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Table of Contents:

	Gendered Perceptions for Identifying Ecosystem Services in the Arid Ecosystem of Wadi Araba in Jordan	
1	Amani AL-ASSAF, Abeer ALBALAWNEH, Amgad HJAZIN, Rabab KABARITI, Lana ABU NOWAR, Jafar ALWIDYAN, Ghadeer ALBASHBSHEH, Mai DIAB, Wafa'a ABU HAMMOUR, Safaa ALJAAFREH, Salsabeel AL-SHISHANY, Nizar HADDAD	605
	The Impact of Environmental Factors on Families with Disabilities as an Object of Structural Modeling	
2	Tatyana PRITVOROVA, Dinara TEMIRBAYEVA, Yelena GORDEYEVA, Nurgul KUTTYBAEVA, Bakyt SPANOVA	619
	Environmental and Legal Regulation of Radioactive Pollution Management	
3	Aktoty RZABAY, Bolat SERIYEV, Erbol BEISOV, Gulnura KOPBASSAROVA, Damira KURMANBAYEVA	633
	The Role of International Criminal Law in Violations of the Environment During Armed Conflict	
4	Abedalrag AL-DLABEEH, Ahmad Hussein ALSHARQAWI, Rami AL KLOUB, Abdel-Kareem Ottallah KARABSHEH	643
	Product and Service Quality and Growth of Agriculture Firms in Nigeria. Implication for the Environment Management	
5	Kelvin Agbarha EGBERI, Justina OBOREH	649
	Legal Significance of Digitalization of Environmental Information in Ensuring Environmental Safety	
6	Dauren BEKEZHANOV, Aktoty RZABAY, Olzhas NESIPBAEV, Feruza KOPBASSAROVA, Halibati HALIBIYATI	656
	Assessment of Particulate Matters Especially PM_{2.5} and PM₁₀ Concentration During and Before Lockdown in the Various Metropolitan Cities of India	
7	Gourav Kumar SINGH, Shivom SINGH, Swapnil RAI, Nimisha JADON	665
	Correlation of Changes in Waste Generation in the Year Before and During the Pandemic in Surakarta City	
8	Mega Mutiara SARI, Iva Yenis SEPTIARIVA, I Wayan Koko SURYAWAN	674
	Analysis of Sustainable Development of SMEs in Agriculture	
9	Anargul BELGIBAYEVA, Oxana DENISSOVA, Marina KOZLOVA, Irina SAVCHENKO, Azat TLEUBAYEV, Gaukhar SIXIMBAYEVA	681
	Theoretical and Methodological Principles of Investment Support for Innovation-Oriented Development of Agrarian Production	
10	Oleksii ZORIA, Ilona YASNOLOB, Oleksandr GALYCH, Oleksandr CHERCHATYI, Yurii TIUTIUNNYK, Svitlana TIUTIUNNYK, Tetiana DUGAR, Oleksandr KALIAN, Tetyana MOKIENKO	695
	Problems of Sustainable Development of Single-Industry Towns. Example of Karaganda Region	
11	Akmaral MAIMURUNOVA, Turlybek KAZBEKOV, Zhanat MYRZABEK, Zhanna SHUGAIPOVA, Botagoz SAPAROVA, Zhanargul ZHUGUNISSOVA	707
	Management Policies Implication for the Agricultural Land Conversion Sustainable Control Strategy in Bali Province	
12	I Dewa Putu Oka SUARDI, WIDHIANTHINI, Gede Mekse Korri ARISENA, Raden SUYARTO, Anak Agung Keswari KRISNANDIKA	721

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13	Management of the Competitiveness of the Region in the Context of Sustainable Development Based on the Concept of "Evidence-Based Policy" Dametken TUREKULOVA, Raushan DULAMBAYEVA, Lyazzat MUKHAMBETOVA, Mussa NIYAZOV, Aiboep ABZHAPPAROVA, Ainura OMAROVA	732
14	Developing a Conceptual Model to Implement the Employee Ecological Behavior in Organisations Juhari Noor FAEZAH, Mohd Yusoff YUSLIZA, Yusoff Noor AZLINA, Jumadil SAPUTRA, Wan Kassim WAN ZULKIFLI	746
15	Meta-Analysis ELECTRE III and AHP in Evaluating and Ranking the Urban Resilience Robert KOSOVA, Daniela Halidini QENDRAJ, Evgjeni XHAFAJ	756
16	Improving the Program-Targeted Management Methodology and Its Practical Application for the Sustained and Environment Development of Agro-Industrial Complex Olessya LEMECHSHENKO, Gulmira NAKIPOVA, Galymzhan AKHMET	769
17	Species Diversity of Mangroves in Central Zambales, Philippines Shirly C. SERRANO, Nipon TANGTHAM, Surat BUALERT, Suthee JANYASUTHIWONG	782
18	Influence of Environmental Factors of Influence on the Volume of Financing in the Agro-Industrial Complex Zhibek OMARKHANOVA, Olessya MISNIK, Gaukhar MATAIBAYEVA, Guizhan MUKASHEVA, Gulden ZHOLDOYAKOVA, Shynar RAMAZANOVA	790
19	The Impact of the Comprehensive Ban Due to the COVID-19 on the Quality of Ambient Air in Jordan. Study for 15th March to 15th April of 2020 Period Tareq AL-BILLEH	802
20	Characteristics of Mangrove Fisheries in Essential Ecosystem Area Ujungpangkah, Indonesia Dhira K. SAPUTRA, Bambang SEMEDI, Ade YAMINDAGO, Citra S.U. DEWI, M.A. ASADI, Andik ISDIANTO, Dian ALIVIYANTI, R. D. KASITOWATI, Arief DARMAWAN, Arief SETYANTO, O.M. LUTHFI, Dwi C. PRATIWI, Sulastri ARSAD	812
21	The Crime of Water Assaulting Abdullah ALKHSEILAT, Majd ALMANASRA, Noor ALKHAWAJA	821
22	From Environmental Management Systems to Airport Environmental Performance: A Model Assessment Elen Paraskevi PARASCHI, Ioulia POULAKI, Athina PAPAGEORGIOU	831
23	Applying the Theory of Planned Behaviour to Tourism-Related Waste Behaviour in Marine Protected Areas: The Aliwal Shoal Case Study Carrigan HARPER, Claudine ROOS, Francois Pieter RETIEF, Reece Cronje ALBERTS, Dirk Petrus CILLIERS	853
24	Cimatario National Park, In Queretaro, Mexico: Towards Sustainable Tourism Ana-Karen HUERTA-MENDOZA, Laura FISCHER	877
25	Penta Helix's Perspective: The Green Tourism at the Tourist Village in Bali, Indonesia I Made Darma OKA, Dewa Made Suria ANTARA, Made RUKI, KANAH, Putu Widya DARMAYANTI	884
26	Destination Image, Tourist Satisfaction and Loyalty in the Eco-Tourism Environment Nur Aini Fitriya Ardiani ANIQOH, Nikous Soter SIHOMBING, Sarman SINAGA, Sahat SIMBOLON, Sunday Ade SITORUS	897

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Product and Service Quality and Growth of Agriculture Firms in Nigeria. Implication for the Environment Management

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Abstract

Acknowledging that improved customers' satisfaction led to growth, organizations in the agricultural sector are thus aiming for improved products and service quality in order to actualize growth-oriented goal.

This paper therefore assessed the impact of product and service quality on the growth of agricultural firms in Nigeria with implication for the environment management. Secondary data of seven (7) agriculture firms were sampled from 2012-2021 and data comprised of revenue growth and market to book-value (proxies for growth) and dummy variable was used as proxy for product and service quality. Multivariate regression results showed that improved product and service quality significantly and positively affect agriculture firms' growth in Nigeria; the implication of the results is that product and service quality can be used by the environment manager in promoting firms' growth in Nigeria. Findings call for policy recommendation for the environment managers, government, and researchers alike.

Keywords: environment management; revenue growth; market-to-book value; customers' satisfaction; agriculture firms.

JEL Classification: Q15; M11; M19; L15.

Introduction

In business, creating, developing and sustaining companies' and customers' values and the environment (were the firm is domiciled) has become the most vital concerns of management needed to augment growth and competitive advantage. As the organization and customers are able to strengthen their tie (via the use of quality products and services), it becomes realistic for the environment management to realize its growth-oriented goal by devising systems, policies and strategies to monitor performance in compliance with environmental legislation. Al-Idrus, Abdussakir, Djakfar and Al-Idrus (2021) asserted that organizational growth as it pertains to product and service quality has turned out to become an active research field since it has been widely acknowledged as a strategic research priority.

Kartikasari (2019) and Harryani and Gunadarma (2017) contended that for organizations to realize their growth-oriented goal, they must offer valuable products and services to customers and ensures environmental protection; this is where environment management turns out to be imperative. Environment management entails the control of the interaction of workforce activities and the impact on the natural environment. Hsieh, Lu and Lu (2018) and Lekhanya and Dlamini (2017) asserted that when a company's product and services are perceived by customers as possessing good quality and environmentally friendly, it will result in increased patronage which will

in turn stimulate growth. Product and service quality also arise when customers on demand get the organization's products and services without any hindrances.

Product and service quality in its basic form is the variation between the benefits obtained from a product or service and costs related with that product or service (see Mose and Kibera 2016, Ntongai, Ojera and Ochieng 2015). Given the plentiful agriculture firms that produce and render services in the agricultural industry, quality of products and services seem to be at top-gear for environment management (Awino, Ondoro and Abong'o 2018, Visnjic, Wiengarten and Neely 2016, Dhanya and Sam 2011).

Numerous studies have been carried out to assess the connection between service delivery quality and organizational growth and performance; however, there are limited studies that had focused on the relationship between products and service quality and growth of agriculture firms in Nigeria with implications for environment management. This study proposed product and service quality as dynamics influencing growth of firm. The paper proceeds with a review of related literature, research methods, results, conclusion and recommendations on the basis of the research findings.

1. Literature Review

Product Quality

Product quality refers to the collection of attributes of a product that contributes to its capacity to meet the requirement of customers. Similarly, Herman, Hady and Arafah (2018) see product quality as the capability of a product to offer satisfactions relative to existing alternatives. In the context of this study, product quality is defined as the extent to which agriculture firms' product design meets with the customers' needs and/or expectations.

In reality, when consumers perceive that the product specification meets their needs and/or expectation, they will possibly believe the transaction is worthwhile and value for money received (Albaridan 2018). Notably, in era of globalization and technological growth, how agriculture firms are able to meet the customers' needs and/or expectations, turns out to be the locus of creation of value for the firm.

Gure and Karugu (2018) and Hosseini, Soltani and Mehdizadeh 2018 opined that product quality allows the firms to realize their growth-oriented goals; however, whether product quality relates with firm growth has not been deeply researched, particularly for publicly quoted agriculture firms in Nigeria; this is a gap which this study seeks to fill.

Service Quality

The term service quality has been widely defined in total quality management literature. According to Gheorghe, Purcărea and Gheorghe (2018), service quality refers to the gap between what the consumers truly desire and what they really get. Leninkumar (2017) opines that for organizations to attract, retain and sustain customers, it would offer a high service quality matched up to competitors. This implies that service quality is linked with meeting the customers' satisfaction.

In total quality management literature, it has been found that high service quality stimulates growth and customers' purchasing capability (Harryani and Gunadarma 2017, Leninkumar 2017, Guimarães, Severo and Vasconcelos 2017, Hosseini, *et al.* 2018). In fact, most studies in this area had established that service quality is indirectly connected to customers' loyalty, satisfaction, patronage, retention as well as repurchase intention. More worrisome is the fact that there has been no study to the researcher's knowledge that had focused on the relationship between service quality and growth of agriculture firms in Nigeria; a gap which this study attempts to satisfy.

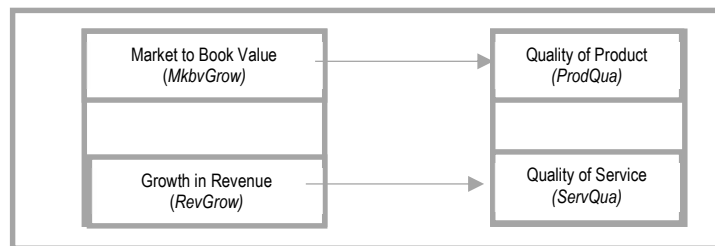
Organizational Growth: Implication for the Environment Management

Broadly speaking, organizational growth and environment management has been defined in diverse ways. While organizational growth is the increase or expansion of the activities of the organization in terms of sales, number of employees, efficiency, profitability and ability in meeting with the needs of customers and environment (Ekwe 2013); environment management is concerned with the control of the interface of workforce activities and the impact on the natural environment (Okoro and Jeroh 2016). In management literature, organizational growth has been predominantly categorized as financial and non-financial growth (Okoro 2014, Xu and Wang 2018).

Financial growths are those connected to the monetary expansion and most often expressed as a ratio in the annual reports of organizations (return on asset, return on equity, earnings per share, market to book value, revenue growth, earnings yield) (Okoro 2014). Non-financial growths are those linked to issues cumbersome to express in monetary terms (lateness, decrease in employee absenteeism). In this study, organizational growth was measured on the basis of financial dimensions.

The financial dimensions of organizational growth used in this study are market to book value and growth in revenue. Market to book value refers to the market capitalization divided by total book value while growth in revenue refers to the prior year's revenue minus current year's revenue divided by the number of prior year's revenue. The measures of organizational growth are similar to those used in the studies of Ekwe (2013), Xu and Wang (2018). Regardless of the fact that organizational growth is influenced by quality of products and services, prior studies (see Abane and Brenya 2021, Ohnishi 2021, Tchoffo 2021, Voinea, Hoogenberg, Fratostiteanu and Hashmi 2020) have shown that understanding the environment that surrounds the firm is vital in promoting growth. Thus, with the role played by environment management (in ensuring that the organization adapt quickly to contain external forces), growth-oriented goal of such organization can be adequately harnessed and maximized. More importantly, environment management seeks to ensure that the resources, structure, processes, procedures, activities, and responsibilities are adequately coordinated; when these are adequately coordinated by environment management, organizational growth is deemed to improve.

Figure 1. Conceptual model of the study



Theoretical Framework

The theoretical framework of this study is premised on Service Quality Theory (SQT) advocated by Parasuraman, Zeithaml and Berry. SQT shows that there are five (5) extents to which management can measure quality – tangibility, reliability, empathy, assurance and responsiveness (Al-Idrus *et al.* 2021, Awino *et al.* 2018). The viewpoint is that for management to know that customers are satisfied with their products and services, such products and services must be tangible, reliable and responsive and more so, customers must appreciate and pledge their allegiance to come for more of the firm product and service (Dhanya and Sam 2011, Hsieh *et al.* 2018).

This study relies on SQT since it is an approach to determining how firms can know when a product or service is of quality to the consumers and can they can in turn improve such quality of the products and services needed to stimulate the firms' growth. Hence, the SQT provides a reasonable ground to assess the link between product and service quality and how they relate to organization growth.

2. Research Methods

This study assed the relationship between product and service quality and growth of agriculture firms publicly quoted on the floor of Nigerian Exchange Group (NEG). To do achieve this, *ex-post facto* research design was used and the study population constituted all publicly quoted agriculture firms on the NEG. The judgmental sampling technique was employed in selecting a sample of seven (7) agriculture firms. Data of revenue growth and market to book-value (proxies for firm growth) and dummy variable (proxy for product and service quality) were sampled from the selected agriculture firms from 2012-2021. The independent variable is product and service quality while the dependent variables are revenue growth and market to book-value.

Variables of growth are similar to those used in the studies of Ekwe (2013), Xu and Wang (2018) and Mieseigha and Adeyemi (2021). The study builds on existing model of product and service quality of Al-Idrus, Abdussakir, Djakfar and Al-Idrus (2021), Dhanya and Sam (2011). Consequently, two empirical models were estimated:

$$FGrow = f(ProdQua, ServQua) \quad 2.1$$

where: FGrow = growth of firm (measured using growth in revenue and market to book value); ProdQua = Quality of product; ServQua = Quality of service. We estimated equation 2-3 to capture the regression coefficients and their natural logarithm:

$$FGrow_{it} = \beta_0 + \beta_1 ProdQua_{it} + \beta_2 ServQua_{it} + \varepsilon_t \quad 2.2$$

$$\ln FGrow_{it} = \beta_0 + \beta_1 ProdQua_{it} + \beta_2 ServQua_{it} + \varepsilon_t \quad 2.3$$

where: α , β , and μ are constants; $I = 1, 2, \dots, 7$ indicates number of publicly quoted agriculture firms; $t = 1, 2, \dots, 10$ (time period); $\varepsilon =$ Error term.

Table 1. Variables description

Variable(s)	Codes	Description
Revenue Growth	<i>RevGrow</i>	Prior year revenue minus current year revenue divided by the number of prior year revenue
Market to book value	<i>MkbvGrow</i>	Natural logarithm of market capitalization divided by total book value
Product Quality	<i>ProdQua</i>	Dummy variable where '1' is assigned to firm with product quality disclosure in annual reports and '0' if otherwise.
Service Quality	<i>ServQua</i>	Dummy variable where '1' is assigned to firm with service quality disclosure in annual reports and '0' if otherwise.

Source: Researcher's Compilation (2022)

The analytical framework comprised of use of descriptive, diagnostic and inferential statistical techniques. The statistical tests were performed via STATA 13.0.

3. Results

Table 2. Summary of descriptive analysis

Statistics	Revenue Growth (RevGrow)	Market Value Growth (MkbvGrow)	Product Quality (ProdQua)	Service Quality (ServQua)
Mean	7.193	6.422	0.983	0.937
Median	8.321	7.945	1.000	1.000
Standard Deviation	3.734	2.832	0.215	0.235
Minimum Value	-64.97	-117.2	0	0
Maximum Value	108.34	51.96	1	1
Skewness	0.649	7.689	4.249	3.580
Kurtosis	7.742	60.43	19.05	13.82

Source: Researcher's Compilation (2022)

Table 2 captured the summary of descriptive statistics; the results showed that growth metric (RevGrow) had the highest mean score with value of 7.193; this was accompanied by MkbvGrow (6.422). RevGrow had the highest dispersion with standard deviation values of 3.734, followed by MkbvGrow (2.832). The high dispersion of growth metrics (RevGrow and MkbvGrow) from the product (ProdQua = 0.215) and service (ServQua = 0.235) quality clearly shows that the sampled agriculture firms need to do more in improving their product delivery channel and service quality, particularly by the environment management.

The maximum and minimum values for ProdQua and ServQua are expected, given that they are shown as dummy variables. The skewness value indicated that all the variables moved in the same direction (positive sign). Also, kurtosis values revealed that all the variables are more than 3, a clear indication of platykurtic curve. The joint results of skewness and kurtosis suggest that the data series are normally distributed since the kurtosis values are greater than 3 as recommended by Gujarati (2003) cited in Okoro (2014) and Okoro (2014).

Table 3. Karl Pearson correlation

Statistics	Revenue Growth (RevGrow)	Market Value Growth (MkbvGrow)	Product Quality (ProdQua)	Service Quality (ServQua)
Revenue Growth (RevGrow)	1.0000			
Market Value Growth (MkbvGrow)	0.1258	1.0000		
Product Quality (ProdQua)	0.0058	0.0273	1.0000	
Service Quality (ServQua)	0.0583	0.0304	0.0582	1.0000

Source: Researcher's Compilation (2022)

In the Table 3, the result showed that all measures of products and service quality (RevGrow and MkbvGrow) are positively correlated with firm growth (ProdQua and ServQua). However, the Karl Pearson correlation coefficients indicated that no two explanatory variables are perfectly related, since none of the coefficients exceed 0.8 (Gujarati 2003) as cited in Okoro and Egberi (2019).

Table 4. Results of variance inflation factor

Variables	VIF	1/VIF
Product Quality (ProdQua)	1.00	0.9966
Service Quality (ServQua)	1.00	0.9966
Mean VIF	1.00	

Source: Researcher's Compilation (2022)

Table 4 showed the result of heteroskedasticity test; VIF = 1.00, which is less than the recommended value of 10.0, implying the nonexistence of heteroskedasticity dilemma in the empirical models of product and service quality and growth of firm.

Table 5. Multivariate regression results

Equation	Parms.	RMSE	R-Sq.	F-ratio	Prob.
RevGrow	3	4.085	0.734	22.25	0.000
MkvbGrow	3	5.108	0.810	19.30	0.000
<i>RevGrow</i>	Coef.	Std. Err.	t-ratio	Prob.	
ProdQua	0.266	0.273	7.02	0.000	
ServQua	0.617	0.465	4.50	0.000	
<i>MkvbGRow</i>	Coef.	Std. Err.	t-ratio	Prob.	
ProdQua	0.249	0.578	4.23	0.000	
ServQua	0.436	0.232	5.21	0.000	

Source: Researcher's Compilation (2022)

Presented in the Table 5 is the summary of the multivariate regression results; the R^2 are 0.734 (RevGrow) and 0.812 (MkvbGrow), suggesting that the independent variable has explained 73.4% and 81.2% of the variations in the dependent variable. Also, the standard errors are small for all the variables, indicating that the variables provide a better fit in the regression line.

More importantly, the f-ratios for the variables are *RevGrow* ($f = 22.25$; $p = 0.0000 < 0.05$) and *MkvbGrow* ($f = 19.29$; $p = 0.000 < 0.05$), indicating that product and service quality significantly and positively affect the growth of agriculture firms in Nigeria. Findings are in part, similar to the results of Dhanya and Sam (2011), Ekwe (2013), Xu and Wang (2018) and Al-Idrus *et al.* (2021) who found that product and service quality contributes organizational performance, growth and customers' satisfaction, retention and intention to repurchase company products and services.

Conclusion and Recommendation

There is no gainsaying that when customers' satisfaction is improved alongside offering of environmentally friendly products, organizational growth is realized and sustained. Given this view, companies in the agricultural sector are striving towards improving service quality and offering environmentally friendly products for customers so as to realize growth-oriented goal in the long-run. In this paper, attempt was made to assess the relative impact of product and service quality on agricultural firms' growth in Nigeria with implication for the environment management. Proxies of firm growth (revenue growth and market to book-value) and products and service quality (dummy variable) were obtained from the annual reports and accounts of the selected agriculture firms from 2012-2021.

The multivariate regression results revealed that enhanced product and service quality positively and significantly affect the growth of agriculture firms in Nigeria; the implication of the result is that product and service quality can be used by the environment manager in promoting firms' growth. In view of the findings, environment management should improve their product quality by offering products that are environmentally friendly to the customers as well as their delivery channel of products. More so, service quality management should be accorded utmost priority in the scheme of things.

In fact, agriculture firms can lower their product prices and thus retain both existing and new customers so as to further enhance their growth both in the short and long-run. The study contributes to the body of literature in total quality management on what is known about product and service quality and growth of agriculture firms in the Nigerian context, with implication for environment management.

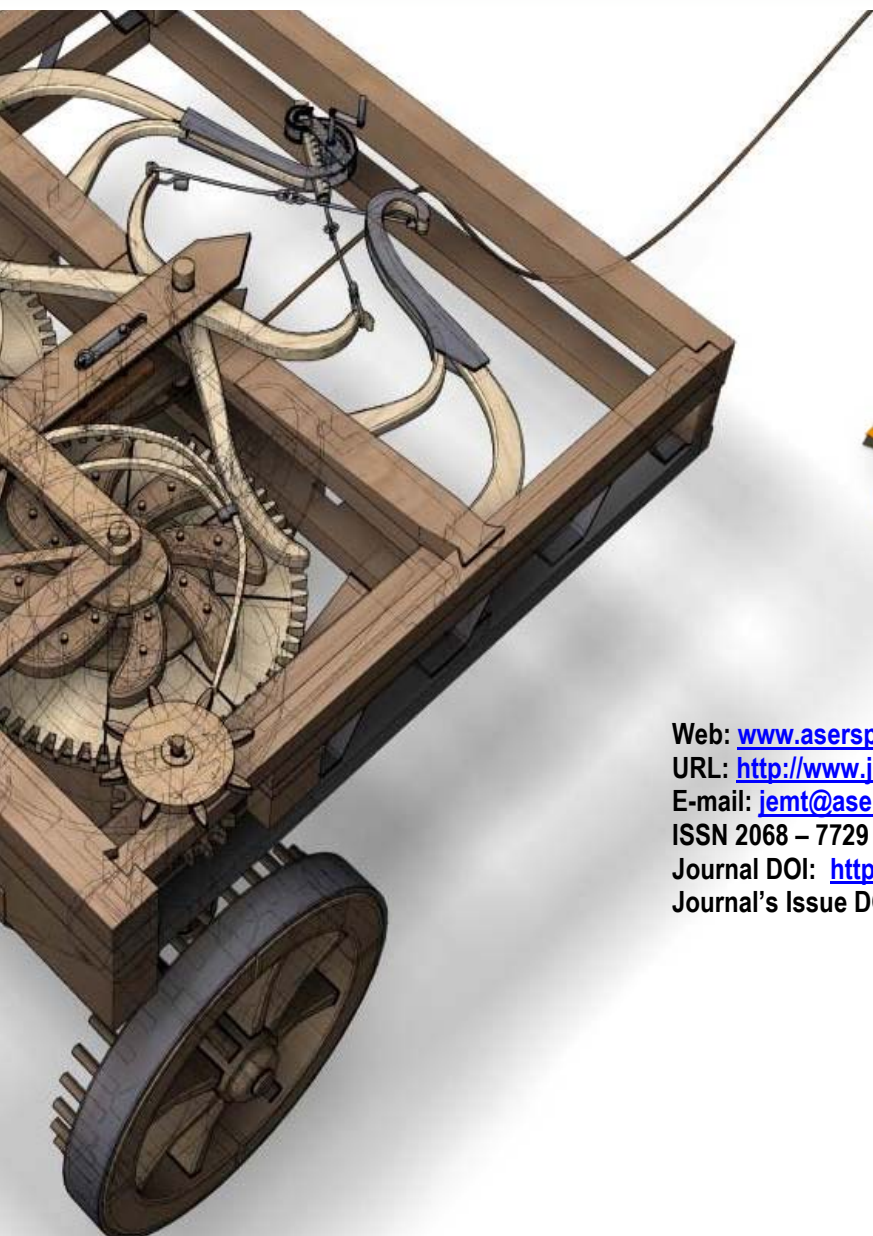
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