Effect of Product and Service Development on Performance At Kenya Railways

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Abstract

Kenya Railways is facing performance challenges similar to those faced in other network industries thus have affected its contribution to the economy. The main aim of this study is determining effect of product and service developmenton performance at Kenya Railways. This study will adopt product development process theory. This study will use survey research design to study the effect of operation strategies on performance at Kenya Railways. The study will target all employees in Kenya Railways. The target population will be 945 employees at Kenya Railways in Mombasa and Nairobi. A sample size of 281 will be obtained using Yamane formulae. Proportionate sampling will be used to distribute the sample among the employees of the six departments; these will enhance distribution representation and avoid bias in sampling. Purposive sampling technique will be used in selection of respondents in each department. The study will collect primary data using questionnaires from employees in Kenya Railways. In order to ascertain validity and reliability of the research instruments, the researcher will pilot the instruments by distributing 28 questionnaires to respondents who will not be part of the respondents to be sampled in Eldoret. Descriptive statistics will be percentages, frequency, mean, standard deviation, minimum and maximum. Inferential statistics will be correlation and multiple regression. Data analysis will be done using Statistical Package for Social Sciences (SPSS) software. This study findings and recommendation will provide an insight into the railway in Kenya and provide vital information necessary for decision making concerning operation strategy and performance. Upcoming, existing researchers and academicians will benefit from this research as it will open up a new area of study. It will also serve as a reference to enable them use it and come up with new dimensions they can do further research.

I. Introduction

Kenya Railways is a State Corporation established by an Act of Parliament (Cap 397) of the Laws of Kenya, and commenced operations on January 20, 1978 (Malago, 2013). The overall mission of the Corporation is to develop an integrated rail network and provide efficient and safe rail services. KR has suffered from inefficient management, has a bloated work force, and has run deficit operations in spite of its potential. For several years there had been plans to privatize and revitalize the system. In 2005, Rift Valley Railways Consortium (RVRC) from South Africa won the 25 years concession to run KR and Uganda Railways Corporation. In 2006 the East African Standard reported that the planned take-over was postponed to 1 November 2006 (Gwilliam, 2011).

Performance results result from progress or market position accomplished (Salali, 2015). Performance can be resolved in different ways. It may represent financial performance, advertise performance, client performance or in general performance, the term business performance is chiefly utilized as a general performance measure. Financial performance actually refers to financial measures, overall revenue and degree of profitability (ROI). Market performance incorporates for example Proportions of piece of the overall industry and deals volume. Also, better performance in this investigation alludes than performance that surpasses that of its nearest rivals (Wong, 2015).

Uniquely, predominant market performance most likely, however not really, results in prevalent financial performance (Wilden & Gudergan, 2015). There are several points of departure that can be used to assess performance of a business. These include, among others, accounting perspective (assessment of financial measures of performance), marketing perspective (assessment of marketing inputs, too) and operations perspective (assessment of effectiveness and efficiency) (Maghziet al., 2015).

Especially concept of Balanced Scorecard (BS), introduced by Kaplan and Norton (2001) has been lately applied (situation-sensitively) more than ever. One of the organizations' key elements of success is the alignment of their strategies and their tactics (Jayaram, Tan& Laosirihongthong, 2014). In other words, for an

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organization's success, the strategic guidelines (or business objectives) should guide program choices (production practices) and these should contribute towards the organization's operational performance. To satisfy the client's needs, there should be operations strategy based on competitive priorities, which translates the clients' needs to be met by the operations management function (Slack & Jones, 2018)

Product and service development is a process of taking a product or service from conception to market (Cavalieri & Pezzotta, 2012). The process sets out a series of stages that new products typically go through, beginning with ideation and concept generation, and ending with the product's introduction to the market. Product development is a significant factor in maintaining a firm's competitive advantage in an increasingly service-centered economy (Nylen& Holmstrom, 2015). The combination of high market-linking capabilities and high market turbulence strengthens new product development performance. New product performance is highest in situations involving high levels of service innovation, market-linking, and market turbulence (Chen, Wang, Huang & Shen, 2016).

Japan has adopted an alternate strategy to other European nations in this investigation. The geology, with huge rocky territories and a significant part of the populace focused on the 7-south shore of the fundamental island, Honshu, makes high thickness traveler streams along a primary waterfront passageway. Together with the profoundly urbanized nature of Japanese urban areas, this makes a fantastically thick interest example significance Japan's railroads convey a larger number of individuals than any European framework. There has likewise been, as in Switzerland, a solid convention of rail administration arrangement by different organizations, and again these private railroads contain a number possessed by the open part, however a lot more are under 100% private proprietorship.

In South Africa for example, supply chain management (SCM) is one of the important functional areas in the transport industry and its contribution has been particularly noteworthy (Ambe, 2014). The industry sector's contribution to 7% of South Africa's gross domestic product (GDP) was R3251.4 billion in 2012 (Export Council, 2013). Because of intensified competition in the global market, the introduction of products with shorter lifecycles and growing customer service, transport sector in South Africa have been forced to invest in and direct their attention to the supply chains (Tolmay &Badenhors, 2015). Preliminary investigation revealed that although the industry is important in South Africa, it poses critical SCM challenges for local manufacturers and it is internationally uncompetitive.

In Kenya organizations face an increasingly dynamic, complex and unpredictable environment, where technology, globalization, knowledge and changing competitive approaches impact on overall performance (Santoro, Vrontis, Thrassou & Dezi, 2018). The degree and complexity of the current changing environment is driving firms, both large and small, to seek new ways of conducting business to create wealth (Kumar, Amorim & Bhattacharya, 2016). The railway in East Africa was run by the company East African Railways & Harbors jointly for the countries of Uganda, Tanzania and Kenya after World War I.

Mombasa – Nairobi SGR Project (Dubbed Phase 1) commenced on 12th December 2014 and was completed and commissioned on 30th May 2017. Both passenger and Freight Operations are ongoing. Nairobi Inland Container Depot (NICD). Its main objective was to increase the efficiency of the Mombasa – Nairobi Standard Gauge Railway (SGR) freight operations and decongestion of the port of Mombasa. The expected increase in output capacity at the ICD is from the current 180,000 TEU's/year to 405,000 TEU's/year, hence complementing the SGR in decongesting the port of Mombasa. The project commenced on 1st May 2016 and was completed and commissioned on December 2017.

Statement of the Problem

Ideally rail has a pivotal role in delivering competitive and environmentally-friendly transport system, growing the economy, enhancing personal mobility and supporting social cohesion (Mugion, Toni, Raharjo, Di Pietro & Sebathu, 2018). However, currently the Kenya Railway System has not adapted new technology, enabling further modal shift and maintaining its position as the mode of choice. The personnel costs and operating costs have increased several times over the past decade thus minimizing the usage of the railway transport. The railway industry is also faced by the problem of not attaining the financial sustainability, minimum reliance on Government subsidies to cover operating costs. Further the railway regulation is facing many challenges similar to those faced in other network industries. Inadequate appraisal and underestimation of the investment needed to revamp the infrastructure and rolling stock, which could be attributed to lack of data and information on infrastructure, operational performance of the railways, underinvestment and weak management thus unresponsive to the changing market conditions. These challenges faced by railway industry has led to poor contribution to the economy, loss of employment, high transportation costs. This can be seen in Kenya Railways which is performing poorly due to lack of proper operational strategies that will steer it to be competitive, have financial sustainability and align investment priorities. Therefore, this study seeks to fill the gap by investigating effect of operation strategies on performance at Kenya Railways.

Objectives of the Study
To establish the effect of product and service development on performance at Kenya Railways
Research Hypothesis
H_{02}: Product and service development has no significant effect on performance at Kenya Railways

II. Theoretical Review

Product Development Process Theory
Product Development Process theory was developed by Kotler and Armstrong in(2011). New product development (NPD) process begins with ideas, proceed with idea screening, concept development and testing, marketing strategy development, business analysis, product development and test marketing, ends when the product actually commercialization and creates wealth. To bridge the theory into practice, they worked as a team to develop a new, branded product, and formulate the marketing strategy to find and meet the niche market requirement in the UK. The purpose of the idea generation process and idea screening process are systematic search new ideas and then reduce the number of ideas to spot the good ones (Kotler & Armstrong, 2011). Ideas may come from many different sources, it contains internal sources such as traditional research and development department and employees, and external sources such as distributors and suppliers, competitors, and customers themselves (Ritter and Gemunden, 2003).

After a large number of ideas were created via different sources, managers need to evaluate these ideas and look closely at the prospects in the marketplace. When the new product finishes the business test, it moves into product development. Booz, Allen and Hamilton (1982) identify the commonly accepted categories of NPDs: new-to-the-world products; new product lines; additions to existing lines; improvements and revisions to existing products and repositioning products. The purpose of product development is to develop the product concept into a physical product to ensure that new concepts can be transformed into a workable market offering (Kotler & Armstrong, 2011).

Critiques is the simple linear model of NPD is ingrained in the minds of many people. The model shows the formation and development of an idea prior to its taking any physical form. In most industries it is from this point onwards that costs will rise significantly (Trott, 2005). The subsequent stages involve adding to the concept as those involved with the development (manufacturing engineers, product designers and marketers) begin to make decisions regarding how best to manufacture the product, what materials to use, possible designs and the potential market's evaluations. The NPD process model can reduce the risk associated with new product introduction and to increase the possibility of commercial success through implementation of a step-wise procedure (Crawford, 1997). It comprehensively analysis the key activities involved in the process, from idea to commercialization of the product.

It not only saves time and resources of the full market launch, but also helps managers decide to stop or go before large investing. Finally, the commercialization stage involves careful planning to avoid the uncontrolled influencing factors.All those actually involved with the development of new products dismiss such simple linear models as not being a true representation of reality. For example, more recent research suggests that the process needs to be viewed as a simultaneous and concurrent process with cross-functional interaction, and Hollandet al. (2000) demonstrated that cross-functional teams helped shorten the development of times of truly innovative products.

This theory is relevant to this study because it will guide product and service development variable adopted in Kenya Railway institution. This can be depicted during the product development process where the theory indicates that it requires much greater integration of different departments (Trott, 2005). For instance, the R&D department provides ideas, the engineering department will then take the ideas and develops possible prototypes; the manufacturing department will seek possible ways to produce a feasible product capable of mass manufacture; the marketing department will then be brought in to plan and conduct the launch.

Empirical Review
Product and Service Development and Performance
Ona, Ona and Lopez (2016) investigated on effect of product development on transit service quality: A case of railway passenger transport in China to serve the railway. The paper analyzes the current situation of railway passenger service quality, points out the difficulties and problems in the current railway passenger service, puts forward the main measures to improve the quality of railway passenger service, such as innovative service concept, ensure the quality of equipment, integrate passenger quality standards, Quality of passenger services. The quality of passenger transport is the quality of the whole process of passenger transport, including the quality of the means of transport, the quality of the relevant facilities, the quality of the work of the staff and the quality of the means of delivery.

Eboli and Mazzulla (2015) investigated the relationships between rail passengers' satisfaction and Product and Service Development in Northern Italy. Specifically, a structural equation model was formulated

to explore the impact of the relationship between global customer satisfaction and product development attributes, such as safety, cleanliness, main and additional services, information about the service, and personnel, and to verify which of these attributes key factors of service quality are. Data collected by a survey addressed to a sample of more than 16,000 passengers are used for calibrating the model. The proposed model can be useful both to transport agencies and planners to analyze the correlation between service quality attributes and identify the most convenient attributes for improving the supplied service. The main findings are that information, cleanliness, and service characteristics like punctuality and frequency of runs have the highest positive effect on service quality. The study focused on the rail passenger' satisfaction and outside Kenya.

Eboli, Fu and Mazzulla (2016)evaluated product and service development in the railway service industry in Germany. A multilevel fuzzy synthetic evaluation model to evaluate the railway service quality is proposed based on the fuzzy theory. An evaluation indicator system with three grades evaluation indicators is established, and their weights are determined on the basis of opinions expressed by interviewed passengers. Railway service quality is evaluated by the value of a comprehensive satisfaction degree.

The method can provide not only for the passengers' overall satisfaction degree on the railway service quality, but also the passengers' satisfaction degree on some primary evaluation indicators. According to the evaluation results, we found interesting differences of perception of the service among the users. The evaluation of railway service quality includes multiple evaluation indicators which are attached to different hierarchies, among which there are some subordination relations. The overall indicator and the 7 primary indicators are indirect service attributes that passengers can score only with a general feeling. For this reason, there is need for evaluation of railway service quality with the fuzzy theory in Kenya.

2.3.5 Organization Performance at Railway Corporations
Organization performance is the degree to which associations saw as social frameworks accomplished their goals. Authoritative performance is a course of action of financials and non-financial related pointers which give understanding with respect to the degree of achievement of targets and results (Lemchi, 2018). There are two principle proportions of hierarchical performance. The first is financial though the subsequent one is non-financial. Financial measures the company's benefit and the general wellbeing of the asset report.

Julius (2013) researched on the impact of privatization strategy on Tanzania Railways Limited (TRL) performance. Initial public owned, TRL was handed down to a private investor RITES on 2007. Theories such as the principal agent theory and the public choice theory tend to suggest that privatization strategy may actual improve organizational performance. However qualitative data analyzed by the research in accordance with the balance score card's four perspectives on performance, shows a down ward trend on TRL"s performance. Subsequently the failure of privatization strategy on TRL is attributed to poor quality of the concession process and the concessionaire, the government incompetence and in promptness plus a hostile public mood.

Sharma, Debnath, Oloruntoba and Sharma (2016) assessed the performance of the rail transport administration by including the administration conveyance point of view of railroads and take a gander at the all-encompassing idea of administration conveyance. The nature of administration parameters has been picked inside the limitations forced by accessibility of information and the defined information envelopment investigation (DEA). The nature of administration parameters includes: dependability; the degree of noteworthy train mishaps (wellbeing); and the degree of open objections (consumer loyalty). It assesses the performance of 16 zones of Indian railroads (IR) based on their efficiencies and recognizes the model zones. DEA has been utilized as a benchmarking device to assess the overall productivity of the 16 zones.

Phipps (2012) studied on effectiveness of Rail Concessions in the SADC *Region.* Botswana. The study found out that a rundown of issues obstructs performance of Railways associations after privatization methodology is received. Such issues incorporate inability to institute empowering enactment, disgraceful and inadequacy of the concessions understandings, absence of a sound field-tested strategy and the practicality and sequencing of the concession procedure from time of declaration of aim to finish of the concession. An excess for likened track kilometers demonstrates a non-ideal utilization of assets. Not giving enough significance to support quality could be one of the real discoveries of the wasteful zones.

Rashid, Ngalawa, and Cil (2016) considered the performance of the legally binding game plans of open private organizations contextual analysis on Tanzania Railways Limited. The examination contends that the nature of the concession understanding may have sway on the hierarchical performance after privatization. The examination notices issues, for example, data asymmetry during the concession procedure and the deficiency of the agreement as key reasons for a bombed open private organization. For instance the TRL concession was inadequate as it neglected to conceive every single imaginable situation, for example, work debates
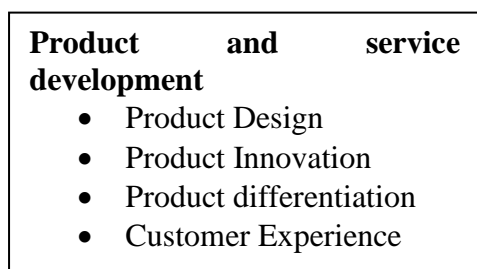
Kotut and Mugambi (2012) in an exploration on the best way to improve Railway transport in Kenya praises the continuous privatization of Kenya Railways as the most ideal route forward. The examination prescribes that to build achievement prospects of a privatization procedure, significant clients (general society)

ought to be permitted to shape a warning advisory group which would deal with the open interests during privatization. Kotut and Mugambi anyway suggests that the Government of Kenya ought to have a vehicle approach that stipulates satisfactory administrative viewpoints among various methods of vehicle.

Conceptual Framework
The conceptual framework is meant to demystify the relationship between research variables. The independent variables is product development strategieswhile the dependent variable is performance at Kenya Railways.

Independent variables   **Dependent Variable**
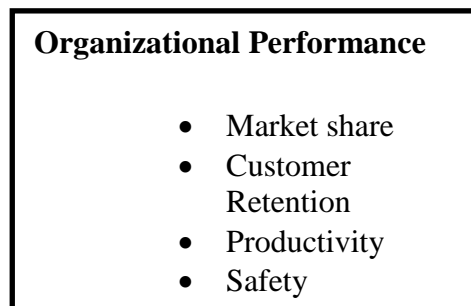
Product and service development	**Organizational Performance**
• Product Design • Product Innovation • Product differentiation • Customer Experience	• Market share • Customer Retention • Productivity • Safety

Figure 1 Conceptual Framework

III. Research Methodology

Research Design
Flick (2015) argues that a research design is a plan, structure or strategies or investigation conceived so as to obtain answers to research questions and to control variants. This study used survey research design to study the effect of operation strategies on performance at Kenya Railways. The design was used because the study sought to determine the existence effect of operation strategies on performance at Kenya Railways. The design also allowed the researcher to define clearly, what it is supposed to be measured and find adequate methods for measuring it along with a clear-cut definition of the population the researcher wants to study. The study design was appropriate for the study because it allowed data collection from the sample and demonstrated the operation strategies in Kenya Railways.

Target Population
Target population is the specific population about which the results of the study will be generalized (Flick, 2015). The study targeted all employees in Kenya Railways. The target population was 945 employees at Kenya Railways in Mombasa and Nairobi. These comprised of staff from business & commercial, operations, finance, passenger service, rolling stock and civil departments as shown in Table 1. This is because the departments are actively involved in the operations strategies of the firms.

Table 1 Target Population

Teams	Mombasa Population	Nairobi Population	Target Population
Business & Commercial	23	25	48
Operations	74	166	240
Finance	6	18	24
Passenger Service	10	115	125
Rolling Stock	65	265	330
Civil	69	109	178
Total	**247**	**698**	**945**

Source: Kenya Railways (2019)

Sample Size andSampling Technique
This section covered how sample size was arrived at and the formula used to calculate. It also presented the sampling technique used to select the respondents who participated in the study.

Sample Size
Kumar, (2019) notes that the correct sample size in a study is dependent on factors such as the nature of the population to be studied, the purpose of the study, the number of variables in the study, the type of research design, the method of data analysis and the size of the accessible population. The researcher obtained the sample size using Yamane formulae (1967).

$$n = \frac{N}{1+N(e)^2}$$ …………..Equation 1

Where n is the sample size required
 N is the population size =945
e is the level of precision =0.05

n= $\frac{945}{1+945 \times 0.05^2}$ ....Equation 2

n =281

Table 2 Proportionate Sample Size

Teams	Mombasa Population	Nairobi Population	Sample Population
Business & Commercial	7	7	14
Operations	22	50	72
Finance	2	5	7
Passenger Service	3	34	37
Rolling Stock	19	79	98
Civil	21	32	53
Total	**74**	**207**	**281**

Sampling Technique
Sampling technique refers to a procedure of selecting a part of population on which research can be conducted, which ensures that conclusions from the study can be generalized to the entire population. The study used stratified sampling technique where departments formed the strata. Proportionate sampling was used to distribute the sample among the employees of the six departments; these enhanced distribution representation and avoided bias in sampling. Purposive sampling technique was used in selection of respondents in each department.

Data Collection Instruments
The study collected primary data using questionnaires from employees in Kenya Railways. The primary data for this study was collected using questionnaires direct from respondents at Kenya Railways. The questionnairewas divided broadly into two parts; part A and B. Part A covered demographic data of the respondents. The questionnaire utilized a five-point Likert scale namely Strongly Agree (SA), Agree (A), Undecided (UD), Disagreed (D) and Strongly Disagree (SD), which will be assigned scores of between 1 and 5. This allowed the researcher to draw conclusions based on comparisons made from the responses. A total of 281 questionnaires were issued to the respondents. The questionnaires were used because it was deemed the method that collects a lot of information over a short period.

Data Collection Procedure
Upon getting the consent of the University's and the supervisor, the researcher proceeded to get permission from Kenya Railways authorities. On the set date, the researcher explained the purpose of the visit to the respondents. This assured the respondents of their confidentiality of any information they gave. Questionnaires were administered directly to the respondent using drop and pick method and the researcher ensured the questionnaires were filled in accordance with the research conducted a follow up. The respondents were given enough time from morning to evening to complete the copies of the questionnaire before picking them for analysis.

Pilot Study

In order to ascertain validity and reliability of the research instruments, the researcher piloted the instruments by distributing 28 questionnaires to respondents who were not part of the respondents to be sampled in Eldoret depot. The pilot respondents represented 10% of the sample size. The results of the piloted questionnaires enabled the researcher to determine the consistency of responses to be made by respondents and adjust the items accordingly by revising the document.

Validity of the Research Instruments

The research purposes to ensure validity of research instruments by using simple language free from jargon to make it easily understood by the respondents. To test validity, the questionnaire to be used in the study was availed to the supervisors and other specialized lecturers in this field of study in the university to review the test items to ensure that they are based on the content area before commencing data collection. The researcher also sought the opinion of individuals who can render intelligent judgment about their adequacy Mohajan(2018). The researcher therefore gave questionnaires to the supervisor and other research experts to ensure that the questions test or measure what they are supposed to measure.

Reliability of the Research Instruments

Data collected from the pilot study was used to compute the internal consistency reliability of the instruments' items. The Cronbach's alpha was applied on the results obtained to determine how items correlate among themselves in the same instrument. Cronbach's Alpha of more than 0.7 was be taken as the cut off value for being acceptable Bonett and Wright (2015), which enhanced the identification of the dispensable variables and deleted variables. However, the Cronbach's alpha that was less than 0.70 implied that the research instruments were not reliable and the researcher would make necessary corrections before using the instruments to collect data.

Data Processing and Analysis,

Analysis of data is a process of inspecting, cleaning, transforming, and analyzing data. After data collection, the data will be organised and edited to remove any inconsistencies, repetitions or errors that made analysis difficult. Descriptive and inferential statistics will be used to analyse the data with the aid of the Statistical Package for Social Sciences (SPSS). Descriptive statistics will include percentages, frequencies, mean and standard deviation. Inferentially correlations was used and multiple regression analysis was applied to get the change in dependent variable caused by the effect of independent variables. The regression model that was used for hypothesis testing was as follows:

$Y = \beta_0 + \beta_1 X_1 + \varepsilon$………………………………………**equation 3**

Where:

Y represent organizational performance

β_0 represent constant term

β_1 beta coefficient

X_1 represent product and service development

ε represent Error

Data Processing and Analysis

Response Rate

The study targeted 281 railways employees. The results of response rate are presented in Table 3.

Table 3 Response Rate

Response rate	Frequency	Percentage
Responded	236	84
Not responded	45	16
Total	281	100

As such, 281 questionnaires were issued to the respondents however, 236 questionnaires were dully filled and returned. This translates to 84% as shown in Table 3. This response rate is considered very good to enable the determination of the phenomenon that exist as it is in line with Guo et al., (2016) assertion. They state that a response rate of above 70% is recommended for the generalization of the study findings. This is also in line with Creswell and Creswell (2017) arguing that the research whose response rate is above 70% is adequate for a study of a social science nature.

Pilot Study Results
The study conducted pilot study to test reliability and validity of the research instrument. The pilot study used 28 respondents which is 10% of the total sample size. This study collected data from employees of Kenya Railways. Pre testing revealed constructed to both reliability and validity and also gave an opportunity to refinement of the research instrument prior to actual research.

Table 4 Reliability Results of Research Questionnaire

Constructs	Test Items	Cronbach's Alpha
Product and service development	4	0.749885
Organizational Performance	4	0.785714
Average		**0.767800**

As shown in Table 4, Product and service developmenthad a Cronbach's of 0.749885and organizational performance had a Cronbach's of 0.785714. This thus shows that the variable had a Cronbach alpha greater than 0.7 and hence the research instrument was reliable and valid.

Demographic Information of the Respondents
The study sought to determine the demographic information of the respondents based on Gender, Age bracket, years in service and highest level of education.

Distribution ofRespondents by their Gender
The gender of the respondents was first sought since the findings would assist the study categorize respondents based on gender and the findings are show in Table 5.

Table 5Distribution ofRespondents by their Gender

Gender	Frequency	Percentage
Male	166	70.3
Female	70	29.7
Total	**236**	**100**

The findings in Table 5 shows that majority of the respondents 166(70.3%) were male while minority 70(29.7%) were female. This implies that majority of the subjects who participate in the study were male compared to their female counterparts. This also implies that promotion of headship favored male and not to female counterparts. This is in line with Bryson (2016) who noted that feminist is still treated with suspicion, not just by men but even some women who have worked with women and with gender movements for many years.

Distribution of Respondents by their Age Bracket
The age of the respondents was sought since its findings would assist the study categorize respondents based on age. The study findings are presented in Table 6.

Table 6Distribution of Respondents by their Age Bracket

Age Bracket	Frequency	Percentage
18-29 years	22	9.3
30-39 years	42	17.8
40-49 years	113	47.9
50 years and above	59	25.0
Total	**236**	**100.0**

The study findings in Table 6 shows that 22(9.3%) of the respondents were aged between 18 and 29 years, 42(17.8%) were aged between 30 and 39 years, 113(47.9%) were aged between 40 and 49 years and 59(25%) were aged above 50 years and above. The results are an indication that majority of the employees have a substantial mature age which means they were competent enough as noted by (Alshammari, Almutairi, &Thuwaini, 2015) who noted that employees maturity determines the competence and efficiency.

Distribution of Respondents by their Years of Service
The study sought to determine the years the respondents had been in their various positions in Railways. The study results are summarized in Table 7.

Table 7Distribution of Respondents by their Years in Service

	Frequency	Percentage
Below 5 years	28	11.9
5-10 years	74	31.3
10 years and above	134	56.8
Total	236	100.0

The study results in Table 7 shows that 28(11.9%) have been in Railways for below 5 years, 74(31.3%) for 5-10 years and 134(56.8%) for 10 years and above. The study finding implies that the respondents have been in various positions enough to understand the topic under the study.

Distribution of Respondents by theirHighest Level of Education
Academic qualification of the respondents was sought since its findings would assist the study categorize respondents based on their academic qualifications and findings are shown in Table 8.

Table 8Distribution of Respondents by their Highest Level of Education

Level of Education	Frequency	Percentage
Certificate	44	18.6
Diploma	103	43.7
Degree	71	30.1
Masters	18	7.6
Total	**236**	**100.0**

The findings in Table 8 shows that 44(18.6%) of the respondents had certificate level, 103(43.7%) had diploma, 71(30.1%) had degree and 18(7.6%) had masters. This implies that the respondents had sufficient academic qualification to understand the effect of operation strategies on organization performance at Kenya Railways.

Product and Service Development Findings
The study first sought to find out the effect of product and service development on performance at Kenya Railways. The purpose of this analysis was to get the responses on product and service development using the frequency of respondents on a Likert scale and the mean rate of the responses. The study results are presented in Table 9. Key: 1= strongly disagree, 2= disagree, 3=Am not sure, 4= Agree and 5= strongly agree.

Table 9Descriptive Statistics for Product and Service Development

Statements		SA	A	UD	D	SD	Mean	Sd
1. Product design of new products coupled with new and appropriate technology has absorbed the organization from the threat of new competitors	F	69	136	11	12	8	4.04	0.922
	%	29.2	57.6	4.7	5.1	3.4		
2. Product Innovation is more effective than a copying strategy.	F	57	149	12	9	9	4.00	0.889
	%	24.2	63.1	5.1	3.8	3.8		
3. Product differentiation taken by the organization can lead to variations in performance.	F	48	158	8	10	12	3.93	0.928
	%	20.3	66.9	3.4	4.2	5.1		
4. Customer experience has improved through product and service development	F	47	161	9	9	10		
	%	19.9	68.2	3.8	3.8	4.2	3.96	0.879
Valid N	**236**						**3.98**	

Table 9 indicates that 69(29.2%) of the respondents strongly agree, 136(57.6%) agree, 11(4.7%) undecided, 12(5.1%) disagree and 8(3.4%) strongly disagree with the statement that Product design of new products coupled with new and appropriate technology has absorbed the organization from the threat of new competitors. Further the study findings showed in terms of means and standard deviation that the respondents agreed that Product design of new products coupled with new and appropriate technology has absorbed the organization from the threat of new competitors (Mean=4.04, Std. dev=0.922).Also, 57(24.2%) of the respondents strongly agree, 149(63.1%) agree, 12(5.1%) undecided, 9(3.8%) disagree and (%) strongly disagree with the statement that product innovation is more effective than a copying strategy.

An organization that uses an effective knowledge management method to establish new product development will have success. Further the study findings showed in terms of means and standard deviation that

the respondents agreed that Product Innovation is more effective than a copying strategy. An organization that uses an effective knowledge management method to establish new product development will have success. (Mean=4.00, Std. dev=0.889).Further, 48(20.3%) of the respondents strongly agree, 158(66.9%) agree, 8(3.4%) undecided, 10(4.2%) disagree and 12(5.1%) strongly disagree with the statement that Product differentiation taken by the organization can lead to variations in performance.

Further the study findings showed in terms of means and standard deviation that the respondents agreed that Product differentiation taken by the organization can lead to variations in performance. (Mean=3.93, Std. dev=0.928).Finally, 47(19.9%) of the respondents strongly agree, 161(68.2%) agree, 9(3.8%) undecided, 9(3.8%) disagree and 10(4.2%) strongly disagree with the statement that Customer experience has improved through product and service development. Further the study findings showed in terms of means and standard deviation that the respondents agreed that Customer experience has improved through product and service development(Mean=3.96, Std. dev=0.879).

The study findings reveal that product and service development has a positive influence on performance at Kenya Railways. This implies that Product design of new products coupled with new and appropriate technology has absorbed the organization from the threat of new competitors. Further, Product Innovation is more effective than a copying strategy. An organization that uses an effective knowledge management method to establish new product development will have success. Also, Product differentiation taken by the organization can lead to variations in performance. Finally, Customer experience has improved through product and service development.

The results concur with Eboli and Mazzulla (2015) who investigated the relationships between rail passengers' satisfaction and Product and Service Development in Northern Italy. The main findings are that information, cleanliness, and service characteristics like punctuality and frequency of runs have the highest positive effect on service quality. The study also concedes with Eboli, Fu and Mazzulla (2016) who evaluated product and service development in the railway service industry in Germany. They found interesting differences of perception of the service among the users. The evaluation of railway service quality includes multiple evaluation indicators which are attached to different hierarchies, among which there are some subordination relations. The overall indicator and the 7 primary indicators are indirect service attributes that passengers can score only with a general feeling.

Organizational Performance Findings

The study lastly sought to find out the effect of operation strategies on organization performance at Kenya Railways. The purpose of this analysis was to get the responses on operation strategies using the frequency of respondents on a Likert scale and the mean rate of the responses. The study results are presented in Table 10. Key: 1= strongly disagree, 2= disagree, 3=Am not sure, 4= Agree and 5= strongly agree.

Table 10Descriptive Statistics for Organizational Performance

Statements		SA	A	UD	D	SD	Mean	Sd
1. There is a notable increase in market share	F	69	124	10	21	12	3.92	1.07
	%	29.3	52.5	4.2	8.9	5.1		
2. Rate of customer retention has increased	F	42	146	17	17	14	3.78	1.01
	%	17.8	61.9	7.2	7.2	5.9		
3. Productivity has increased through using operational strategies	F	44	168	8	11	5	4.00	0.77
	%	18.6	71.2	3.4	4.7	2.1		
4. There is a significance increase in the product safety by using operational strategies.	F	48	156	6	15	11	3.91	0.947
	%	20.3	66.1	2.5	6.4	4.7		
Valid N	236						3.90	

Table 10 indicates that 69(29.3%) of the respondents strongly agree, 124(52.5%) agree, 10(4.2%) undecided, 21(8.9%) disagree and 12(5.1%) strongly disagree with the statement that There is a notable increase in market share. Further the study findings showed in terms of means and standard deviation that the

respondents agreed that There is a notable increase in market share (Mean=3.92, Std. dev=1.07).Also, 42(17.3%) of the respondents strongly agree, 146(61.9%) agree, 17(7.2%) undecided, 17(7.2%) disagree and 14(5.9%) strongly disagree with the statement that Rate of customer retention has increased. Further the study findings showed in terms of means and standard deviation that the respondents agreed that Rate of customer retention has increased (Mean=3.78, Std. dev=1.01).

Further, 44(18.6%) of the respondents strongly agree, 168(71.2%) agree, 8(3.4%) undecided, 11(4.7%) disagree and 5(2.1%) strongly disagree with the statement that Productivity has increased through using operational strategies. Further the study findings showed in terms of means and standard deviation that the respondents agreed that Productivity has increased through using operational strategies (Mean=4.00, Std. dev=0.77).Finally, 48(20.3%) of the respondents strongly agree, 156(66.1%) agree, 6(2.5%) undecided, 15(6.4%) disagree and 11(4.7%) strongly disagree with the statement that There is a significance increase in the product safety by using operational strategies. Further the study findings showed in terms of means and standard deviation that the respondents agreed that there is a significance increase in the product safety by using operational strategies. (Mean=3.91, Std. dev=0.947).

The study also reveals that operation strategies have a positive influence on organization performance at Kenya Railways. The study findings concur with Sharma, Debnath, Oloruntoba and Sharma (2016) assessed the performance of the rail transport administration by including the administration conveyance point of view of railroads and take a gander at the all-encompassing idea of administration conveyance. The nature of administration parameters has been picked inside the limitations forced by accessibility of information and the defined information envelopment investigation (DEA). The nature of administration parameters includes: dependability; the degree of noteworthy train mishaps (wellbeing); and the degree of open objections (consumer loyalty). It assesses the performance of 16 zones of Indian railroads (IR) based on their efficiencies and recognizes the model zones. DEA has been utilized as a benchmarking device to assess the overall productivity of the 16 zones.

Hypotheses Test Results

From the regression model computed in Table 11, the research hypothesis was tested using the significance level of the coefficients. The research aimed to test the hypothesis with an aim of failing to reject or rejecting the relationship between independent and the dependent variables. The research hypothesis for the study included;

H_{01}: Product and service development has no significant effect on performance at Kenya Railways. The regression results in Table 11 indicate that product and service development have a positive and a significant effect on organizational performance at Kenya Railwayswith a beta coefficient of 0.108 and significance of (p= 0.002). The study rejected the hypothesis. These results concur with Eboli and Mazzulla (2015) who investigated the relationships between rail passengers' satisfaction and Product and Service Development in Northern Italy. Specifically, a structural equation model was formulated to explore the impact of the relationship between global customer satisfaction and product development attributes, such as safety, cleanliness, main and additional services, information about the service, and personnel, and to verify which of these attributes key factors of service quality are. The study found a positive and a significant relationship. The hypotheses test results were also summarized in Table 11.

Table 11 Summary of Hypothesis Test Results

	Hypothesis	β and P-value	Decision rule
H_{01}	Product and service development has no significant effect on performance at Kenya Railways	$\beta 2=0.108$, $p=0.002<0.05$	Rejected

IV. Summary, Conclusions and Recommendations

Summary on Key Findings

Product and Service Development and performance of Kenya Railways

The second objective of the study was to determine the effect of product and service development on performance at Kenya Railways. They agreed in all the four aspects of product and service development. They agreed that Product design of new products coupled with new and appropriate technology has absorbed the organization from the threat of new competitors, Product Innovation is more effective than a copying strategy. An organization that uses an effective knowledge management method to establish new product development will have success, Product differentiation taken by the organization can lead to variations in performance and Customer experience has improved through product and service development.

The study findings showed that product and service development was statistically significant and has a positive influence on organizational performance. The study rejected the null hypothesis that there is no statistically significant influence of product and service development onorganizational performance. The study findings also revealed that has a positive influence on performance at Kenya Railways. This implies that Product design of new products coupled with new and appropriate technology has absorbed the organization from the

threat of new competitors. Further, Product Innovation is more effective than a copying strategy. An organization that uses an effective knowledge management method to establish new product development will have success. Also, Product differentiation taken by the organization can lead to variations in performance. Finally, Customer experience has improved through product and service development.

Conclusions of the Study

The study concluded that Product design of new products coupled with new and appropriate technology has absorbed the organization from the threat of new competitors. Further, Product Innovation is more effective than a copying strategy. An organization that uses an effective knowledge management method to establish new product development will have success. Also, Product differentiation taken by the organization can lead to variations in performance.

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