

Improving end customers' satisfaction through postponement in the South Africa automobile supply network

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Abstract

Despite limited research into postponement strategy in the supply chain as customer's satisfaction enablers, there has been significant interest from the role players in adopting postponement strategy especially in the automotive industry. The digital age and the dawn of the fourth industrial revolution has change the business landscape substantially. Customers are more demanding and their demands are growing exponentially with technological advancement and globalization. Those changes has constrained business to compete over supply chain, which is the heart of many successful business strategic decision. As South Africa desperately need economic growth to curb the high unemployment (30%). As a major contributor to the GDP and employing up to 457 000 (Smith; 2019) people in South Africa, increasing the current market share and ensuring customer retention and loyalty is crucial in achieving these objective. This paper explore how customers satisfaction can be enhance by using their input at the customers decoupling points, so that the customers perceived value of the products and services can be equal or greater than the expected value. A cross sectional quantitative research was conducted among south Africa car owner, of which out of the two million registered owners, a random sample has chosen 484 respondents, which is slightly higher than the recommended size recommended by the Slovin's formula at 95% confidences level. It was hypothesized that more customer output in the supply chain service and product in the automobile increase customer satisfaction which hypothesis was accepted. More customer input through the postponement strategy, at the customers decoupling point increases customers perceived value, leading to improve satisfaction. The main finding has shown that there is positive correlation all along between customers inputs through the postponements strategy and customers satisfaction level, the association of the customers' input and the respondent genders was not significant and thus suggested that when correlating customers satisfaction and postponements strategy, the gender should not use as the mitigate variables. This study has found that postponements strategies in the automobiles supply chain in South African can be used as a main catalyser for services quality improvement, as more value gets added by customers inputs in the and the process leading to customers expectation been met, making them satisfied. The supply chain should thus grape the opportunity of the 4IR, the connectivity to establish better communications focusing on the end users, to grow the industry and achieved customers' satisfaction, retentions and loyalty. E-commerce is here to stay, and, everything can be purchased online; hence, globalization has removed the majority of trade barriers. The local market first, followed by the regional market as many south African neighbouring countries are still purchasing second hand and new vehicles from abroad and finally to their marketing to the continental level

Keys words: Postponement strategy, Customer order decoupling point, Fourth industrial revolution.

1. Introduction

The South Africa unemployment is on the rise despite various governments' initiative to curb this phenomenon. Webster (2019) has reported 6.7million unemployed people in South Africa corresponding to 29% which is one of the highest South Africa has ever recorded. This phenomenon is at the origin of many social ills among which crime and inequality. As the South African automobile industry represent an important portion of the GDP, 6%, given the possibility of market growth of the sector and the production capacity that has not been maximize, it has become urgent to explore the growth of the sector to achieve job creations. This paper has explore the enhancement of end consumer satisfaction trough the postponement strategy in order to ensure the industry growth that rely on loyalty and market growth. The study is divided into the following section the introduction, the background the literature survey, the research methodology, the findings and the conclusion.

2. Background of the research

A report published by the SCIR (2009) has revealed that the automotive industry players in South Africa are neither collaborative enough nor market sensitive or reacting to changes. In the same vein, Naude (2009:99) has postulated that producing cost-effective and responding swiftly, and reliability to the market demand of the developed world is a significant challenge faced by the South African automobile industry. Among others challenges cited by Naude (2009:265) are the BBBEE scorecard achievement, the cost to replace the outdated technology, the excessive inventory in order word the MTS strategy which is costly and the said cost get pushed down to the end-users. Chussil (2009) and Muller (2009) have also asserted that globalisation and individualization hurt the South African automotive competitiveness capacity. In other words, the local market has been liberalised through globalisation, leading to consumers been presented with various options and can no longer accept standard products.

Postponements strategies are, therefore, are required to mitigate the impact of globalisation and remain relevant to the current market. It is consequently vital to take into consideration the changing customers' demands and ensure that expectations are well-known to aspire meeting them while complying with the safety and regulations requirements in additions to innovations and flexibility in the manufacturing process. As these constraints of lead time, unreliable productions schedules leading to organisations forced to keep a buffer inventory which is a challenge for a flexible, appropriate reaction to customers' demand that is changing (Muller, 2009). Face with these challenges, postponements strategies on the automotive supply chain have emerged to be the most appropriate model that afford the supply chain network players to meet the need and expectations of their customers as their inputs become considerably across the network.

The automotive sector is a significant economic indicator and should be preserved and strengthened. According to Bandyopadhyay (2010), one of the South African principal economic activities is its automotive industry, which is a mature industry and has been growing year on year. The AIEC report of 2011 has revealed that the automotive industry has increased by 6.2% to the country GDP and has added 93 100 jobs in total in 2010. At the international level, South Africa automotive industry accounted for almost 73% of the African vehicles and 0.61% for the for the world vehicles in 2009 (OICA, 2010). Keeping an automotive customer satisfies contribute to the economic growth thus solution of those social challenges.

3. Literature review

Amiya and Chakravarty (2014:46) rightfully hold the view that the CODP, which is also named order penetration point is the best mechanism to respond to demand volatility in real time. The globalisation and advanced technology have set a dual challenge for the supply chain, the first being the completion that is found in any business and the second one being the cooperation. Given the fact that decision-makers in the chain should interact at a different level to deliver the outstanding service and product at the right price, at the right time to meet customer satisfaction. This challenge is further exacerbated by the individual's objectives of an organisation forming the chain, which might include but not limited to profit maximisation, risk minimisation, the social responsibilities as well as environmentally consciousness that have become a driver of the sustainable economy given the threat of climate change and their unintended consequences. The evolution of customer expectations is one of the most striking results of manufacturing progress, raising the bar for manufacturers to produce unique items quickly. Once it became possible for consumers to buy highly customised products, they were no longer willing to settle for mass-produced, generic items

3.1 Postponement strategies analysis based on the type of supply chain risk

Many researchers have written on the postponement strategy application for supply network management and have contributed in different ways from various angles. Shao and Ji (2008) have focused on a comparison and analysis of two postponements in mass customisation with a guaranteed service time. Saghiri and Soroosh (2011) have also contributed by looking at the structural approach for postponement strategy assessment by focussing on the construct development and validation process. Another contribution is the one of Frank and Stefan (2014) have detailed the supply chain management postponements. An integrated mixed flow production system which lead to a double decoupling postponement strategy approach was coined by Yanting and Wang (2015). A two-stage queuing chain focusing on supply chain form postponement which was linked to demand was explored by Zhou Wenhui et al. (2015). Across the supply chain, the risk is conceived from the manufacturer perspective as the primary brand carrier and can be divided into supply risk, production risk and demand risk. This research project thus has assessed the postponements strategies that will help in mitigating those risks.

3.2 Postponement strategies in the automotive manufacturing industry

The relevance of the postponement in the automotive manufacturing industry is its important link to customer satisfaction. The implementation of the postponement strategy has lately become a very powerful tool for supply chain customer satisfaction. This view is echoed by Kisperska-Moron and Swierczek (2011) who advocated that contemporary supply network should be customer satisfaction focus and therefore required some dynamic configuration to achieve the said satisfaction, among which the postponement strategy. In the automotive supply chain, there are four main types of postponements that will be reviewed in this rubric in order to design the applicable postponement framework for which yield customer satisfaction in South Africa.

3.3. Determining full speculation strategies based on CODP from the retailer: Make-To-Stock: The dealer and motorist link.

This section has described the full speculation as a postponement strategy although it appears to be the opposite according to Ambe (2012:132) which he has assimilated to the manufacturer to stock production strategy. As stipulated by its appellation, the customers have contributed very little and the CODP is almost inexistent because the customer gets a product that the manufacturing operations are performed without his involvements (Balland & Lindholm 2012:7). To be precise the cars that are manufactured are distributed in a decentralized manner in high quantity,

making use of the economy of scales and its predictions and stores at the point of sales closed to the consumers hoping to generate a shorter lead time which is regarded as a competitive advantage (Świerczek, 2010:35).

The build competing for advantage can also be observed from the opposite angle and thus has the disadvantage of increasing the inventory with the all the related cost due to warehousing cost, logistics just to name a few. It thus appears that in the full speculations that are not really a postponement strategy, the CODP is located at the end of the supply network if not inexistent, hence no customization has taken place and wasn't even possible (Balland & Lindholm, 2012:11).

To sum up, this section has shown that with the increasing globalization and high technological advancement, no organization can operate in isolation or independently. That has illuminated Ambe (2012; 132) opinion of which supply chains have shifted from cost focus to customer and strategic focus to build the operational excellence which is the cornerstone of the contemporary business success. Although customers are time sensitive, just in time services and values added services that are more attributed to the customer's input or postponements are potential future customer's satisfaction drivers, hence customers demand more responsiveness and reliability from the suppliers, which compelled supply chain managers to offers affordable yet, remain competitive on the market.

3.4. Customer's expectation concept and customer satisfaction enhancer

According to Botchway (2012:3) customer expectation is a belief that something will happen because the possibility of it happening are high. Expectations can be formed before or during the delivery of a service because they produce beliefs as to what will occur. Customers also expand convinced set of expectations based on a diversity of contributions. They also develop expectations when they hear about service experience from others, like their friends, about how they were treated and that goes to others, ultimately everyone will go to the said place and expect to be treated the same. Botchway (2012:2) has also opinionated that, the resulting expectations happen when customer's expectations are partially met by another person or other social groups of people. These customers' expectations are intensified because of their knowledge resulting in expectations based on expectations from others who will obtain and assess the service. The other continuing service intensifier is a personal service viewpoint, which reflects the customer's sub-conscious decision about the meaning of service and the presentation of service providers. Perceived service quality is determined by the difference between expected services and perceived services provided (Shahin& Samea, 2012:4).

The assimilation Theory was pioneered by Festinger (1957) and is rooted in the principles that in a business transaction that is characterised by an unmatched expectancy result from psychological discomfort or customer dissonance given the conflicting level of outcome between the customer expected value and the perceived value. The contrast theory advocates that when the customers' expectations are below the actual value of the product as per customer assessment, leading to a contrast which the customer might exaggerate the difference. This Assimilation- Contrast Theory of customer satisfaction is a combination of the Assimilation and Contrast theories. This blended theory suggests that when the difference between expectations and perceived product performance is at an acceptable level to a customer, then the customer would assimilate is perception towards his expectations. However, if the difference arising from an unmatched expectation is falling beyond the customers' acceptance limit, then the customer magnify this difference (Anderson, 1973). Finally another research on the consequences of unmatched confirmations is conducted by Carlsmith and Aronson (1963) hypothesised that even a satisfying outcome would be perceived not so pleasing under the conditions that customer expectations were set to receive an unpleasant one. Similarly, an unpleasant outcome would be perceived as more unpleasant under the same conditions.

4. Research method and methodology.

A cross sectional quantitative research was conducted among south Africa car owner, of which out of the two million registered owners, a random sample has chosen 484 respondents, which is slightly higher than the recommended size recommended by the Slovin's formula at 95% confidence level. It was hypothesized that more customer input in the supply chain service and product in the automobile increase customer satisfaction which hypothesis was accepted.

4.1 Research hypothesis

H0: Postponements strategy in the automotive supply improved end customer satisfaction.

4.2 Findings

From the employment status, MTS is positively and significantly correlated to the employment status of the end-user. It can thus conclude that full speculation through Make to stock influences the tangible, the reliability, the responsiveness and the empathy of the service quality in the automotive supply chain, therefore improving the end-users satisfaction. A cross-tabulation between end-users age and the various quality variables has revealed customer perceived value was not age specific. Besides the reliability and responsiveness that has shown a weak association, tangible, assurance and empathy were not correlated. Make to stock in association with the service quality. The end user satisfaction can be achieved by allow more input from the customers through the customers decoupling point or postponement; however that satisfaction is not a function of the end user race.

Although there is positive correlation all along between customers inputs through the postponements strategy and customers satisfaction level, the association of the customers' input and the respondent genders was not significant and thus suggested that when correlating customers satisfaction and postponements strategy, the gender should not use as the mitigate variables. Customers' satisfactions are not gendered specifics and therefore should not be considered in customers' satisfaction survey through postponements strategy with its inputs in the process and products making.

5. Recommendations

The research findings have considerable practical implications on the automobile supply network, which lead to the following recommendations. Most importantly the supply chain communication should be improved, extended to the end-users who are at the centre of the supply chain hence all the others players relying mostly on the end-user for their business continuity and survival. As the adverse impact of the 4IR is looming, few South African bank already received the waves forcing them into job cuts, this impact is set to be extended to the automotive industry network as the e-commerce gain popularity, and the networking which is the main characteristic of the 4IR is expanding exponentially.

As the e-commerce and the globalisation spraying across the globe coupled with the 4IR, many supply networks are shaken, and the south automobile supply network is not immune from that wave. Many jobs and business are at stake if not prepare to integrate the necessary changes to remain resilient. Many companies are said to be competing for through supply chain, and the dealers and suppliers are vulnerable to the impact of the fourth industrial revolution as everything from the spare to the whole car, second hand and brand new online. Customer's satisfaction is thus imperative to ensure not just loyalty which might be traditionally base on lack of choices, should from now on be rooted in customer satisfaction. In line with the hiking unemployment which stands at almost 30% in South Africa, but can be exacerbated by the lack of skill as professional has some cases mentioned the non-employability of the South African force due to lack of skill or poor alignment to the labour market.

Postponements strategies should be prioritised as the customer satisfaction enhances and retention tools in the automobile sector, which only is the pride of South Africa as carmakers but also its contribution to the economy GDP and job creations if very important to be overlooked. As suggested, the postponements strategy has already on the

South Africa automobile supply network; however, the most critical component of the chain, which is the end-users has not been given the attention it deserves. Engineer To Order, Manufacturer To Order, Assembly To Order have so far been well implemented. Unfortunately, the Make To Stock, the variable of full speculation is not a real postponement strategy because there is no substantial input from the end-users, as the 4IR give the end-users more choices, measures should be taken to accommodate this critical component of the network. Understanding it would have been difficult to achieve considerable input to the process and product design from the end-user, the 4IR offers an opportunity that can be used to reach customers and has more input but also that can be a threat if not properly managed, given the extensive networking. These actions should be carried out on a regular customer satisfaction survey, market and marketing research as the most appropriate mass communication with the customers.

The inputs from the customers will give the supply network and the industry more knowledge of customer's what expectations for what segment of clients. Understanding customers' expectation is the cornerstones of customers' value add, customer retention and loyalty and satisfaction. As proposed by the framework offers by this study on how to enhance customer satisfaction using postponement strategy across the supply network. Since improving satisfaction through postponement strategy is income level specific, job status specific and age range specific, the automotive supply network needs to deploy more resources and emphasise more on the middle-income level, working adult age from 25 to 45 years old and. Full speculation should be revisited to realigned the end-users expectation and organisation strategy while using the technology to remain affordable on the market the network services and to explore the new market.

6. Conclusion

South Africa is still struggling with rising unemployment, the inequality that has been exacerbated and is going to be pressurized by the fourth industrial revolution, which impact can be adverse on the labour market that is already struggling to grow the economy. The primary purpose of this research was to design a framework for customer satisfaction using the postponement strategy. Service and operation excellence in the automobile supply chain of the country is one of the main catalysers of value add across the chain, customers retention and loyalty. Customer loyalty and retention should be through satisfaction and not the lack of choice from the customer perspective. As the major contributor to the country economy, the South Africa automobile industry is at the centre of job creations and economic growth, thus addressing many social ills such as inequality, unemployment's, poverty and crime to name a few. It is therefore imperative to satisfy the customers to expect growth of the industry, which translates into job creation and economy growth and life improvement

This study has found that postponements strategies in the automobiles supply chain in South African can be used as a main catalyser for services quality improvement, as more value gets added by customers inputs in the and the process leading to customers expectation been met, making them satisfied. Postponements strategies results in customers inputs in the process or product they acquire at the customer decoupling point, enhance values add perceptions of the clients on the supply chain

At the dawn of the 4IR, taking into considerations its adverse impact on the untransformed current South Africa labour, the postponements strategies should be entranced in the supply chain strategy to achieve higher satisfaction and retention of its customers base and growth more customers base as it grows its industry. The supply chain should thus grape the opportunity of the 4IR, the connectivity to establish better communications focusing on the end users, to grow the industry and achieved customers' satisfaction, retentions and loyalty. E-commerce is here to stay, and, everything can be purchased online; hence, globalization has removed the majority of trade barriers. The local market first, followed by the regional market as many south African neighbouring countries are still purchasing second hand and new vehicles from abroad and finally to their marketing to the continental level. The demand is enormous, and the jobs demand too is hiking, so fulfilling customers' demand they will translate into economic growth and jobs creation.

The South African automotive manufacturing capacity has not been reached, the company import more than its exports, which paint a bleak picture for the South Africa balance of payment (BOP). This should be an opportunity for South Africa to tap into to solve some of the problem currently encountered in the society, of which job creation should be the priority of the aim, in line with the economic growth. This study was conducted using a concurrent mixed method to offset the disadvantage of the mono-method; however, the South Africa automobile supply network does not start in South Africa and does not end in South Africa only; hence many are from imports and many from exports as well. As the study sample was drawn from South Africa alone, it is recommended that future research should incorporate customers from other sections of the supply network.

References

- Alderson, W., 1973, Marketing efficiency and the principle of postponement. *Cost and Profit Outlook*, 3, 15–18.
- Ambe, I.M., 2012. Determining Supply Chain Practices and Strategies of Light Vehicle Manufacturers in South Africa. *Problems and Perspectives in Management* 12, 415–426.
- Ambe, I.M., 2017. The use of Postponement Decisions in Determining Supply Chain Strategies of Light Vehicle Manufacturers in South Africa. *Journal of Economics and Behavioral Studies* 9, 180. doi:10.22610/jeb.v9i3.1757
- Amiya K. Chakravarty D, 2014, *Supply Chain Transformation , Evolving with Emerging Business Paradigms*, School of Business North-eastern University Boston, MA USA, 2014
- Anderson, P.W., 1973. Resonating valence bonds: A new kind of insulator? *Materials Research Bulletin* 8, 153–160. doi:10.1016/0025-5408(73)90167-0
- Balland, J & Lindholm, S. 2012. Choosing the right postponement strategy: a focus on e-commerce and postponement. Master's thesis, Jonkoping International Business School, Sweden.
- Bandyopadhyay, J., Sinha Ray, S., 2010. The quantitative analysis of nano-clay dispersion in polymer nanocomposites by small angle X-ray scattering combined with electron microscopy. *Polymer* 51, 1437–1449. doi:10.1016/j.polymer.2010.01.029
- Carlsmith, J.M., Aronson, E., 1963. Some hedonic consequences of the confirmation and disconfirmation of expectancies. *Journal of Abnormal and Social Psychology* 66, 151–156. doi:10.1037/h0042692
- Chussil, M., 2009. Honey, we shrunk the industry: an automotive war game. *Competitive intelligence Magazine*. 12(4).
- Daniel, L, 2018, South Africa's unemployment crisis: 69 000 jobs lost in four months, *The South African*, <https://www.thesouthafrican.com/south-africa-unemployment-job-losses-stats-sa/>
<https://mg.co.za/article/2019-08-05-unemployment-in-south-africa-is-worse-than-you-think>
- Kisperska-Moron, D., Swierczek, A., 2011. The selected determinants of manufacturing postponement within supply chain context: An international study, in: *International Journal of Production Economics*. pp. 192–200. doi:10.1016/j.ijpe.2010.09.018
- Muller, M.L., 2009. Current automotive industry: how leaders practise CI. *Competitive Intelligence*. 11(3).
- Naude, MJA, 2009. Supply chain management problems experienced by South African automotive manufacturers. Doctoral thesis, University of South Africa, Pretoria.

- Ni, Yanting and Wang, Yi. 2015. A double decoupling postponement approach for integrated mixed flow production systems. *KYBERNETES*, 44(5):705-720.
- OICA, Organisation Internationale des Constructeurs d'Automobiles. 2010. <http://www.oica.net/> (access on 1 September 2018).
- Saghiri, Soroosh.2011. A structural approach to assessing postponement strategies: construct development and validation. *International Journal of Production Research*, 49(21):6427-6450. SCIR (2009)
- SCIR (2009), Annual report,
https://www.csir.co.za/sites/default/files/FULL_VERSION_CSIR_AR_200809%281%29.pdf
- Shahin, A., Attafar, A., Samea, M., 2012. An integrated approach for service quality and effectiveness improvement with a case study in the recycling pavilion service process of Isfahan municipality. *Measuring Business Excellence* 16, 84–99. doi:10.1108/13683041211257439
- Shao, XF, Ji, JH. 2008. Evaluation of postponement strategies in mass customization with service guarantees. *International Journal of Production Research*, 46(1):153-171.
- STATS SA, 2018. Youth unemployment still high in Q1: 2018 [WWW Document]. Statistics South Africa. URL <http://www.statssa.gov.za/?p=11129>
- Supply chain intelligence report (SCIR). 2009. Auto industry crisis: part own making. Available from: <http://www.bizcommunity.com/Article/196/168/38180.html>. (Accessed on 25 July 2018.)
- Świerczek, A. 2010. The relationships between postponement strategies and manufacturing performance in supply chains: an industrial perspective. *LogForum* 6, 3, 4. Available at: <http://www.logforum.net/vol6/issue3/no4> (accessed on 5 January 2019).
- Walker A, 2018, South Africa: the economic challenge, BBC World Service economics correspondent <https://www.bbc.com/news/uk-43073781>
- Webster, D (2019). Unemployment in South Africa is worse than you think. *Mail and guardian*, <https://mg.co.za/article/2019-08-05-unemployment-in-south-africa-is-worse-than-you-think>
- Yanting, Y & Wang, Y., 2015. A double decoupling postponement approach for integrated mixed flow production systems. *Kybernetes* 44, 705–720. doi:10.1108/K-10-2014-0229
- Zhou, Wenhui, Huang, Weixiang and Zhang, Renqian. 2015. A two-stage queueing network on form postponement supply chain with correlated demands. *Applied mathematical modelling*, 38, 2734–2743. doi:10.1016/j.apm.2013.10.066
- Smith C, 2019, Fin24, A look at SA's auto manufacturing industry; <https://www.fin24.com/Companies/Industrial/am-sunday-read-a-look-at-sas-auto-manufacturing-industry-20190712>