the market. Since it's been only 3 years since the company is started, they perform too well for a startup. Since the competition is too high, they might need an advanced MIS technology to compete against the competitors in the future. The MIS plays the role of information generation, communication, problem identification and helps in the process of decision-making.

REFERENCE

- Awan, A.G. & Syeda Zurait-ul Zahra (2014) "Impact of Innovation on Consumers' behavior: A case study of Pak Electron Ltd", *European Journal of Business and Innovation Research*, 2(6):93-108.
- Awan, A.G. & Asia Khan (2015) "Determination of the Role of Branch Managers in Promotion of innovations in Commercial Banks of Pakistan", *International Journal of African and Asian Studies*, Vol 14: 21-28.
- Awan, A.G. & Ayesha Javed (2015) "Impact of Innovation on Employees performance" *International Journal of Management and Information Technology*, Vol 10 (11).
- Awan, A.G., Shaukat Malik, Shehla Majeed (2015) "Impact of Management Support and Training of IT employees on productivity of an organization: Evidences from Textile sector in Pakistan" *Science International*, 27.
- Cunningham, M., Kerr, K., McEune, R., Smith, P., & Harris, S. (2004). *Laptops for teachers: An evaluation of the first year of the initiative. ICT in Schools Research and Evaluation*, 19. Coventry/London: Becta/DfES. Available http://www.becta.org.uk/page_documents/research/lft_evaluation.pdf
- Dawam, S. R., Ahmad, K. A., Jusoff, K., Tajuddin, T., Elias, S. J., & Mansor, S. W. (2009). The use of ICT in public and private institutions of higher learning, Malaysia. *Computer and Information Science*, 2 (4), 122–128.
- Demir, K. (2006). School management information systems in primary schools. *The Turkish Online Journal of Educational Technology*, 5 (2), 32–45.
- Granville, S., Russell, K., & Bell, J. (2005). *Evaluation of the Masterclass Initiative*. Edinburgh: Scottish Executive. Available at <http://www.scotland.gov.uk/Publications/2005/12/13133428/34291>
- Zain, M. Z., Atan, H., & Idrus, R. M. (2004). The impact of information and communication technology (ICT) on the management practices of Malaysian Smart Schools. *International Journal of Educational Development*, 24 (2), 201–211.
- Awan, A.G. & Rana Ejaz A.Khan (2014) "The Engima of US Productivity Slowdown: A Theoretical Analysis", *American Journal of Trade and Policy*, Vol 1 (1):7-15
- Alshawi, S., & Al-Khafaji, A. (2017). The impact of management information systems adoption in managerial decision making: A review literature. *Journal of Information Systems and Technology Management*, 14(3), 297-316.
- Hwang, Y., Kim, J., & Lee, S. (2018). The role of management information systems (MIS) and its impact on supply chain management: A literature review. *Sustainability*, 10(10), 3578.
- Amiri, M., & Gharakhani, M. (2019). Management information systems and quality management: A systematic review. *Journal of Enterprise Information Management*, 32(1), 98-116.
- Kabir, G., Ferdous, R., & Sultana, S. (2021). Management information system and sustainable supply chain management: A review. *Journal of Cleaner Production*, 291, 125783.