

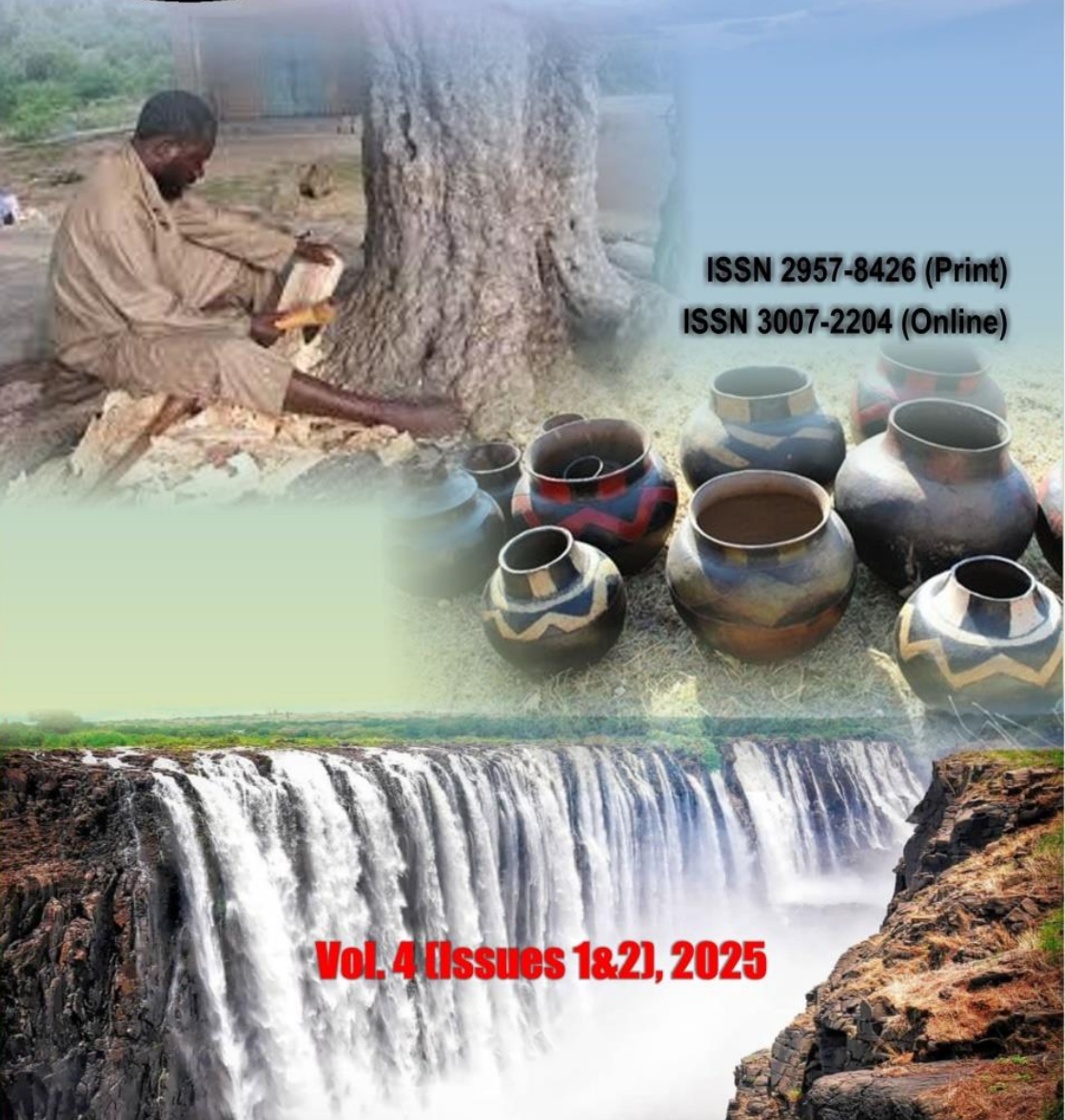


KUVEZA NEKUUMBA

THE ZIMBABWE EZEKIEL GUTI UNIVERSITY
JOURNAL OF DESIGN, INNOVATIVE THINKING AND PRACTICE

ISSN 2957-8426 (Print)

ISSN 3007-2204 (Online)



Vol. 4 (Issues 1&2), 2025

©ZEGU Press 2025

Published by the Zimbabwe Ezekiel Guti University Press
Stand No. 1901 Barrassie Rd,
Off Shamva Road
Box 350
Bindura, Zimbabwe

All rights reserved

“DISCLAIMER: The views and opinions expressed in this journal are those of the authors and do not necessarily reflect the official position of funding partners”

Typeset by Divine Graphics
Printed by Divine Graphics

EDITOR-IN-CHIEF & MANAGING EDITOR

Innocent Chirisa, Zimbabwe Ezekiel Guti University.

EDITORIAL ADVISORY BOARD

Dr Tawanda Mushiri, University of Zimbabwe, Zimbabwe
Professor Trynos Gumbo, University of Johannesburg, South Africa

Dr Peter Kwaira, University of Zimbabwe, Zimbabwe
Professor Chakwizira, North West University, South Africa
Dr Average Chigwenya, National University of Science and Technology, Zimbabwe

Dr Edgar Muhoyi, University of Zimbabwe, Zimbabwe
Mr Brilliant Mavhima, University of Zimbabwe, Zimbabwe
Dr Emily Motsi, Freelance Researcher, Zimbabwe
Dr Samuel Gumbo, University of Zimbabwe, Zimbabwe

SUBSCRIPTION AND RATES

Zimbabwe Ezekiel Guti University Press Office
Stand No. 1901 Barrassie Rd,
Off Shamva Road
Box 350

Bindura, Zimbabwe

Telephone: ++263 8 677 006 136 | +263 779 279 912

E-mail: zegupress@admin.uz.ac.zw

<http://www.zegu.ac.zw/press>

About the Journal

JOURNAL PURPOSE

The purpose of the *Kuveza neKuumba - Zimbabwe Ezekiel Guti University Journal of Design, Innovative Thinking and Practice* is to provide a forum for design and innovative solutions to daily challenges in communities.

CONTRIBUTION AND READERSHIP

Planners, engineers, social scientists, business experts, scholars and practitioners from various fields.

JOURNAL SPECIFICATIONS

Kuveza neKuumba - Zimbabwe Ezekiel Guti University Journal of Design, Innovative Thinking and Practice

ISSN 2957-8426 (Print)

ISSN 3007-2204 (Online)

SCOPE AND FOCUS

The journal is a forum for the discussion of ideas, scholarly opinions and case studies of multidisciplinary perspectives of design and innovative thinking. The journal is produced bi-annually.

Guidelines for Authors for the Kuveza Nekuumba Journal

Articles must be original contributions, not previously published and should not be under consideration for publishing elsewhere.

Manuscript Submission: Articles submitted to the *Kuveza neKuumba - Zimbabwe Ezekiel Guti University Journal of Design, Innovative Thinking and Practice* are reviewed using the double-blind peer review system. The author's name(s) must not be included in the main text or running heads and footers.

A total number of words: 5000-7000 words and set in 12-point font size width with 1.5 line spacing.

Language: British/UK English

Title: must capture the gist and scope of the article

Names of authors: beginning with the first name and ending with the surname

Affiliation of authors: must be footnoted, showing the department and institution or organisation.

Abstract: must be 200 words

Keywords: must be five or six containing words that are not in the title

Body: Where the authors are more than three, use *et al.*, Italicise *et al.*, *ibid.*, words that are not English, not names of people or organisations, etc. When you use several authors confirming the same point, state the point and bracket them in one bracket and ascending order of dates and alphabetically separated by semi-colon e.g. (Falkenmark, 1989, 1990; Reddy, 2002; Dagdeviren and Robertson, 2011; Jacobsen *et al.*, 2012).

Referencing Style: Please follow the Harvard referencing style in that:

- In-text, citations should state the author, date and sometimes the page numbers.
- the reference list entered alphabetically, must include all the works cited in the article.

In the reference list, use the following guidelines, religiously:

Source from a Journal

- Anim, D.O and Ofori-Asenso, R. (2020). Water Scarcity and COVID-19 in Sub-Saharan Africa. *The Journal of Infection*, 81(2), 108-09.
- Banana, E, Chitekwe-Biti, B and Walnycki, A (2015). Co-Producing Inclusive City-Wide Sanitation Strategies: Lessons from Chinhoyi, Zimbabwe. *Environment and Urbanisation*, 27(1), 35-54.
- Neal, M.J. (2020). COVID-19 and Water Resources Management: Reframing Our Priorities as a Water Sector. *Water International*, 45(5), 435-440.

Source from an Online Link

- Armitage, N, Fisher-Jeffes L, Carden K, Winter K *et al.*, (2014). Water Research Commission: Water-sensitive Urban Design (WSUD) for South Africa: Framework and Guidelines. Available online: <https://www.greencape.co.za/assets/Water-Sector-Desk-Content/WRC-Water-sensitive-urban-design-WSUD-for-South-Africa-framework-and-guidelines-2014.pdf>. Accessed on 23 July 2020.

Source from a Published Book

- Max-Neef, M. (1991). *Human Scale Development: Concepts, Applications and Further Reflections*, London: Apex Press.

Source from a Government Department (Reports or Plans)

- National Water Commission (2004). Intergovernmental Agreement on a National Water Initiative. Commonwealth of Australia and the Governments of New South Wales, Victoria, Queensland, South Australia, the Australian Capital Territory and the Northern Territory. Available online: <https://www.pc.gov.au/inquiries/completed/water-reform/national-water-initiative-agreement-2004.pdf>. Accessed on 27 June 2020.

The source being an online Newspaper article

- The Herald* (2020). Harare City Could Have Used Lockdown to Clean Mbare Market. *The Herald*, 14 April 2020. Available online: <https://www.herald.co.zw/harare-city-could-have-used-lockdown-to-clean-mbare-market/>. Accessed on 24 June 2020.

Towards A Transport and Logistics Cluster Implementation Model for Manufacturing Firms with A View to Revitalise the Manufacturing Sector in Zimbabwe

PARTRICK MUZVIMBIRI¹ AND BETSERAI GRACIOUS MASHIRI²

Abstract

Zimbabwe and its economic growth have been told at the backdrop of agriculture and mining sectors that have failed to alleviate masses from poverty. However, success stories of the Asian tigers, like Taiwan, have been at the backdrop of well-coordinated and organised manufacturing sector. The article advances the argument that the Zimbabwean manufacturing sector can become vibrant through the implementation of a transport and logistics cluster model that favours value addition, manpower development and innovation sharing. It explores and discusses a shift towards transport and logistics clusters implementation for the reinvigoration of the manufacturing sector in Zimbabwe. Missing in the literature is the perspective that innovation and technological advancement have been lacking in the Zimbabwean manufacturing industry. Data were gathered using in-depth interviews and desktop research utilising published data on the Zimbabwean manufacturing sector and that of the referenced Asian Tigers. This includes surveys and reports. Evidence from the sources shows three critical aspects that are innovation, technological revolution and corporate

¹ Department of Entrepreneurship, Marketing and Economics, Harare, Zimbabwe. Ezekiel Guti University, Bindura, Zimbabwe, ORCID: <https://orcid.org/0009-0006-3453-4555>, pmuzvimbiri@yahoo.com

² Department of Entrepreneurship, Marketing and Economics, Zimbabwe Ezekiel Guti University, Bindura, Zimbabwe, <https://orcid.org/0000-0002-3488-1999>, bmashiri@staff.zegu.ac.zw/bgmashiri@gmail.com

behavioural change. The article proposes that the government should intervene and play a critical role in the implementation of the transport and logistics model with policies that favour clusters. It is recommended that manufacturing companies should be able to adapt to changing social and economic aspects of society. Manufacturing companies should innovate from archaic chain supply practices.

Keywords: manufacturing sector, transport and logistics, innovation, technological advancement, Zimbabwe, Asian tigers.

INTRODUCTION

Once a thriving industrial hub, Zimbabwe's manufacturing sector has suffered severe deindustrialisation, leaving factories idle and economic growth stunted. Zimbabwe remains a dormant and deindustrialised country with a few of its sectors performing above moderate and most of them below expectation (Zeng, 2013 and Mahadevan, 2013). There is a need for the implementation of industrial policies that can encourage the revitalisation of the manufacturing industry fostering job creation, poverty alleviation, and reducing Zimbabwe's reliance on imports ultimately promoting a balanced trade economy that can go a long way in the economy of the nation. Manufacturing and services industries, globally, tend to be highly geographically concentrated in cities and industrial clusters, a model that Zimbabwe could leverage for economic recovery (Newman and Page, 2017).

This phenomenon has been observed to be the case for both developed and developing economies, as they benefit from these geographical proximities. In Vietnam, large companies are surrounded by small enterprises in two major clusters near Hanoi and Ho Chi Minh City and thousands of small metalwork firms are clustered together in Suame Magazine near Kumasi in Ghana and Arusha in Tanzania (Newman and Page, 2017).

Areas of dense economic activity tend to prosper while others are left behind, largely due the establishment of agglomeration economies these are productivity benefits that emanate from firms locating near each other (Newman and Page, 2017). Newman and Page (2017) argue that there is strong evidence that benefits associated with clustering suggest that spatial industrial policies influence the location choice of firms can be an effective tool in accelerating the pace of industrialisation in low-income countries.

Despite these global examples, Zimbabwe lacks a well-established transport and logistics cluster to support its struggling manufacturing sector. The absence of such clusters has contributed to inefficiencies in production, supply chain disruptions, and increased operational costs, further weakening the sector's competitiveness. While industrial clustering has been widely studied in other regions, little research has been conducted on how transport and logistics clusters can specifically drive the revitalisation of Zimbabwe's manufacturing industry. This study seeks to fill that gap by exploring the potential role of transport and logistics clusters in enhancing efficiency, reducing costs, and fostering industrial growth.

Against this backdrop of the prospects of accelerating the pace of industrialisation that this paper seeks to advocate for a move towards the implementation of a transport and logistics cluster in the manufacturing industry of Zimbabwe to revitalise the industry that has suffered a lot of setbacks over the decades. The study was guided by these objectives, to understand how transport and logistics cluster can revitalise manufacturing industry, how can logistics clusters be used to improve the manufacturing sector of country. Additionally, the study seeks to explore the impact of transport and logistics clusters on developing economies.

CONCEPTUAL FRAMEWORK

The paper used the conceptual framework of lean sustainable logistics (Sopadang and Sekhari, 2014). Conventionally logistics focused on the transportation of raw material, parts, suppliers and finished goods that focuses on continuous flow of materials. Logistics management considers cost minimisation objective, but the environment is in deteriorating state then sustainable development concept considers reducing the negative environmental impact and social impact. There is a need to focus on the implementation of logistics processes that identifies inefficiencies and eliminate the emission of carbon. The lean concept aims at identifying and eliminating wastes of all processes in terms of non-value-added activities for improving business competitiveness. Lean concept leads to improved performance focusing on productivity, efficiency and quality services (*ibid.*). The concept focuses on eliminating waste for improving competitiveness in logistics. The lean concept aims to add value creation by identifying and eliminating all wastes. These subjects that is sustainable development, lean concept of logistics is integrated by finding linkage factors there are essential factors between sustainable development and lean concept of logistics activities (*ibid.*). To implement the concept of lean sustainable logistics waste are identified and eliminated on each logistics activity.

Alfred Marshall's agglomeration theory explains how geographic clustering of firms creates competitive advantages through labour market pooling, knowledge spillovers, and shared infrastructure (Marshall, 1890). In Zimbabwe's context, localized manufacturing clusters could reduce logistics costs by concentrating suppliers, workers, and distributors, fostering innovation through tacit knowledge exchange (Markusen, 1996). Marshall's principles align with Markusen's industrial district typology, where small firms collaborate in specialised networks – a model seen in China's apparel clusters.

By co-locating near transport hubs, like Beitbridge or Harare's Dry Port, manufacturers could leverage Zimbabwe's strategic position in Southern Africa to access regional markets. Eddington's Transport and Productivity Theory further supports this, demonstrating how improved freight infrastructure enhances economic productivity through agglomeration effects (Eddington, 2010). This synergy could help Zimbabwean firms achieve economies of scale for exports while reducing reliance on imported goods.

Yossi Sheffi's logistics cluster framework emphasizes how co-located logistics operations create economies of scope, spill-over capacity, and employment diversification (Sheffi, 2012). For Zimbabwe, integrating manufacturers with 3PL providers, warehousing, and freight forwarders in logistics zones would streamline supply chains. Sheffi's analysis of Spain's PLAZA cluster shows how such hubs attract anchor tenants like Inditex through multimodal connectivity – replicable at Zimbabwe's rail-linked Special Economic Zones. The theory's "positive feedback loop" aligns with the study's goal: enhanced logistics capacity would make manufacturers more competitive globally, increasing export volumes and balancing trade deficits (Sheffi, 2012). Furthermore, S noted are logistics clusters' resilience during economic crises, crucial for Zimbabwe's dollarised economy facing foreign currency shortages (*ibid.*).

LITERATURE REVIEW

The section reviewed literature related to industrial clusters to understand what they are and how they add value and create economies of scale. Moreover, it examined transport and logistics clusters as a way to revitalise manufacturing industry in the developing countries such as Zimbabwe.

An industrial cluster is generally a geographic concentration of interconnected firms in a particular field with links to related

institution (Zeng, 2013; Mahadevan, 2013). These entities are usually linked by externalities and complementarities of different types and are usually located near each other (World Bank, 2009). Increasingly developed and developing economies use cluster initiative to promote economic development, a concept supported by the development community at large (Zeng, 2012). Clusters have been viewed as a mechanism for enabling firms to join efforts and resources with the government toward greater regional and international competitiveness (World Bank, 2010). Zeng (2013) argues that clustering provides advantages of market access, labour market pooling intermediate input effect, and technological spill over. Zeng (2012) argues that clustering offers unique opportunities for firms to take advantage of a wide array of domestic links between users and producers and between the economy's knowledge sector and its business sector. Rivera *et al.* (2016) argue that companies have to operate and compete in a dynamic and global environment with inherent challenges associated with various locations. Inter-firm networking has been increasing in economic importance because it can regulate complex transactional interdependencies and cooperative interdependence among firms operating within such an environment (*ibid.*; Knight, 2016).

Cluster can influence the macro-outcome of a region by facilitating the development of collective learning capabilities (Rivera *et al.* 2015; Rivera *et al.* 2016). Rivera *et al.* (2016) have claimed that clustering has negative impacts that it can lead to high prices of land and pollution, making it difficult for small firms to operate with City Councils demanding much. It is claimed that clustering is no longer important as there is now the information technology that shortens the distance for information and innovation can be found on the internet and knowledge spill over is all over the internet and even distantly located companies can share information (*ibid.*). It is at the

backdrop of the above that this paper moves to argue for the creation of transport and logistics clusters to help manufacturing companies in Zimbabwe regain their footing and start exporting and producing enough to create a balance of trade to avoid the dependence of the country on foreign goods. Creation of transport and logistics clusters can further push the buy Zimbabwe drive that is a government and manufacturing industry drive to promote locally produced goods.

Logistics clusters are defined as geographical agglomerations of firms providing logistics services and firms with logistics-intensive operations for whom logistics represents an important part of their business (Sheffi, 2012). This new collaboration, that is, logistics clusters has potential to facilitate and sustain the development of mechanisms that firms employ to develop successful horizontal collaboration (Sheffi *et al.* 2019). The inter-firm relation between companies in the same echelon of the supply chain is horizontal collaboration. Logistics cluster can foster these mechanisms by providing an environment of physical proximity, shared culture, pooled resources and related factors (Bolumole, Closs, and Rodammer, 2015, Goldwasser, 2015). Horizontal collaboration has been successfully utilised for joint logistics activities leading to better utilisation of distribution and transportation resources (Verdonck *et al.*, 2013). Logistics clusters foster and facilitates, for the development of horizontal collaboration and this can lead to better transport costs and better service delivery as this also foster knowledge spill over within the cluster and enables innovation (Sheffi *et al.* 2019). Transport and logistics clusters encourage low transportation cost and innovation within the cluster as there will be knowledge sharing and relations formed within the cluster.

Rivera *et al.* (2016) observe how logistics clusters can lead to development of superior transportation infrastructure in the

region due to the clusters influence on local governments investment decision this further promotes economic development. Transport and logistics clusters can lead to infrastructural developments within a country and this can revitalise the manufacturing industry as good infrastructure can smoothen the delivery of goods and services inbound and outbound. Logistics clusters grow through mutual reinforcement or feedback, the more quantity of enterprises agglomerated to build the logistics services productive chains, the attractiveness will be in this cluster (Sheffi, 2013). There are logistics firms that provide logistics services to the product distributors, retailers and manufacturing enterprises, support enterprises for services such as information technology, mechanical services, traceability services, specialised consultancy services (Garza and Aleu, 2017). Garza and Aleu (2017) argue that managing a cluster generates benefits for partner organisations through knowledge spill over, innovation competition and it also creates jobs for full time employees on all levels. Logistics clusters create employment for information technology professionals and technicians for the different chain operations with the cluster (Garza and Aleu, 2017, Hayes, 2015).

Horizontal collaboration allows the sharing of the dividends with the industries that use logistics services (Sheffi, 2012). Issambayeva (2017) argues that availability of competitive enterprises is a key to cluster development as the competition inspire high productivity and quality of the service delivery in the logistics cluster. Geographic concentration and proximity working links and coordination with cluster members can lead to inflow of information on service delivery enhancement and better logistics services (*ibid.*). From the aforementioned noteworthy is that the development and implementation of a transport and logistics cluster in Zimbabwe can improve and even put Zimbabwean manufacturing companies back on the

global map and achieve world class production again with a rise in the exports and promote the buy Zimbabwe drive that can be the key for the Zimbabwean industry. It is important to note that the implementation of a transport and logistics cluster in Zimbabwe can promote the manufacturing industry in Zimbabwe if the companies within the clusters can source logistics services within the cluster for their customers rather than having the customers out sourcing transport services.

RESEARCH METHODOLOGY

The research used a qualitative approach with a case study design to construct a more complete holistic and contextual study of the research objective which is to understand if the implementation of transport and logistics clusters can revitalise the manufacturing industry in Zimbabwe (Ghauri, 2004). The study population is the textile cluster in Chitungwiza, 25 kilometres south of the capital Harare. The textile cluster has 12 companies within it focusing on the making of formal clothes that was founded by COMESA and the European Union (EU) (*The Herald*, 12 December 2022). The study used purposive sampling to sample for cluster companies that had no logistics services that outsourced the logistics services to understand the impacts that the implementation of a transport and logistics cluster can have on the revitalisation of the manufacturing sector in Zimbabwe. The study used in-depth interviews to understand the impacts that a logistics cluster can have on the textile cluster. The data were coded thematically and interpreted following Hungwe's (2011) steps of familiarise, coding, search for themes, cataloguing, define themes and write up.

FINDINGS

The section presents the findings of the study.

CHITUNGWIZA TEXTILE CLUSTER

The study population is the textile cluster in Chitungwiza 25 kilometres south of the capital Harare. The cluster comprises of men and women united by the desire to sustain their families. It also employs community members depending on the order available (*The Herald*, 12 December 2022). ZEPARU (2019), observes that the cluster has grown large since its inception as it is now producing clothes for outlets like Edgars Fashion and the cluster has expanded into schools creating tracksuits and school uniforms. ZEPARU (2019), argues that the cluster now creates over 3000 tracksuits for schools around Harare. Having observed that the cluster system is reviving the manufacturing industry it is important to note that the implementation of a transport and logistics cluster can revitalise the manufacturing firms in the Chitungwiza cluster to rise beyond being SMEs.

The findings from the textile cluster indicated that if a logistics cluster is implemented in Chitungwiza it can help the firms within the cluster to share gains and stay updated of the new trends of marketing and the market as there will be sharing of logistics services. Participants indicated that logistics clusters can build trust among companies in a cluster through the sharing of logistics services such as storage facilities and transportation services. Participants indicated that the creation of the transport and logistics cluster within the textile cluster could be the missing link for the growth of the manufacturing industry in Zimbabwe and within the cluster as this leads to positive feedback and joining of other firms that specialises in different sales. One participant indicated that transport and logistics clusters build trust helping in the creation of business connections without efforts of merging or losing identity as it can be done through sharing of spaces within the environment be it storage facilities or anything. One participant indicated that:

“.... The creation of logistics clusters can be a step in the right direction for the manufacturing sector in Zimbabwe as it can lead to the collaboration between companies and companies can share knowledge on market trends and ideas on product development.”

Participants indicated that transport and logistics fosters a collaborative space with firms sharing the transport and logistics facilities and at times employees. The findings from the study indicated that firms within a logistics cluster can collaborate in lobbying the authorities for the development of transport and logistics infrastructure or tax breaks. Participants indicated that the creation of logistics clusters can lead to firms staying updated as these can lead to the creation of informal relations that can yield into information sources through knowledge spill over leading to innovations and competitiveness of the firms within the cluster. Participants indicated that a transport and logistics cluster offers a transportation upper hand as these clusters can handle more goods originating from and destined for a single location, which can lead to co-transportation. Transportation and logistics clusters are much convenient as the time between transportation loads is reduced.

Participants indicated that the transport and logistics clusters allow for sharing of space and the moving of storage from one facility to another within the cluster. The findings indicate that the implementation of a transport and logistics cluster can revitalise the manufacturing industry as it is cost effective and offers a chance towards innovation and building trust among cluster member firms leading to collaboration, employment creation and economic growth.

The findings indicate that the current textile cluster has no capacity to store large quantities of goods hence the implementation of a transport and logistics cluster enables the firms within the cluster to handle and process returns.

Participants indicated that the current set up does not allow for customisation of cloths as there is no space to handle the storage of large quantities of merchandise this issue can be solved by the implementation of a transport and logistics cluster that brings with it large storage facilities. Participants indicated that the implementation of a transport and logistics cluster within the textile cluster can lead to the revitalisation of manufacturing industry in Zimbabwe as the logistics cluster allows for value addition processes such as customisation of goods. the findings indicate that the creation of transport and logistics clusters can create economies of value through the addition of the value-added service on the products produced thereby improving the customisation of goods. The creation of logistics clusters was indicated by one participant as;

“Logistics clusters can bring with them storage facilities that can help in storage of goods allowing value addition services such as customisation to the exact requirements of the end user.”

Participants specified that customisation was not the only aspect of logistics clusters that made them preferable, there is also the fact that logistics clusters provide a perfect location for the refurbishment of factory rejects into something that can be sold for a price to cover the loses. It is noteworthy that transport and logistics cluster implementation in the textile cluster in Chitungwiza can revitalise the manufacturing sector as this can lead to value addition through customisation and these can also provide space for the refurbishment of factory rejects to cut down loses.

The findings indicate that the implementation of logistics clusters can benefit the local economy in a number of ways. Participants indicated that transport and logistics clusters can lead to infrastructure investment and these investments can have an impact on the surrounding areas leading to better living standards in the areas. The findings indicate that the implementation of transport and logistics can revitalise the

manufacturing industry and lead to infrastructure development eradicating poor infrastructure that has been the main drawback for direct foreign investment. It is important to note that the implementation of transport and logistics clusters can revitalise the manufacturing industry develop the infrastructure and even grow the economy. The findings showed that transport and logistics clusters can create employment for the poor urban dwellers around the logistics centres. Participants specified that transport and logistics clusters can create jobs for the local people and grow local economies leading to better standards of living in the areas around clusters. One participant indicated that the good thing about the implementation of transport and logistics clusters is that they create jobs for all types of workers as logistics clusters need drivers, fork lift operators and storage facilities workers. One participant said;

“Logistics clusters are a good thing as they lead to the creation of economies of value in the local communities leading to the job creation for local communities and knowledge spill over for the companies within the cluster.”

Logistics clusters have been observed to be beneficial to local economies as companies rush to compete they create economies of value and employment for the youths. From the above noteworthy is that the implementation of the transport and logistics cluster can revitalise, reposition the manufacturing industry in Zimbabwe and grow to become a giant industry in Africa to harness globalisation. It can be deduced from the findings that the implementation of the transport and logistics cluster can succeed to alleviate urban poverty through job creation making the standards of living better in the areas around the cluster as the employment is for all workers.

The findings indicate that the participants in the study were aware of the adverse impacts of climate change and their answer was smart or green logistics. The findings indicate that the participants were well aware of the threats posed by climate

change if there was continued emission of carbon. Participants indicated that the current modes of transport and operational areas are a danger to environment as there is no sustainable logistics involved in the process. The findings indicate that the textile cluster was incapacitated to create smart or sustainable logistics on its own as the companies were relatively small. Participants specified that large footprints of carbon make logistics companies easy targets for authorities' regulations however, it should always be noted that only logistics clusters can get manufacturing industries out of that predicament through adopting sustainable technological developments in transport and logistics. Participants indicated that there was a need for the exploration of green logistics as an alternative to the current logistics modality as the authorities easily target logistics companies with their emission of carbon. A participant said

“our current operation lacks sustainability with most of the players in the logistics emitting carbon beyond minimum limit this hinders the progress of the industry leaving us with no choice but the need to explore green logistics as it is said to be sustainable.”

The findings indicate the need for green or sustainable logistics that can be achieved through the implementation of transport and logistics cluster. The study show that the current model of logistics is a danger to the environment as it lacks sustainability showing only impacts on the environment. The implementation of smart logistics can revitalise the manufacturing industry in Zimbabwe as this will lead to cheap and environmentally friendly operations this can reduce the paying of carbon emission fees to the government agency.

DISCUSSION

The findings from the textile cluster indicated that if a logistics cluster is implemented in Chitungwiza it can help the firms within the cluster to share gains and stay updated of the new trends of marketing and the market as there will be sharing of

logistics services. Concurrent with the findings are Issambayeva (2017), who observes that geographic concentration, proximity working links and coordination with cluster members can lead to inflow of information on service delivery enhancement and better logistics services. The findings indicate that there is shared gain and knowledge spillover due to logistics clusters leading to innovation and the revitalisation of the manufacturing sector. In line with these findings are Garza and Aleu (2017), who observes that operating a cluster generates benefits for partner organisations through knowledge spill over, innovation competition and it also creates jobs for full time employees on all levels. The findings indicate that transport and logistics clusters can lead to collaboration. Consistent with the findings are Sheffi *et al.* (2019) who argue that logistics clusters have potential to facilitate and sustain the development of mechanisms firms employ to develop successful horizontal collaboration. In support of the findings are Garza and Aleu (2017), who claimed that transport and logistics clusters encourage low transportation cost and innovation within the cluster as there will be knowledge sharing and relations formed within the cluster. The findings indicate that transport and logistics clusters can benefit firms within the cluster through shared gain and it also build trust among companies in the same cluster. In line with these findings are Sheffi (2012), who postulates that clustering help firms build trust as important industry players are clustered in a single place helping them to make business connections easily and share knowledge.

The findings indicate that the current textile cluster has no capacity to store large quantities of goods hence the implementation of a transport and logistics cluster enable the firms within the cluster to handle and process returns. In support of these findings, Sheffi (2012) observes that logistics clusters offer an efficient storage location for companies to last minute product customisation as companies can store base

products that can quickly be repacked and prepared for the final use this the value addition process. It is further argued that the conducting of value-added activities at a logistics cluster offers companies the chance to make changes right up until the product is sold (*ibid.*). The findings indicate that the implementation of transport and logistics clusters can create central storages for the repair and refurbishment of factory rejects to salvage the losses incurred. Concurrent with these findings are Garza and Aleu (2017), who claimed that when a return is made, the product is sent to the central location where it is repaired for resale logistics clusters provide a natural location for this, as locations are central with reliable transportation infrastructure and logistics facilities. The findings indicate that the implementation of a transport and logistics cluster can benefit the manufacturing industry as it offers more than transport at an effective cost but also storage facilities for the value addition processes. Consistent with these findings are Rodrigue *et al.* (2013), who observe that logistics cluster enables the creation of goods and services outside the cluster region through the provision of storage facilities big enough to host value added processes and a host of manufacturing processes. In support of the findings from the study is Sheffi (2012), who advocates that modern transport and logistics services are more than moving and storing of goods and services as they involve value added services, repairing of goods and innovation of products for an elevated final use. Noteworthy is the fact that logistics clusters offer manufacturing firms a chance to add value to their products this can be an important feature towards the revitalisation of the manufacturing industry in Zimbabwe.

The findings indicate that the implementation of logistics clusters can benefit the local economy in a number of ways. The primary target of the manufacturing industry is to create opportunities that can lead to economic growth poverty

alleviation and a balance of trade through mass exportation of goods and services. The implementation of the transport and logistics can lead to the revitalisation of the manufacturing industry in Zimbabwe the creation of employment and economic growth can also emanate from the dividends of transport and logistics clusters in the manufacturing sector. In line with these findings are Garza and Aleu (2017), who claimed that logistics clusters create general employment for the locals who dwell in the vicinity of the cluster, information technology professionals and technicians for the different chain operations within the cluster. Consistent with the that Sheffi (2012) who claims, that transport and logistics clusters provide opportunities to employ and train and develop skilled workforce internally benefiting the locals with knowledge. There are logistics firms that provide logistics services to the product distributors, retailers and manufacturing enterprises, support enterprises for services such as information technology, mechanical services, traceability services, and specialised consultancy services hence creating employment and inspiring better standards of living and economic growth due to mass productivity Garza and Aleu (2017). Rodrigue *et al.* (2013) argue that transport and logistics clusters can benefit the locals by providing employment on all level that is skilled and semi-skilled workers are employed and this can boost local economies and the productivity of the firms within the cluster. It is understood that the implementation of a transport and logistics cluster can revitalise the manufacturing industry as it leads to high employment rates and the economic growth due to high productivity.

The findings indicate that the participants in the study were aware of the adverse impacts of climate change and their answer was smart or green logistics. The findings indicate that the participants were well aware of the threats posed by climate change if there was continued emission of carbon. The findings indicate the need for the implementation of a transport and

logistics bringing about smart logistics in the infrastructure and transportation services. In line with these findings are Sheffi (2012), who postulated that logistics clusters represent a dynamism of global economics and are always evolving and finding solutions to the social and environmental problems. The findings indicate that only the creation of logistics cluster can lead to smart or green supply chains as manufacturing companies cannot implement green or sustainable logistics. In support of these findings, Dekker *et al.* (2012), observe that to reduce the carbon footprint logistics companies need to adopt green supply chain that is the creation of smart cities and transportation services that are not harmful to the environment. The creation of smart infrastructure and transportation services that are sustainable can revitalise the manufacturing industry in Zimbabwe as less revenues will be lost in paying for the pollution fees and climate change resilience programmes.

CONCLUSION AND RECOMMENDATIONS

The article concludes that the, the creation of a transport and logistics cluster can reconfigure the global industry map and put the Zimbabwean manufacturing industry ahead of many developing economies as the implementation of this cluster can inspire economic growth. It is the conclusion of this article that the creation of a transport and logistics cluster can create employment and reinvigorate the local economy that has been in intensive care unit for far too long being resuscitated by sectors that have periodically failed, such as mining and agricultural sector to no avail. The evidence from this article indicated that the creation of a transport and logistics cluster can revitalise the manufacturing industry in Zimbabwe as it can lead to cost effective transportation, co-transporting, economic growth, employment and training of the locals. The article recommends that the government should intervene and play a critical role in the implementation of the transport and logistics

model with policies that favour clusters. It is recommended that manufacturing companies should be able to adapt to changing social and economic aspects of society. Manufacturing companies should innovate from archaic chain supply practices. The study recommends the switch to green supply chain as a way forward. The study recommends the creation of more logistics cluster as the enable value added services or beneficiation.

REFERENCES

- Bolumole, Y.A. Closs, D.J & Rodammer, F.A. (2015). The economic development role of regional logistics: Across-country study of inter-organisational governance models. *Journal of Business Logistics*, 36(2), 182-198.
- Eddington, D. (2010). *Transport and Productivity: A Review of the Evidence*. Transport Reviews, 30(3), 349–366.
- Markusen, A. (1996). Sticky places in slippery space: A typology of industrial districts. *Economic Geography*, 72(3), 293–313.
- Marshall, A. (1890). *Principles of Economics*. London: Macmillan.
- Sheffi, Y. (2012). *Logistics Clusters: Delivering Value and Driving Growth*. MIT Press.
- Dekker, R. Fleischmann, M. Wassenhove, L. V. & Inderfurth, K. (2012), Reserve logistics: Quantitative models for closed-loops supply chains. *The Journal of Applied Behavioural Science*, 46(2), 23-37.
- Garza, T.V. & Aleu, G.F. (2017). *Increasing Competitiveness Through a Logistics and Transportation Cluster*. Financial Times Prentice Hall, London.
- Goldwasser, B. (2015). 4 Companies Driving Transportation Technology Innovation, *International Journal of Productivity and Performance Management*, 58(1). 71-91.
- Haralambos, M. and Holborn, M. (2013). *Sociology themes and perspectives*. London: Collins Educational.

- Hayes, J. (2014), Questions raised over Chain of Responsibility, *Farm Weekly*, 5(2), 28-38.
- Hungwe, C. (2011). The meaning of institutionalisation of older Africans. A case study of Zimbabwean old people's home. *Electronic Journal of Applied Psychology*, 7(1), 37-42.
- Issambayeva, A. (2017). The development of industrial-logistic cluster. *Journal of Business Logistics*, 35(4) 299-317.
- Knight, W. (2016). China's Driverless Trucks Are Reviving Their Engines, *MIT Technology Review*.
- Lee, H.L. (2012). Chain of Responsibility, *MHD Supply Chain Solutions [online]*, 42(4), 90-93.
- Mahadevan, K. (2013). *Investigation of collaborative supply chain practices through integration, visibility and information sharing: theoretical and industry perspective*. PhD thesis, Western Sydney University Sydney.
- Newman, C. & Page, J.M. (2017), *Industrial clusters: The case for Special Economic Zones in Africa*. The United Nations University World Institute for Development Economics Research (UNU-WIDER), Helsinki, 3 (15) 1-28.
- Newman, C., J. Page, J. Rand, A. Shimeles, M. Söderbom, and F. Tarp (eds) (2016b). *Manufacturing Transformation: Comparative Studies of Industrial Development in Africa and Emerging Asia*. London: Oxford University Press.
- Rivera, L. Gilgor, D. & Sheffi, Y. (2016). "The benefits of clustering". *International Journal of Physical Distribution & Logistics Management*, 46(3) 242-268.
- Rodrigue, J.P. (2012). The Geography of Global Supply Chains: Evidence from Third-Party Logistics. *Journal of Supply Chain Management*, 48(3), 15-23.
- Sheffi, Y. (2012), *Logistics Clusters: Delivering Value and Driving Growth*. MIT Press, Cambridge.
- Sheffi, Y. (2010). Logistics-intensive clusters: global competitiveness and regional growth. *MIT Sloan Management Review*, 5(6) 26-39.

- Sopadang, A. Wichaisri, S. & Sekhari, A. (2014). The conceptual framework of lean sustainable logistics. *International Conference of Transportation and Logistics*, 6(5) 23-43.
- Thoras, M. (2016). *Third Party Logistics (3PL) Market Worth USD 925.31 Billion By 2020*, San Francisco (Globe Newswire).
- Verdonck, L. Caris, N. Ramaekers, K. & Jensens, G.K. (2013). Collaborative Logistics from the Perspective of Road Transportation Companies, *Transport Reviews*, 33(6), 700-719.
- World Bank. (2010). *Zimbabwe-FinScope MSME survey* (English). Washington DC: World Bank Group.
- World Bank. (2009). *Zimbabwe-FinScope SMEs survey* (English). Washington DC: World Bank Group.
- Zeng, A.Z. (2013). Coordination mechanisms for a three-stage reverse chain to increase profitable returns. *Naval Research Logistics*, 60(1), 31-45.