Analyzing the implementation of Lean in the Fast-Moving Consumer Goods sector: Critical Review

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Abstract

The Fast-Moving Consumer Goods sector has been facing various challenges in South Africa and other developing countries. the FMCG sector has policy which need to be applied but it is not being implemented properly to minimise corruption in the sector and to improve Lean Manufacturing (LM) in the sector, to alleviate corruption, to create more productivity by utilising minimum resources and trying to minimise waste in the industry while will minimise all kinds of pollution and practice all the principles of lean and create more employment. Aalthough a number of studies have been conducted over the past two decades, to address these issues but they is still a gap in the current review, therefore the aim of this paper aimed to theoretically assess Lean in the Fast Moving Consumer goods sector. The result of the critical analysis of current literature clearly indicated that they are flaws related to lack of lean implementation in the Small-Medium enterprises in the Fast-Moving Consumer Goods sector and majority of the research was conducted in qualitative.

Keywords: Fast moving consumer goods, lean manufacturing, SMEs

1.0 INTRODUCTION

The first place and country that lean thinking came from is from the work-stores of the Japanese motor manufacturers and, to be precise the innovations that took place at Toyota Vehicle Organisation. These new ways of manufacturing brought good results from scarce resources and in very hard local market competition in the Japanese market for vehicles, which involved the just-in-time(JIT) production systems, the Kanban method of pull production, in consideration of the workers and high level of worker skills on solving problems and helps with automation to minimise human errors.

Lean thinking operations in a manner to design a approached which is more focused on getting rid of waste and from too much tactical product processes at Toyota(the Toyota "seven wastes") and represented another model to money intense bulk production(with huge bulk bags, sizes and unseen wastes). The European and American manufacturing and production sector has taken interest in the TPS to maximise production while reducing waste.

Lean manufacturing is a management philosophy started by Toyota motors which was called Toyota production system (TPS) in the 1990's. TPS is known for its attention on reduction of the original Toyota seven wastes to improve the overall customer value [3, 5]. Lean is a set of tools that help in the identification and elimination of waste, hence as waste is eliminated the quality improves, while production time and cost are reduced. The list of such tools would include Single minute exchange of die (SMED), Value stream mapping, Kanban (pull systems), Poka-Yoke (error proofing), Total Productive Maintenance, elimination of time, the list is non-exhaustive. A second approach to lean manufacturing is that which is promoted by Toyota called the Toyota way, which focuses on the improving of the flow of work, thereby gradually eliminating waste through the system. Techniques used to improve flow include production levelling, Pull production (Kaban Method), and the Hejikuna Box [6].

As expressed by Bryman and Chime (2011), the reason with the writing study is to get information about what is as of now thought about the picked point. Besides, the writing study gives a base to approve the exploration inquiries and how to gather and break down the data. As per Gillham (2010), it is imperative to first get an outline of the exploration point keeping in mind the end goal to get an understanding and later go further into the particular region of intrigue. Andersen (1994) proceeds by underscoring that the learning about the theme should first be wide whereupon a more profound examination about the subject can be made. Along these lines, first broad and unclasps sources ought to be surveyed and in this manner more particular sources be utilized. The ace proposal began with a wide hunt to procure a wide premise of information in lean assembling.

2.0 THE FAST -MOVING CONSUMER GOODS INDUSTRY

Fast Moving Consumer Goods also known by the name of Consumer-Packaged Goods (CPG) talks to the merchant products that are utilised very fast, most of the goods are used within a short time mostly in just a couple days. For Instance non-durable products such as cold drink, baked packaged goods and other goofs like canned foods, fruits and vegetables and dairy goods, as stated by bala et al. (2010:29) products in the FMCG sector are grouped as products that sell fast have a short shelf life span, this can be because of immense customer demand or it could be that the consumer packaged goods get spoiled very quickly, normally FMCG products make little profit per product but because they are bought In huge quantities and sell fast profits come in large.

Shal (2011:69) notices CPG as goods that are usually sold at prices with minimum turnover when it comes to the retail sector, but normally FMCG products are purchased in huge numbers in wholesale. BRG (2014:4) said that CPG or FMCG is term utilised to define most bought, minimum involvement, minimum pricing, convenient customer products, for example, hygiene products, ready to eat meals, soft drinks and other products. Food and Safety Promotion Board (2005:2) they said they have other descriptions pointing at FMCG from different viewpoints. CPG are often daily have low-pricing and minimum risk goods that need minimum thinking when buying. E.g. of FMCG normally include a vast range of regularly bought buyer products like, hair care products, hygiene products, deodorant and many products that are not packaged non-durable goods like, plates, plastic products and globes/bulbs. FMCG sector includes a lot of other segments like medications, customer electronics, cold drinks even though these products are not put in the same category.

The FMCG business sector has lately has been growing and emerging districts in the whole world economy. As said by Kumar (2011:102) the Fast Moving Consumer Goods sector is a fast, vigorous sector with a broad variety of products. Mondelez International (2007:5) one of the leading organisations verified by affirming that 150 million occasions a day, in about 155 nations, the individuals utilise our products for snacking during lunch and tea break in their everyday life. Bala *et al.* (2010;28) thinks the same that by confirming that the Fast Moving Consumer Goods sector is the globe's biggest, high-velocity sector making and selling well know products used on a daily basis by customers.

Leszczyc *et al*. (2007:17) claim that the Fast Moving Consumer Goods sector has attested in a big growth rate in the emerging nations and a well-adjusted for an exponential progress, in the well shown countries. at the same time as fast development, CPG have been labelled by increasing appearance and competition is progressively novel plans of retailing. FMCG sector can be the one that works only with the marketing, distribution of CPG. Farfan (2011:4) struggles say that the FMCG Sector is a group of countries that involves people and company working with distribution of the finished goods to the end user. In the last 10 years, the Sector has gone through a lot of adjustments, which have brought about in the strength and appearance of local and world-wide commercial influence.

Figure 1: Diagram of The Fast-Moving Consumer Goods Sector

3.0 GAP INDENTIFICATION IN THE CURRENT STUDIES

In this section the purpose is dissecting all these studies that have been utilised only the Lean Manufacturing (LM) tools and techniques to evaluate the lean manufacturing aspects of the FMCG the ICI web of science database was used with "Fast Moving Consumer Goods" used as keyword. The timeframe was from 1997 to 2017. The search only focused on peer review articles published in English, falling under certain topics, the search resulted in 259 documents that were critically assessed by means of titles and abstracts with the purpose of developing additional boundaries, and eliminated unrelated entries (screening phase). throughout this phase, groups of inclusion and segregation standards throughout were established, against which individually where every single article was evaluated specifically are those which focused on the implementation of Lean. It should be pointed out that studies that did not meet this requirements were not taken into account. This stage it was generated 49 studies focusing on lean in the Fast Moving Consumer Goods sector. These studies were labelled on a basis of a set of standards, e.g In this paper the studies selected were based on citation. To this end, the table below illustrates the 15 studies in the field of Lean and FMCG sector that were critically analysed.

Table 1. Gap analysis of current literature

AUTHORS	Goods Manufacturers			Methodology		Company size		Country
	FMCG	Online	E&A	Qualitative	Quantitative	SME	Large	
Ashish Agarwal et al (2005)	●	●	●		●		●	India
SebastianTheißen et al (2013)	●			●			●	Germany
K. Pauwels (2006)	●		●	●		●		United States
Christopher Simms & Paul Trott (2010)	●		●	●			●	United Kingdom
Thierry Vanelslander et al (2013)	●	●	●	●		●	●	Belgium
Amanda Sterling et al (2013)	●		●	●			●	New Zealand
Cindy Rautenbach & Sebastiaan Rothmann (2017)	●	●	●		●	●		South Africa
Jatinder J. Singh et al (2012)	●				●		●	Not Specified
Assilah Agigi et al. (2016)	●			●				South Africa

M. G. Ierapetritou and C. A. Floudas (1998)	●			●				United States
B. Bilgen H.O. Günther (2009)	●		●	●			●	Germany
Bas Groothedde et al (2005)	●			●				Nertherlands

Chris Baumann et al (2014) did a study on the FMCG Industry the aim of this study was to inspect the role of brand disclosure and experience on brand recollection, mediated by three extra factors: brand trust, brand image and self-image congruence. The study differentiates between one consumer's brand knowledge and experience, and how these encourages brand recollection. Using unique information collected from a study of 219 customers, brand recollection models in two product groups which are (Fast Moving Consumer Goods FMCG and durable goods) were verified. Structural equation modelling (SEM) was used, resulting in models for the two kinds of products, forming distinguished variances between durable products and FMCGs. Experience influences brand recall in durable goods while brand recall is established via exposure for fast-moving consumer goods. This advises that customers are better able to remember durable goods brands if they have actually utilized them, while customers of FMCG are more deeply swayed by advertisements. Learning also found out that brand trust has an important role in mediating both of these relationships. Ultimately, the study establishes important differences amongst the brand recollection of merchandise categories, as well as the arbitrating role of brand trust, giving a framework for future brand recall research. The author mainly focused on the Fast Moving consumer goods sector and mostly looked at large organisations, the research was not done for the SME sector and the other manufacturing industries, the author failed to recognize the other sectors to see how lean can be implemented.

Ashish Agarwal et al (2005) did a study within the development of a commercial time that accepts _transformation_ as one of its main characteristics, for a manufacturer to have success and existence is becoming more and very hard to guarantee. The prominence is on flexibility to transform in the coperate surroundings and on speaking about the marketplace and consumer needs proactively. Variations in the commercial space due to different needs of the consumers hint uncertainty in the decision-making constraints. Tractability is required in the logistics to counter the improbability in the decision-making constraints. A supply chain adjusts to the ups and downs when it is flexible and nimble in its natural form. A framework is shown in this article, which summarises the marketplace frailness, process integration, data driver and tractability procedures of supply chain enactment. The study looks to discover the connection among lead-time, quality, cost, lean processes, service agreement levels (SLA) and agility of a

circumstance supply chain in fast moving consumer goods sector. This study finishes off with the explanation of the agenda, which investigates the influence of market captivating benchmarks and market qualifying benchmarks on the three types of supply chains: lean, agile and leagile. The author did the research for all the manufacturing sectors, the online e-commerce, FMCG sector and the electronics sector, his research indicates that for the study to take place, a quantitative research had to be done, where questions were asked, surveys and questionnaires, the authors however failed to see the gap in the SME sector to see how lean can be used in the small business environment.

SebastianTheißen et al (2013) did a study and observed the purpose of this document is to bring a new decision-making methodology that permits manufacturing organisation to appraise which contractor is the best suited partner for the application of a joint CO_2 reduction management method. The decision made is an issue that is developed for the fast moving consumer goods (FMCGs) sector, that is at the moment ranking amongst the ten biggest CO_2 producing industries in the world . In this study, the assessment and collection for the best suited contractor is accomplished utilising the analytic network procedure (ANP), a decision-making strategy that permits consultants to fix difficult decision-making arrangements. The important assistances of the current study exist in the amalgamation of literature and case based consequent decision benchmark, designed at improving judgment legitimacy, with specific importance on working as a team setting, which is extremely applicable in the current framework as the focal companies often fall short the required abilities for sustainability, at the same moment, are in charge of sustainability in the supply chain. The practical implementation of the ANP model at a main Fast Moving Consumer Goods firm brings and presents healthy results verified through a sensitivity exploration. The research conducted was only able to review the Fast Moving Consumer Goods industry, and was done in the large companies, the qualitative research was done, the authors failed to have conducted, questionnaires, surveys etc, the other should have seen how the other manufacturing industries can be assisted with lean and also should have looked at the small companies too with fewer employees

K. Pauwels (2006) stated in a study, while either competitor and retailer decisions donates to long term promotion efficiency, their separate influence still has to get assessed. For 75 brands in 25 groups, the writer discovers that the long-term retailer's pass-through of promotions is 65 percent, acquiescent a long-run wholesale promotion flexibility of 1.78 earlier competition reply. But, challengers can moderately offer the wholesale price reduced by 15 percent, which loses promotional flexibility by 10 percent. The variety of retail stores and competition reply across the investigated cases is very extensive, and is affected by group and brand features. As to the previous, huge groups yield solid retailer answer, while focused groups yield solid competitor answer. As to the concluding, slighter known brands face a fourfold shortcoming when being associated to well-known brands: they receive minor retail pass-through, minor retail backing, and minor benefits from competitor brand's promotions, while their promotions produces higher benefits to competing retailer. Fascinatingly, the mid-1990s move from off-invoice stipends towards scan-back deals only partly recovers their promotional effectiveness compared to that of leading brands.

The author did a good research, but looking at the research conducted, the author mostly focused on the wholesale and retail segment and the study was only focused on the small-medium enterprise, which is not a big part of this industry, gaps have been left cause the research was only done on the qualitative methodology.

Christopher Simms & Paul Trott (2010) conducted a study, in the study Packaging was identified that it plays a vital part in goods and services success, especially in the Consumer Packaged goods also known as the FMCG industry and can shake customers buying decisions making at the point of buying or at the teller. But, fairly tiny has been studied regarding packaging in the FMCG industry literature. The drive of this article is to provide a theoretical framework with which to examine how packaging donates to marketing overall and new product development (NPD) in specific. The study appraisals the literature and progresses a unique framework that can be used to assess more fully the needs of all groups that are appropriate to the development of packaging, including members of the distribution channel. This framework aims to provide new insight into the creation of new product opportunities through packaging development in a more systematic way than has been evidenced in the past. The author did a study and the study was mostly focused in the automotive and electronic sector, and also the author did look at the FMCG sector, however the author failed to look at the online sector, and the study was conducted in the qualitative method, and this was conducted for the large companies, the author failed to look at the SME and also didn't do a study for all off the sectors as well.

Cindy Rautenbach & Sebastiaan Rothmann (2017) conducted a study and the purposes of this research were to inspect backgrounds of thriving occurring in the workplace A cross sectional analysis plan was utilised with a stratified unsystematic taster of 779 workers in a FMCGs organisations in South Africa (Women = 40 4%, Africans = 33 4%) The members answered to the Flourishing at Work Scale - Short Form, Job Demands Resources Scale, one subscale of the Analysis Work Home Contact – Nijmegen, and Genuine Headship Questionnaire The results displayed that progression, undesirable work home contact (inverse), and genuine management foreseen booming at work, work balance, employment doubt, and payment did not foresee workplace thriving or weakening this research endorses the importance of the Job Demands Resources model for understanding prosperous in the workplace The research done was conducted for all the three sectors, online, FMCG and automotive and electronic, the research however was only done for the large companies, it failed to talk about lean in the small and traditional trade sector, the author could have also looked at those aspects and could have also done it in the quantitative methodology as well.

Thierry Vanelslander et al (2013) said in this research the main efforts on the supply chain of the e-commerce sales of grocery stuffs. Further especially, it looks to figure out the circulation of supply chain costs throughout the logistics from the order harvesting at the contractor up to the delivery to the customers front door. Firstly, the three most usually utilised the supply-chain for the e-commerce sales commonly known as online sales of grocery items are offered. Then, the article defines the overall methodology utilised to implement the cost evaluation, including activities, resources and factors. lastly, the model context is clarified and located in a more high-level view on online retailing. Later, the outcomes of the investigation are shown in the formula of a cost supper over various procedures in the

supply-chain, including storage, picking, transport, storage and last-kilometer delivery. It is found that last-kilometer costs naturally characterise a huge share in total supply costs, but that delivery specific issues play a huge part.

Amanda Sterling et al (2013) this research is aimed to inspect an implementation of lean production and manufacturing in Consumer packaged goods production, evaluating how it has impacted workers education and performance. We discovery chief difference in these results. Where direct leaders have surrendered noteworthy control, and employees have had the mandatory levels of literateness, more influential methods of book learning have happened, and the results are equally favourable. Yet, insightful learning has yet to possess control where manufacture pressures are huge, direct supervisors are not permitting and employee's shortcoming of self-efficacy since they have a low literateness. Improved results rely on larger funds in the development and continuing support of senior direct supervisor and in literateness expansion. The Research displays how the ability motivation opportunity agenda can be utilised to categorise appropriate theory and show a way on the systemic nature of workplace organisation learning. The author in this research study, looked on how lean is being implemented and applied in the Fast Moving Consumer Goods and in the automotive and the electronics industry, the methodology used in this research is the qualitative which was more focused on the why, no questions or questionnaires were one and this research was only done for large firms, so meaning small firms were not included for this research and issues could not be resolved in that space.

Jatinder J. Singh et al (2012) conducted a study about the current growth in moral consumerism has seen increasing numbers of corporate brands project a socially responsible and ethical image. But does having a corporate brand that is perceived to be ethical have any influence on outcome variables of interest for its product brands? This study analyses the relationship between perceived ethicality at a corporate level, and brand trust, brand affect and brand loyalty at a product level. A theoretical framework with hypothesized relationships is developed and tested in order to answer the research question. Data have been collected for 45 product categories in the fast moving consumer goods sector using a panel of 4,027 Spanish consumers. The proposed relationships are tested using structural equations modelling. The results suggest there is a positive relationship between perceived ethicality of a brand and both brand trust and brand affect. Brand affect also positively influences brand trust. Further, brand trust and brand affect both show a positive relation with brand loyalty. The managerial and academic implications of the results are discussed This research was only focused on the Fast Moving Consumer goods sector and the researcher didn't manage to look at the other sectors which form part of the Goods manufacturer industry, the study was conducted in a qualitative method, the author used secondary data to conduct the study, the issue here the author could not gather primary data to close the gaps that previous others failed, other also did not specify in which country was the research done, it was also done in a large organisation and shortfall was also realised in the SME sized companies.

 Assilah Agigi et al. (2016) mentioned that in current time's multinational and difficult commercial setting, companies have become more defenceless to logistics disturbances, coming from within and outside of the supply-chain. Logistics flexibility reduces the influence of a disturbance through proposal methods, which permits the supply-chain

to reply suitably to unsettling trials. South African grocery producers are tackled with divergent threats. While supply-chain threat management research have given organisations with certain course of action to alleviate threats, supply-chains are still defenceless to unpredicted threats. Research on supply-chain flexibility in the South African point of view is limited. The perception of logistics flexibility gives companies with tactics that are constructed into the supply-chain that permits companies to answer and recuperate speedily from disturbances. Furthermore, supply-chain flexibility tactics help in coming less weak to the disruptions that might occur. Author focused on the flexibility Lean can bring in the logistics of the Fast Moving Consumer Goods market and furthermore the author failed to specify whether if the research was conducted for a large firm or for a Small-Medium enterprise and the study was based secondary data which was collected from previous studies, author should have also done quantitative to develop brand new findings.

M.G. Ierapetritou and C.A. Floudas (1998) mention in a study that Majority of manufacturing networks, get included bulk and non-stop procedures. On the foundation of the identical ideologies, this article covers the projected preparation to define non-stop procedures. Two manufacturing case studies from FMCGS manufacturing are shown to demonstrate the competence of the suggested invention to define manufacturing mills with both bulk and non-stop procedures, to combine clean-up necessities, and to deliberate storage necessities and boundaries. It is validated that the anticipated approach outperforms all beforehand proposed non-stop time simulations for the short term arranging of non-stop procedures. The researcher did touch briefly on all the goods manufacturer but mainly spent most of the research in the FMCG to validate whether lean can work in this sector, the research was conducted for the small-medium firms and big companies were not part of the of the research conducted.

B. Bilgen H.O. Günther (2009) said In the Fast Moving Consumer Goods sector there is a non-stop tendency towards an amplified merchandise multiplicity and shorter replacement cycle periods. Therefore, producers pursue an improved coordination of manufacture and delivery actions. In this article, a supposed block arrangement method is shown which finds recurring manufacture patterns based on the description of setup relations. For the distribution of final products from the plants to delivery centres two conveyance modes are well-thought-out, full truck-load and less than truck-load. The recommended mixed integer linear optimisation model minimises entire manufacturing and transport charges. Arithmetic outcomes validate the real-world applicability of the recommended wedge preparation method. In precise, an unbending and an elastic wedge preparation method are linked which vary by their degree of elasticity in the forecast of the manufacturing loads. The author showed in this study that lean can be implemented in the Fast Moving Consumer Goods and in the electronics and automotive which can maximise the delivery of the final products by using minimum resources, data was collected using the secondary, research was also focused for the German small businesses sector.

Bas Groothedde et al (2005) mentioned Collective centre networks can offer a solutiom to the need to reduction supply chain charges and reserve the supply chain service-levels by uneven consolidated streams to types that are much better suitable for managing huge volumes (freight rail, barge, seaside shipping),so that economies of scale can be attained.

This requirement has been taken up by the inclination of globalisation of sectors, lesser cargo sizes, elevated frequencies, and the disintegration of streams. Through partnership that requires harmonisation among costly but quick and supple means of transportation and the cheap, but sluggish and obstinate means can be combined in an intermodal hub network. This article displays the logic ahead of these co-operative hub links, grounded on the collected works on the proposal of lots and lots hub links. The resultant in the methodology is clarified by having a showcase that shows the outcomes of the proposal and application of co-operative hub network for the distribution of FMCGS using a mixture of monitoring and local barges. This notion, initially suggested by Vermunt [Vermunt, A.J.M., 1999. Multilognet, the intellectual multimodal supply chain network, an significant bulge in the global supply chain net, Vermunt Logistiek Advies v.o.f., working paper (in Dutch)], won the European Intermodal Award of the European Intermodal Association in 2003, and after extensive research was launched in The Netherlands as a marketable model by a supply chain service-provider, Vos-Logistics and barge operator Riverhopper in January 2004.

Conclusion

The Fast-Moving Consumer Goods sector has been facing various challenges in South Africa and other developing countries. the FMCG sector has policy which need to be applied but it is not being implemented properly to minimise corruption in the sector and to improve Lean Manufacturing (LM) in the sector, to alleviate corruption, to create more productivity by utilising minimum resources and trying to minimise waste in the industry while will minimise all kinds of pollution and practice all the principles of lean and create more employment. Aalthough a number of studies have been conducted over the past two decades, to address these issues but they is still a gap in the current review, therefore the aim of this paper aimed to theoretically assess Lean in the Fast Moving Consumer goods sector. The result of the critical analysis of current literature clearly indicated that they are flaws related to lack of lean implementation in the Small-Medium enterprises in the Fast-Moving Consumer Goods sector and majority of the research was conducted in qualitative.

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