Online ISSN : 2249-4588
Print ISSN : 0975-5853
DOI : 10.17406/GJMBR

Global Journal

of Management and Business Research: G

Interdisciplinary

Impact of Continuous Learning

Management Information Systems

Highlights

Study of Corporate Governance

Self Efficacy on Training Effectiveness

Discovering Thoughts, Inventing Future

VOLUME 16 ISSUE 1 VERSION 1.0

Global Journal of Management and Business Research: G
Interdisciplinary

Global Journal of Management and Business Research: G
Interdisciplinary
Volume 16 Issue 1 (Ver. 1.0)

Open Association of Research Society

Incorporation No.: 0423089
License No.: 42125/022010/1186
Registration No.: 430374
Import-Export Code: 1109007027
Employer Identification Number (EIN):
USA Tax ID: 98-0673427

Global Journals Inc.

*(A Delaware USA Incorporation with "Good Standing"; **Reg. Number: 0423089**)*

Sponsors: Open Association of Research Society
Open Scientific Standards

Publisher's Headquarters office

Global Journals Headquarters
301st Edgewater Place Suite, 100 Edgewater Dr.-Pl,
Wakefield MASSACHUSETTS, Pin: 01880,
United States of America
USA Toll Free: +001-888-839-7392
USA Toll Free Fax: +001-888-839-7392

Offset Typesetting

Global Journals Incorporated
2nd, Lansdowne, Lansdowne Rd., Croydon-Surrey,
Pin: CR9 2ER, United Kingdom

Packaging & Continental Dispatching

Global Journals
E-3130 Sudama Nagar, Near Gopur Square,
Indore, M.P., Pin:452009, India

Find a correspondence nodal officer near you

To find nodal officer of your country, please email us at *local@globaljournals.org*

eContacts

Press Inquiries: *press@globaljournals.org*
Investor Inquiries: *investors@globaljournals.org*
Technical Support: *technology@globaljournals.org*
Media & Releases: *media@globaljournals.org*

Pricing (Including by Air Parcel Charges):

For Authors:
22 USD (B/W) & 50 USD (Color)
Yearly Subscription (Personal & Institutional):
200 USD (B/W) & 250 USD (Color)

Integrated Editorial Board
(Computer Science, Engineering, Medical, Management, Natural Science, Social Science)

Dr. Bart Lambrecht
Director of Research in Accounting and Finance Professor of Finance
Lancaster University Management School
BA (Antwerp); MPhil, MA, PhD (Cambridge)

Dr. Carlos García Pont
Associate Professor of Marketing
IESE Business School, University of Navarra
Doctor of Philosophy (Management), Massachusetts Institute of Technology (MIT)
Master in Business Administration, IESE, University of Navarra
Degree in Industrial Engineering, Universitat Politècnica de Catalunya

Dr. Fotini Labropulu
Mathematics - Luther College
University of Regina Ph.D., M.Sc. in Mathematics
B.A. (Honors) in Mathematics
University of Windso

Dr. Lynn Lim
Reader in Business and Marketing
Roehampton University, London
BCom, PGDip, MBA (Distinction), PhD, FHEA

Dr. Mihaly Mezei
ASSOCIATE PROFESSOR
Department of Structural and Chemical Biology, Mount Sinai School of Medical Center
Ph.D., Etvs Lornd University
Postdoctoral Training,
New York University

Dr. Söhnke M. Bartram
Department of Accounting and Finance Lancaster University Management School Ph.D. (WHU Koblenz)
MBA/BBA (University of Saarbrücken)

Dr. Miguel Angel Ariño
Professor of Decision Sciences
IESE Business School
Barcelona, Spain (Universidad de Navarra)
CEIBS (China Europe International Business School).
Beijing, Shanghai and Shenzhen
Ph.D. in Mathematics
University of Barcelona
BA in Mathematics (Licenciatura)
University of Barcelona

Philip G. Moscoso
Technology and Operations Management
IESE Business School, University of Navarra
Ph.D in Industrial Engineering and Management, ETH Zurich
M.Sc. in Chemical Engineering, ETH Zurich

Dr. Sanjay Dixit, M.D.
Director, EP Laboratories, Philadelphia VA Medical Center
Cardiovascular Medicine - Cardiac Arrhythmia
Univ of Penn School of Medicine

Dr. Han-Xiang Deng
MD., Ph.D
Associate Professor and Research Department Division of Neuromuscular Medicine
Davee Department of Neurology and Clinical Neuroscience Northwestern University Feinberg School of Medicine

Dr. Pina C. Sanelli
Associate Professor of Public Health
Weill Cornell Medical College
Associate Attending Radiologist
NewYork-Presbyterian Hospital
MRI, MRA, CT, and CTA
Neuroradiology and Diagnostic Radiology
M.D., State University of New York at Buffalo, School of Medicine and Biomedical Sciences

Dr. Roberto Sanchez
Associate Professor
Department of Structural and Chemical Biology
Mount Sinai School of Medicine
Ph.D., The Rockefeller University

Dr. Wen-Yih Sun
Professor of Earth and Atmospheric Sciences Purdue University Director National Center for Typhoon and Flooding Research, Taiwan
University Chair Professor
Department of Atmospheric Sciences, National Central University, Chung-Li, Taiwan University Chair Professor
Institute of Environmental Engineering, National Chiao Tung University, Hsin-chu, Taiwan.Ph.D., MS The University of Chicago, Geophysical Sciences
BS National Taiwan University, Atmospheric Sciences
Associate Professor of Radiology

Dr. Michael R. Rudnick
M.D., FACP
Associate Professor of Medicine
Chief, Renal Electrolyte and Hypertension Division (PMC)
Penn Medicine, University of Pennsylvania
Presbyterian Medical Center, Philadelphia
Nephrology and Internal Medicine
Certified by the American Board of Internal Medicine

Dr. Bassey Benjamin Esu
B.Sc. Marketing; MBA Marketing; Ph.D Marketing
Lecturer, Department of Marketing, University of Calabar
Tourism Consultant, Cross River State Tourism Development Department
Co-ordinator, Sustainable Tourism Initiative, Calabar, Nigeria

Dr. Aziz M. Barbar, Ph.D.
IEEE Senior Member
Chairperson, Department of Computer Science
AUST - American University of Science & Technology
Alfred Naccash Avenue – Ashrafieh

Contents of the Issue

Global Journal of Management and Business Research: G Interdisciplinary
Volume 16 Issue 1 Version 1.0 Year 2016
Type: Double Blind Peer Reviewed International Research Journal
Publisher: Global Journals Inc. (USA)
Online ISSN: 2249-4588 & Print ISSN: 0975-5853

The Performance Analysis of Public Transport Operators in Tunisia using Er Approach

By Younes Boujelbene & Ahmed Derbel

Abstract- The public transport sector in Tunisia has experienced economic, social and financial difficulties. The declining of the revenue shortfalls and the increased of public expenditure are the critical observed phenomenon. Our research is meant to discover the weaknesses, to find a practical solution and to improve the performance of the public transport sector by improving the performance of regional urban operators. For this reason, we have developed a model of performance that which ensures the comparisons between different operators working in similar conditions. This step is running by method of multi-criteria decision, appointed, Evidential Reasoning Approach (ER). This approach is proposed to deal with uncertain decision knowledge in multiple-attribute decision making (MADM) problems with both quantitative and qualitative attributes under uncertainties.

Keywords: evidential reasoning approach, intelligent decision-making, information and knowledge management, traffic engineering, public transport operator, quantitative and qualitative assasement.

GJMBR - G Classification : JEL Code : L91

Strictly as per the compliance and regulations of:

The Performance Analysis of Public Transport Operators in Tunisia using Er Approach

Younes Boujelbene [α] & Ahmed Derbel [σ]

Abstract- The public transport sector in Tunisia has experienced economic, social and financial difficulties. The declining of the revenue shortfalls and the increased of public expenditure are the critical observed phenomenon. Our research is meant to discover the weaknesses, to find a practical solution and to improve the performance of the public transport sector by improving the performance of regional urban operators. For this reason, we have developed a model of performance that which ensures the comparisons between different operators working in similar conditions. This step is running by method of multi-criteria decision, appointed, Evidential Reasoning Approach (ER). This approach is proposed to deal with uncertain decision knowledge in multiple-attribute decision making (MADM) problems with both quantitative and qualitative attributes under uncertainties. It has been developed for supporting such decision analysis and the kernel of ER algorithm is based on the framework of the evidence combination rule of the Dempster–Shafer (D–S) theory. Therefore, we worked on a database that contains qualitative and quantitative data. For assessing different type of data, the evaluation grades may needs to be defined to facilitate data collection and the decision may be made using the technique of aggregation attributes and utility function via ER approach.

Keywords: evidential reasoning approach, intelligent decision-making, information and knowledge management, traffic engineering, public transport operator, quantitative and qualitative assasement.

I. Introduction

The field of road transport in Tunisia is very large, giving the diversity in institutional authorities and the different urban companies operators. The major concerns of the public operators converges for some theme for examples, ensuring the easy access to different functions of the city as well as the displacement of persons and goods, reducing the individual motor vehicle transport and limiting the adverse traffic effect on human health. Therefore, the public urban transport has an important role to play in the implementation of these policies, but the public transport sector in Tunisia knows a series of very serious economic difficulties and financial crisis preventing the sustainable development. The performance analysis has become an essential element in the public transport companies. However, the performance concept is extended. It covers at the same time; the costs, the transport quality, the user satisfaction and the financial results. Also, the establishment of evaluation indicators and monitoring service utility helps us to ensure good governance in resources management and to control expenditure budget. In this context, we examined the scope and objectives of the transport policy in urban planning area, for the development of a model of competition between various regional public transport operators. This step is managed by specific decision tools appointed, Evidential Reasoning Approach.

In this paper, we proposed six section, for the second section, a literature review has been defined for the MCDM problem applied in the analysis of transport sector. The third and fourth section, we indicated the mission of public transport operators in Tunisia urban, we mentioned, the issues and the challenges that hinder the development of this sector, we developed also a performance model that it ensures the competition between different regional operators. The fifth section is characterized to define the ER method and the advantage of using this theory. Finally, we fixed a conclusion with practical results that help us to find the best company exploits the road network.

II. Literature Review

The MCDM, Multi-Criteria Decision Making, was developed to facilitate the process of decision making. It is a discipline which has a relatively short history, about 40 years, and over 70 MCDM techniques have been developed, the most popular use in the transport sector, we have indicated, the methods with multi-attributes, such as (AHP, MAUT, MAVT, SMART, SMARTER, VISA) and methods of classification (PROMETHEE, ELECTRE). These methods have been designed to solve the problems of decision making. However, it is important to choose the most appropriate theory because the unsuitable method always leads to misleading and ineffective design decisions. So the choice of MCDM methods is a complex issue and should be handled with caution. Our research is essentially based on combining the various indicators applied in urban transport with to aim of finding the most efficient operator who exploits the road network. In the literature, we found a number of researches that have developed the problems of performance. Generally, it can be classified into three categories: environmental, social and economic. In addition, the performance analysis has been developed by several researchers, we mentioned (Nash, 2011)1 research, which measures the

Author α σ: Faculty of Economics and Management (FSEG) of Sfax, B.P. 3018 Sfax, Tunisia. e-mail: derbelamd@gmail.com

performance in the regional rail services, (Augustin & Walter, 2010; Hensher & Wallice, 2005)2,3 too, developed the performance problem for the bus networks. Similarly, many studies have dealt with the subject of performance for the public transport networks, we have indicated for example the study of (TRB, 2014)4 and (Ebola & Mazzulla, 2012)5. They proposed a good synthesis of the literature on measuring the public transport network performance. The proposed indicators covered different areas, the economic criteria (investment and operation management), the service quality (availability, travel time, safety and reliability) and the impacts on the community (environment, urban development, the traffic congestion) (TRB, 2014)4. After a thorough analysis, we get an interesting summary on the measures the performance of public transport, it has been proposed by (Schlossberg, Meyer, dill, & Ma, 2013)6, in order to gather all these key indicators. Also, the quality of service undoubtedly provided the area with the largest number of available indicator, such as the frequency, reliability, comfort, speed, safety and availability (Eboli & Mazzulla 2012; Sheth, Triantis & Teodorovic, 2007)5,7. In addition, the efficiency and effectiveness indicators of the public transport system must be taken into consideration, (FHWA, 2008)8 has developed the problem of measuring productivity, focusing on efficiency indicators and (Eboli & Mazzulla, 2011; Cinzia and al., 2015)9, 10 have addressed the problems of effectiveness.

ER approach is a multi-criteria decision making (MCDM) method that helps the decision-maker facing a complex problem with multiple conflicting and subjective criteria. Several papers have compiled the ER success stories in the field of transport. Specially, the performance analysis of public transport, we indicated for example, the research of (Lupo, 2013)11 for measuring the customer satisfaction analyses. We mentioned also, the research of (Katarzyna, 2014)12 which study the demand management used basic concepts of urban public transport integration. Also, the application of (Vaidya, 2014)13, they evaluated the relative performance of 26 public urban transportation organizations in India using various criteria. We found, also, the research of (Benjamin & David, 2015)14, they examined and compared two modeling methods (AHP, ER) used to inform a healthcare infrastructure location decision, they used an model structure on seven criteria (environment and safety, size, total cost, accessibility, design, risks and population profile) and 28 sub-criteria. In addition, the research of (DiZhang and al., 2016)15, they proposed an algorithm to conduct the navigational risk assessment of an Inland Waterway Transportation System (IWTS). The application of (Cyrille and al., 2015)16, they developed a unified approach to model and merge the detections coming from various kinds of sensors with prior knowledge about target location derived from topographical elements. They showed the ER approach provided an efficient measurement for data association between tracks and detections.

III. The Issues the Tunisia Urban Public Transport Policies: the Necessity to Improve Performance

We will analyze in this part the issues and the challenges of the public transport sector in Tunisia. We will show also what are the problems and the failures of public transport operators found, despite the efforts done to improve the performance.

a) Increased fleet and congestion of cities

The congestion road is an imbalance results in a point and a specific moment between the demand and supply. The public transport always seeks to restore the balance on the one part, improving the supply through the construction of the main and/or secondary roads, and increasing the capacity of network, on the other part, decrease the demand through strict mechanisms, such as penalizing motorists via toll charges, and parking fees.

The public transport currently is in direct competition with the particular car use. This competitive situation may be favorable, since, the fuel prices are continued fairly significant increase. This factor reduces the car demand. Especially, abandon use of private car in town centers at congestion moment. Several studies have demonstrated the public transport should be not exceeding 1.5 times by comparing with the particular car for that the collective transport offers may be attractive. This study was demonstrated by (Reinhold, 2008)17, he indicated for a journey time of 30 minutes, the driver agreed to a transit time between 25 to 45 minutes at maximum.

In Tunisia, the urban development has gradually made to the outside of city centers. This caused an imbalance in the geographical distribution of economic activity (workplace) and residential centers (living quarters). This it has created a high stress of transport on roads leading to the city center, for example, the western peripheral focuses 37% of the population of Greater Tunis and offers only 12% the jobs of its population. This development requires a rebalancing of the supply of transport links and the conduct of large investments accordingly. The efforts are being made through the network extensions of the metro, with the future “Fast Rail Networks” and “the Sfax metro” projects. In addition, the car park has almost doubled between 1996 and 2008 to over 1.3 million vehicles, at the end of 2013. The park has about 1.74 million vehicles. We have seen the registration at a rate of 10,000 vehicles per year in 1960, at the moment; it concerns nearly 60,000 vehicles per year since 2006. The increase in the fleet has resulted in a growing use of

individual cars. In the three major cities (Tunis, Sfax, Sousse), the share of individual transport is about 60-70% against 30-40% for public transit. Nevertheless, the road infrastructure has not followed the development of the park, generally, roads suffer from bulky. This finding has negative impacts on various parameters, for example, the increasing fuel consumption due to a difficulty of driving in the congestion road, the risk of accidents and the decreasing of the efficiency of public transportation with more irregularity and less punctuality.

b) Increases atmospheric pollutants emitted by the transport public

Traffic congestion is a condition on road networks that occurs as use increases, and is characterized by slower speeds, longer trip times, and increased vehicular queuing. The traffic congestion has an adverse impact on the health of people living beside to the city center. The road congestion is the prime generator of air and water pollution. Also, the emission of gas due of congestion road allows to changing the climate on the planet, according to (IPCC, 2014)18, the heating of the planet revolves between 1.1°C and 6.4°C for the last ten years. This warming phenomenon is expected to raise the sea level by 19 to 58cm and other assignments on the flora and fauna resources. This is therefore a new mission for public transport, since it contributes to the growth and development of the region for several reasons. First, it improves the quality of the environment and conserves energy resources. The subway, for example, produces no air pollution, while a bus is less polluting than the automobile. Second, the using of public transit reduces the cost of travel, road congestion and the costs of transporting goods. Finally, the greater traffic flow is in itself an additional source to reduce the polluting emissions.

Energy consumption of transport sector in Tunisia is estimated at 32% of final national energy consumption. The road transport consumes approximately three quarters. After a comparison with the Mediterranean countries, we have checked, this figure is nobly high in comparison with south and east Mediterranean countries. This consumption produced a poor quality of life, which means that it caused a real deterioration of public health through increase of respiratory diseases and the worsening of cancer risks, etc. Moreover, according to the National Agency of Environmental Protection, the traffic of Tunisian public transport would be responsible for at least 30% of the emissions of CO and NOX.

The public transport companies are engaged in a process to control the gaseous and the solid wastes. In this context, the following actions have been implemented:

- Most public companies have places of computer-assisted maintenance management systems enabling them to better manage the preventive maintenance of vehicle engines. This had an impact on reducing failures of these motors in energy consumption and toxic gases emissions.
- Public companies have outsourced the management of their solid waste to specialized companies.
- The regional transport companies Kairouan and Nabeul are equipped with a GPS system for rigorous monitoring of bus fleet, for example borrowed circuits, braking, cornering, etc. This system leads to a reduction in energy consumption around 7%.

These instructions are insufficient, on the one hand, they do not cover all the regional transport companies, and on the other hand, it is not possible to quantify the emissions of pollutants due to public transport and to assess the impact on public health.

c) The spatial planning and the urban development are insufficient

High quality urban realm is important to citizens' quality of life and to businesses deciding where to locate. Public transport has a huge impact on the quality of the urban realm, most significantly by reducing the volume of car traffic on cities roads, and hence the noise, congestion, danger and waste of space caused by such vehicles. Urban space is a precious commodity and public transport utilizes it more efficiently than a car dominant society, allowing cities to be built more compactly than if they were dependent on automobile transport. The imbalance in the distribution of economic centers and residential areas has created a high demand for displacement. These consequences demonstrate the desirability of introducing a sustainable transportation concept throughout the urban planning process. In order to contain any imbalances between supply and demand for transport, the UDM[1] has created projects for development of public transportation in urban areas, with the aim of organizing and controlling the private car in the cities center of Tunisia urban.

The UDM has developed strategies to limit the access of individual's cars in the cities center by the implementation of major public projects. Among the projects that have been planned, we indicate;

- The project implementation of Fast Rail Networks: this project will serve the towns surrounding the city of Tunis (Borj Cedria Fouchana, Mouhammdia, M'nihla, North Aiana, Ezzouhour, Zahrouni, Sejoumi). This network will provide one-third of public transit in Greater Tunis.
- Extension of Metro lines towards the Ennasar and Ain Zaghouan neighborhoods.
- Implementing auto fleet management software in the public transport operators.

[1] Urban Development Management

Unfortunately, these projects are pending and waiting for approval. The planning process in Tunisia provides that each city has its own management plan. It has implied all regions will not benefit for an effective transport system.

d) The decline in the share of public transit

In major cities in Tunisia, the share of individual transport is about 60 to 70%. This is due the absence of a public transport service in the main residential areas of these cities, for example, some residential areas of Greater Tunis as (El Menzah and El Bouhaira), which represent a high concentration of the population, it is not well served by public transport. It has led to a high concentration of passenger cars with a low occupancy rate. Moreover, the offer of the TRANSTU[2], which represents 80% of the urban public transport in Greater Tunis, has evolved only 2% per year over the last ten years but the transit demand has grown to an average of 6% per year over the same period. In addition, a new form of non-regular collective urban transport has been well developed in recent years; it is the collective taxi which has grown from about 30% between 2011 and 2012 to reach 1,723 cars in Tunisia. This type of transport has filled some of the urban transportation needs and especially suburban, since it is available and used the same bus transport circuits. This type of transport has no reserved stations and exploited a parking area around the bus terminal stations which had the effect of increasing the congestion in the road. In terms of quality, the public bus loses more and more of its attractiveness. The density of travelers has much to do with that, since it has 9 passengers per square meter, which is a very high rate. In against part, to lower this ratio would require significant investment. For example, the transition to a density of 8 travelers per square meter requires an investment of 174 additional buses, which is still high. Also, the bus suffers from congestion at the rush hours. This results a very low commercial speed (7-10 km/h in Greater Tunis), which involves significant decreasing of travel time.

e) Mortality rates increase on the roads

The National Safety Council estimates that riding the bus is over 170 times safer than travelling by automobile. This is because with better public transport, many road users will minimize the usage of personal transport and opt for public transport instead less vehicles on the road could also mean less number of cases and fatalities on the road. Over the past twenty years, the Tunisian roads have recorded important results in terms of accidents and fatalities. Thus the number of car accidents has increased from 10,209 in 1996 to 10,980 accidents in 2006, which represents an annual growth rate of 1%. However, the number of road deaths has increased by an annual average of 1.6% between 1996 and 2006. In addition, the rate of roads mortality is generally measured by reporting the number of people killed with the population (million inhabitants). This ratio has declined relatively. It was 136 killed per thousand inhabitants in 2013, comparing that figure with the European average (27 European countries), it was equal to 86 killed per thousand inhabitants. We have identified, the transport system in Tunisia is far from the international standard when we are comparing with other countries. Based on the current number of new vehicles being registered, the roads here might not be able to sustain the number of vehicles in five years' time without better public transport. Moreover, there are many bad habits which can be kicked by many Tunisian drivers such as speeding, multi-tasking (driving and doing other things at the same time) and or not inspecting their respective vehicles before travelling, which can help reduce the number of road accidents significantly.

f) Analysis of the financial situation

The social mission has guaranteed the physical accessibility of the city for all social categories. The satisfaction of displacement needs is a strategy that is not preponderant part, since in most cases, the behavior of transport users is not always the same, the first customer for the public transport is the disadvantaged population (captive customers) as youth, school students and pensioners who occupy a very important part of the number of travelers, they generally have not their own means of transport. The public transport service has tried to create new lines to ensure maximum coverage and the social equity, i.e. all passengers can travel for a maximum accessibility with the minimum displacement cots. However, the financial constraints lead often to provide an offer that does not respond properly to the travel request. Generally policymakers' transport in Tunisia has effort to find a good compromise between social mission and financial constraints.

In Tunisia, the transport sector contributes about 7% of GDP and is experiencing an average annual growth of 5%, it provides about 140,000 direct jobs (equivalent to 3.7% of the workforce), and it produces 15% of the country's investments. During (2007-2011) these investments are reached 3.6 billion dinars, against 2.7 billion dinars in the period (2001-2006). We have built a comprehensive analytical study, particularly in the public transport sector. We have also identified the failure and the problem of land transportation.

i. *The decline in revenue per trip*

The revenue coming from the public transport can be divided into 3 modes;

- School resources: these are revenues by school subscriptions.

[2] Metropolitan Transport urban of Greater Tunis

- Intercity transportation revenues: they are incomes gained usually from long distance travel.
- Other Resources: these are revenues from rental and advertising agreements.

The recipe in the period (2007-2014) was decreased. This finding is justified on the one hand, by the drop in passenger numbers, on the other hand, by the mismanagement, for example, the school transport is the first customer for the public transport in Tunisia, it is corresponding to 59.38% in the total number of travelers but financial recipe does not exceed 12.39% of total revenue in 2014. It may also explain the decrease in passenger by the competition with private transport sectors, the rapid development of the collective taxi, and the sharp increase in car fleet, especially, individual transport. In addition, the decline in revenue per trip directly raise the issue of pricing, for example, the recipe is not progressed at the same time with the quality of service offered (increased rolling stock, number of working). Therefore, we believed that public transport companies have faced by difficulties not only to tackle congestion and environmental damage, but also, they will suffer in severe financial crisis in the next years.

ii. *Evolution of the expenditure*

After a thorough analysis of the evolution of spending, we found that salary expenses in 2014 represent a large part of the sum total of expenditure, corresponding to 69.78%. This figure is justified by the massive recruitment of employees with growth of 13% over 2007 and 16% from 2010. So we focus on employee performance and productive efficiency that deteriorated and damaged by a shameful coverage rate not exceeding 35.39% in 2014. This disastrous situation shows that public transport in Tunisia has experienced an unbearable financial crisis, with time. It will become a major problem and a burden of the State. In addition, the stated prices of displacement do not cover their needs. For example, the TRANSTU sells the school subscription to 8% of its cost. Therefore, the selling prices of these subscriptions school have not increased since 2003 despite increases in inputs (wages, energy, etc.). Only a 5% increase was carried out in 2010.

Summing up, the public transport in Tunisia has lost its attractiveness, low quality of urban public transport, increased congestion and the decline the commercial speed, down revenue recipe, exploitation and investment (roads, rolling stock) deficit, increasing the use of private vehicles, all the factors were weakened the role of public transport. For this reason, we developed an approach to improve the performance of public transport by inclining a model of competition between different regional operators. Several indicators were emerged from public transport missions to judge how far objectives are being met. In the following section we have set the goals and tasks for public transportation, we developed some indicator that addressed the performance and to meet all the challenges and requirements in the urban transport system.

IV. Measuring the Performance

The term performance is frequently used in the transport sector. This concept refers often to very different criteria combined to solve the problem of profitability. We can define the performance as the achievement of objectives, specifically, the optimization of services provided to citizens. Our goal is to provide a management system for controlling the regional companies by measuring the effectiveness, efficiency, economic status and the quality of service offered to users. We reported that the choice of indicators should be established with pragmatism, we made sure to choose indicators that we will be able to calculate easily and with data availability. So the indicators have to be operational no questionable and reliable. We proposed the following indicators. We indicated also their definition and the method of calculation.

a) Economic criteria

To measure the economic state for public companies. Also the current situation of the public company can be identified. We can distinguish into two sub-attributes;

i. *Coverage rate*

The coverage rate is a ratio used in economics to bring the balance of the current account (trade balance (recipes) with invisibles balance (expenses)). It is an indicator measuring the economic independence of any company. It ensures the economic sustainability of public transport and the financial contribution from users. For this sub attribute we found 3 cases;

When the coverage is less than 100, the trade balance is in deficit. It is said that the trade balance is negative.

When the coverage is equal to 100, the trade balance is equilibrated and it is said that the trade balance is zero.

Finally, when the coverage ratio exceeds 100, the balance of payments surplus and the trade balance is become positive.

ii. *Investment*

The public transports require a very significant investment according to the technique used and the population areas density. However, investments costs are used for individual transport, an indirect manner, for example the renewal, repair the road network and the constriction of the parking area. In our research we are interesting the investment only concerns of the public transportation as an example the investment of create new lines of buses, renovation costs of rolling stock, etc. These performance indicators, measures investments, made to restore or improve the public transport. The

investment is decomposed by two variables; the investment cost and the density population of each city during 7 years (from 2007 until 2014).

b) Efficiency criteria

(Citizens point of view) that it measures the expectation of citizens from public policies (e.g. reduce the phenomenon of congestion). We need to specify the objectives of the public transport company in Tunisia urban. We indicated, the policymakers of public transport are interested to increase the displacement, also increase the revenues per (employee and vehicle), and minimize the congestion in the road. Thus, four sub-attributes are appeared;

i. *The displacement per thousand people*

This indicator allows the easy physical access (installation of lines/territories) and to measure the demand for transport in volume.

ii. *The revenue Per Employee*

This criterion is used to qualify the profitability development. It can be measured by the ratio between the revenue and the number of employees.

iii. *The revenue per number of vehicle*

This criterion is used to qualify the income from vehicle. It can be measured by the ratio between the revenue and the number of vehicle.

iv. *Reduce the congestion (decongestion)*

Increasing congestion on urban roads presents a serious threat to the economic growth and live ability of our city regions. There is scope for public transport to help tackle congestion still further. Our urban public transportation system play more of a role, targeting schools and workplaces in particular to reduce peak time traffic and make our cities cleaner, safer and centered around people, rather than cars. Therefore, this indicator returns us the efforts that have been made by transport public operators to reduce the phenomenon of road congestion.

c) Effectiveness criteria

(Point of view of the taxpayer) that it focuses on the optimization of the means employed by relating the products obtained with the resources consumed. This criterion measures the ratio between the targets that have already set by the government with the satisfaction of customer. Generally, the effectiveness is defined as the optimization between the resources mobilized and results (service realized), differs from efficiency which is defined as the degree that the goals have been set. In the field of urban transport, the distinctions between the two terms are complex and varied as recalled (Baumstark et al., 2005)19. In addition, the authors emphasize the need to distinguish two types of effectiveness, depending on the nature of the considered output, input and supply, we found the concept of productivity effectiveness, for which the offer made is reported with the inputs. Second, the commercial effectiveness, which focuses on the use of this offer, it is equal to the ratio between outputs and supply (usually measured by the utilization rate, defined as the number of travelers per vehicle.km or km-products). In our research, we used two types of data for input {number of places, number of employees}, only one given for the output {number of travelers} and finally two data for offer {km-products, number of places-km offered}. For the productivity effectiveness, it is necessary to decompose this indicator into two sub-attributes;

The labor productivity is the ratio between the number of places offered in kilometer and the number of employees.

Capital productivity is the ratio between the number of places offered in kilometer and the number of places.

The two last sub attributes provide to measure the profitability of working in the public transport sector.

d) Quality of service criteria

(Point of view of the user) this indicator measures the improvement of the service provided to the user (e.g. reducing the travel time). It is an important element in the management of services. It helps to clarify goals achieved by the regional companies as far as customers and proposed equipment is concerned, also it manages performance of the transport operators and estimates the degree of customer satisfaction. In other words, the service quality defines the level of satisfaction expected by the customer depending on organization capacity. This indicator provides the opportunity to achieve one or more points of urban space, taking into account the different means of transport available. We have many criteria to measure the quality of service, we indicated:

Accessibility is good if the various vital functions of the city are connected in terms of time and comfort, they well be strictly acceptable by the user. We can be measured by two attributes.

Kilometer per inhabitants: This indicator measures the ratio of products kilometers with the population density.

Kilometer per length line: This performance indicator measures the ratio of products kilometers and line length.

We found other indicator allow to measure the service quality criteria, we mentioned, the quality of rolling stock is an element important to measure the quality of buses offered from the customers, we decomposed into three sub attributes;

Availability: The availability of equipment is a measure of the performance obtained by dividing the time, when the equipment is operational, by the total time. This ratio is conventionally expressed as a percentage.

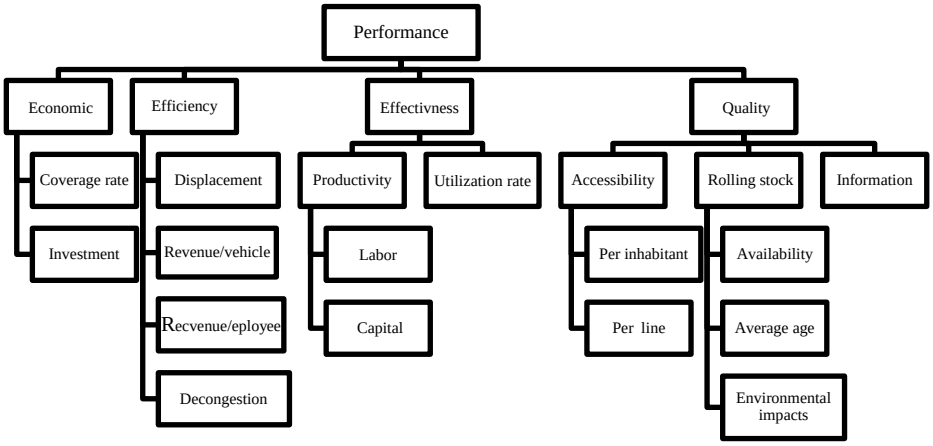
Average age of the fleet: This performance indicator is used to ensure the sustainability of the transport

heritage and to measure the age of the rolling stock. Note: The life of a subway train or tram (30 to 35 years) is much greater than a road vehicle (7-15 years) that it is necessary to dissociate the average age of the fleet based on the type of material (road, rail).

Environmental impacts: The service aspect regarding the impacts of the bus systems on the environment includes effects in terms of emissions, noise, visual pollution, vibration, dust and dirt, odor, waste. This indicator measures the efforts that have been made by transport public operators to reduce environmental impacts.

Information and punctuality: Another service aspect affecting transit service quality is linked to the availability of information pertinent to the planning and execution of a journey. Passengers need to know how to use transit service, where the access is located, where to get off in the proximity of their destination, whether any transfers are required, and when transit services are scheduled to depart and arrive. Without this information, potential passengers will not be able to use transit service (TRB, 2014)4. Therefore, we measured the quality of information available to travelers in Tunisian urban. We presented this information as a qualitative data, because it is difficult to obtain exact accurate values. This indicator measures the quality and timeliness of information provided to commuters.

The hierarchy structure (fig 1) is used to study the interaction between the different indicators of our application. The indicators are quantitative and qualitative data under uncertainties. The level 0 is representing the theme of the performance. It is a root of the structure. The level 1 is representing the attributes such as economic, efficiency, effectiveness, and quality of service criteria. The level 2 is representing the sub attributes such as coverage rate, investment, displacement, revenue per (vehicle, employee), productivity, utilization rate, accessibility, rolling stock, and information. The level 3 is representing the sub sub-attributes such as labor, capital, and accessibility per (inhabitant and line). For each alternative, we combined these data to found the most efficient operator exploits the road network.



The figure 1 above shows the hierarchy structure of our research using 4 criteria (level 1), 11 sub-criteria (level 2) and 7 sub sub-criteria (level 3), these instructions can be determine the performance (level 0) for public transport operators. The table 1 below defined the variables, unit and computation method for all criteria of our model.

Table 1 : Different criterion for model competition

Criteria	Variables	Mode of computation	Unit
Economic			
Coverage rate	A: Total commercial revenue, in dinars B: Total operating expenses, in dinars	(A/B)*100	%
Investment	A: Investment expenditure associated with transport public companies B: Number of inhabitant according to the latest census by the National Statistics Institute, in 2014	$\frac{\sum_{i=2007}^{i=2014} A_i}{B}$	dinars/ inhabitant

Efficiency			
The displacement per thousand people	A: Moving, action, for a person to go from one place (origin) to another place (destination) B: Number of inhabitants	A/B	displacement/ thousand people
The revenue Per Employee	A: The total revenue B: Number of employees	A/B	dinars/employee
The revenue per vehicle	A: Total revenue. B: Number of vehicles used	A/B	dinars/vehicle
Decongestion	Qualitative data		
Effectiveness			
labor productivity	A: Places kilometer offered, thousand places-kilometer B: Number of employees; thousand employees	A/B	places-km/employee
Capital productivity	A: Places kilometer offered, thousand places-kilometer B: Number of place; thousand places	A/B	places-km/place
utilization rate	A: Number of travelers; thousand travelers B: Number of km-products; thousand kilometers-products	A/B	travelers/km products
Quality of service			
Kilometer per inhabitants	A: Kilometer produced by all public transport vehicles B: Number of inhabitants	A/B	km/inhabitant
Kilometer per length line	A: Kilometer produced by all public transport vehicles B: Line Length: Average journey there and back, whether identical or not, including common routes to other lines of the same mode transport.	A/B	km/km line
Average age of the fleet	B: All vehicles used by operators of the transport network, including the reserve. A_i: Age of each vehicle, i years ranging from 0 to infinity	$\frac{\sum_{i=0}^{\infty} A_i}{B}$	Years
Availability	We are using equipment which has a mean time to failure (MTTF) of years and mean time to repair (MTTR).	$\frac{MTTF}{MTTF + MTTR}$	%
Environmental impacts	Qualitative data		
Information& punctuality	Qualitative data		

To summarize, the table 1 below, we presented the quantitative data with the method of calculations and units of measure, these are digital data that it has a reliable values. For a qualitative data, we have broken down by 5 graduations; worst, poor, average, good, and best, in order to qualify these variables. Another remark all the criteria are to maximize except the criterion of average age that must be minimized. In addition, the types of indicators are the main tool of our research. We used a support system for multi-criteria decision, including the ER method for ensuring the comparability and the virtual competition among the regional companies (operators of public transport). The Virtual competition arises from the possibility to compare the performance of several operators even when they do not use the same lines and the same network.

V. Evidential Reasoning Approach

Many decision problems in engineering and management involve multiple attributes of both a quantitative and qualitative nature. Several techniques have been emerged to solve the problem of decision making with multiple attributes data. The well-known method, we indicated the evidential reasoning, it uses an evidence-based reasoning process to reach an adequate decision, which differs from traditional MCDA methods. The ER approach has recently been developed on the basis of decision theory in different

several disciplines, including decision sciences (in particular utility theory), artificial intelligence, statistical analysis, fuzzy set theory, and computer technology (D. L. Xu and al., 2013 & D. L. Xu and al., 2011a & D. L. Xu and al., 2011b)20,21,22. It has been used to support various decision analysis, assessment and evaluation activities such as environmental impact assessment (J. B. Yang and D. L. Xu, 2006)23 and organizational self-assessment (J.B, Yang and, Dale B.G, 2001)24 based on a range of quality models.

The motivation of using a distributed assessment include that it can include a large number of criteria having both a quantitative and qualitative nature. First, the ER approach is the only method so far capable of handling MCDM problems with uncertainties and hybrid data, and it describes and handles uncertainties by using the concept of the degrees of belief with a simplicity and practicality algorithms. Second, traditional ways of conducting such assessments and surveys include the use of average scores as performance indicators. However, an average score does not provide sufficient information on the diversity of the performances of public transport operators, nor can it indicate where the operators are doing well and where it needs to improve if its average performance is acceptable. Therefore strengths and weaknesses need to be identified separately to supplement average scores (J. B. Yang and D. L. Xu, 2006)23. Finally, these types of problems associated with other methods causes serious problems in decision making. For example, when we add another or new attributes of economic criteria with coverage rate and investment it can be seen that the ranking of the attributes in terms of their importance will be changed. The issues as mentioned can be addressed by using Evidential Reasoning Approach.

For our application, we attempt to evaluate the performance of company public operators in Tunisia urban, it involves multiple criterions such as, economic, quality of service, effectiveness, efficiency, which the sub attributes are quantitative and qualitative in nature. Numerical data which uses numbers is considered as quantitative data and can be measured with 100% certainty (M. Lisa, 2008)25. On the contrary, qualitative data is descriptive in nature, which defines some concepts or imprecise characteristics or quality of things. This type of data can't describe a thing with certainty, since it lacks the precision and inherits, ambiguity, ignorance, vagueness. It is difficult to measure the quality of a thing with 100% certainty (M. Hossain and al., 2013)26. Examples of qualitative data associated with in choosing a best performance are information, reducing the congestion, and environmental impacts. Therefore, for assessing different qualitative attributes, different sets of evolution grade may need to be defined to facilitate data collection such as Worst (W), Poor (P), Average (A), Good (G), and Best (B). Hence, belief structure is used to design a subjective model assessment with uncertainty for these linguistic evaluation grades. For example, an expert may sate that he is 50% sure, as the efforts that have been made by transport public operators to reduce environmental impacts, as it is good, and 30% sure it is best, in the statement, good and best denote distinctive evaluation grade, and the percentage values of 50 and 30 are referred to as the degrees of belief. The assessment can be expressed as the following expectation:

$$S(\text{environmental impacts}) = \{(\text{good}, 0.5), (\text{best}, 0.3)\} \quad (1)$$

Where S(environmental impacts) stands for the state of the rolling stock's, and the real number 0.5 and 0.3 denote the degree of belief of 50% and 30%, respectively. Note that expectation (1) describes an incomplete assessment as its total degree of belief is $0.5+0.3 < 1$. Incomplete assessment are likely to acquire in real life decision problems and may result from the lack of data and evidence (incompleteness) or the inability of the assessor to provide precise judgments (imprecision) due to novelty and complexity of the problem in question.

a) Basic Evaluation Framework

One of the critical tasks of developing a decision support system is to acquire information and to represent them in appropriate format so that it will feed into a model. Since ER approach employs belief structure to acquire knowledge, appropriate information should be selected to feed the ER algorithm, which is used to process the information.

Suppose there are L basic attributes ei(i=1,…,L) associated with a general attribute Y. Define a set of L basic attributes as follows:

$$E = \{e_1, e_2, e_3, ..., e_L\}$$

Suppose the weights of the attributes are given by $w = \{w_1, w_2, w_3, ..., w_L\}$ where is the relative weight of the i-th basic attribute (ei) with . Suppose N distinctive evaluation grades are defined that collectively provide a complete set of standards for assessing an attribute, as represented by

$$H = \{H_1, H_2, H_3, ..., H_n / n = 1, 2, 3, ..., N\}$$

For example, Let 'performance' (y) be an attribute at level 0 as shown in Fig. 1. Which is to be assessed for an alternative *(A)* (i.e. operators of public transport) and this assessment can be denoted by *A*(y). This is to be evaluated based on a set of weight for sub-attributes (such as economic *(e_1)*, efficiency *(e_2)*, effectiveness *(e_3)*, and quality of service *(e_4))* at level 1,

also, The Performance *(y)* can be assessed by using a set of evaluation grades consisting of Worst (H_1), Poor (H_2), Average (H_3), Good (H_4), and Best (H_5).

The evaluation grades are mutually exclusive and collectively exhaustive and hence, they form a frame of discernment in D-S terminology. A degree of belief is associated with each evaluation may be mathematically represented as the following distribution:

$$A(e_i) = \{(H_n, \beta_{n,i}), n = 1, ..., N,\ i = 1, ..., L\} \quad (2)$$

Denotes that the top attribute y is assessed to grade Hn with the degree of belief βn. In this assessment, it is required that:

$$\left(\beta_{n,i} \geq 0; \sum_{n=1}^{N} \beta_{n,i} \leq 1\right)$$

If $\beta n,\ i=1$, the assessment is complete and if it is less than one then the assessment is considered as incomplete. If $\beta n,\ i=0$, then the assessment stands for complete ignorance. The incompleteness as mentioned occurs due to ignorance, meaning that belief degree has not been assigned to any specific evaluation grade and this can be represented using the equation as given below.

$$\beta_{H,i} = 1 - \sum_{n=1}^{N} \beta_{n,i} \quad (3)$$

Where, β_H is the belief degree unassigned to any specific grade. If the value of β_H is zero then it can argued that there is an absence of ignorance or incompleteness. If the value of β_H is greater than zero then it can be inferred that there exists ignorance or incompleteness in the assessment.

The ER algorithm, as will be discussed, has the procedures to handle such kind of ignorance. It is also necessary to distribute the degree of belief between evaluation grades for certain quantitative input data. For example, sub-attribute "coverage rate", which is at the level 2 of the Fig. 1, consists of five evaluation grades namely Worst, Poor, Average, Good, and Best. For example, If Coverage rate is 100%, it is considered as Best. If Coverage rate is 75%, it is considered as Good. If Coverage rate is 50%, it is considered as Average. If Coverage rate is 25%, it is considered as Poor. Finally, if Coverage rate is 0%, it is considered as Worst.

However, when a coverage rate is equal 62%, it can be both good and average. However, it is important for us to know, with what degree of belief it is good and with what degree of belief it is average. This phenomenon can be calculated with the following formula;

$$\beta_{n,i} = \frac{h_{n+1} - h}{h_{n+1} - h_{n,i}};\ \beta_{n+1,i} = 1 - \beta_{n,i} \ \text{ If } h_{n,i} \leq h \leq h_{n+1} \quad (4)$$

Here, the degree of belief βn,I is associated with the evaluation grade average while βn+1,i is associated with the upper level evaluation grade good. The value of hn+1 is the value related to good, which is considered as 75%. The value of hn+i is related to average, which is 50%. Hence, applying equation (4) the distribution of the degree of belief with respect to h=62% of the coverage rate from the economic criteria can be assessed by using equation (4) and the result is given below:

$$\beta_{3,1} = \frac{h_{4,1} - h_1}{h_{4,1} - h_{3,1}} = \frac{75 - 62}{75 - 50} = 0,52$$

$$\beta_{4,1} = 1 - \beta_{3,1} = 0,48$$

{(Worst, 0), (Poor, 0), (Average, 0.52), (Good, 0.48), (Best, 0)}

b) Attribute aggregation using ER algorithm

The degrees of belief as assigned to the evaluation grades of the attributes need to be transformed into basic probability masses (m_n,i). Basic probability mass measures the belief exactly assigned to the *n-th* evaluation grade of an attribute. It also represents how strongly the evidence supports *n-th* evaluation grade (H_n) of the attribute. The transformation can be achieved by combining relative weight (*wi*) of the attribute with the degree of belief (β_n,i) associated with *n-th* evaluation grade of the attribute. Let m_H,i be a remaining probability mass unassigned to any individual grade after all the N grades have been considered for assessing the general attribute as far as is concerned. m_n,i and m_H,i are calculated as follows:

$$\begin{cases} m_{n,i} = m_i(H_n) = w_i \beta_{n,i} \\ m_{H,i} = m_i(H) = 1 - \sum_{n=1}^{N} m_{n,i} = 1 - w \sum_{i=1}^{N} \beta_{n,i} \\ n = 1, ..., N;\ and\ i = 1, ..., L \end{cases} \quad (5)$$

This aggregation can be presented by using the following matrixes equation (6, 7);

$$M=\begin{bmatrix} m_{1,1} & m_{2,1} & m_{3,1} & m_{4,1} & m_{H,1} \\ m_{1,2} & m_{2,2} & m_{3,2} & m_{4,2} & m_{H,2} \\ m_{1,3} & m_{2,3} & m_{3,3} & m_{4,4} & m_{H,3} \\ .... & .... & .... & .... & ... \\ .... & .... & ... & .... & ... \\ m_{n,I} & m_{n+1,I} & m_{n+2,I} & m_{n+3,I} & m_{H,i} \end{bmatrix} \quad (6) \qquad N=\begin{bmatrix} m_{1,I(2)} & m_{2,I(2)} & m_{3,I(2)} & m_{4,I(2)} & m_{H,I(2)} \\ m_{1,3} & m_{2,3} & m_{3,3} & m_{4,3} & m_{H,3} \\ m_{1,4} & m_{2,4} & m_{3,4} & m_{4,4} & m_{H,4} \\ .... & ... & ..... & .... & .... \\ .... & .... & ..... & ..... & .... \\ m_{n,I} & m_{n+1,I} & m_{n+2,I} & m_{n+3,I} & m_{H,I} \end{bmatrix} \quad (7)$$

From matrix (6), it can be seen that each sub attribute is associated with five basic probability assignment *bpa*, where four first four bpa ($m_1,1$,$m_2,1$,$m_3,1$,$m_4,1$) are associated with five evaluation grades (H_1 ,H_2 ,H_3 ,H_4, H_5). The m_H,i is showing the remaining probability mass unassigned to any individual grades after the assessments on sub-attribute have been considered. Each row in this matrix represents *bpa* related to one basic attribute or sub-attribute. It is necessary to aggregate the *bpa* of different sub-attributes. The aggregation is carried out in a recursive way. For example, the *bpa* of first sub attribute (which is shown in the first row of the matrix 6) is aggregated with the *bpa* of second sub attribute. The result of this aggregation is illustrated in the first row of the matrix (7) and this can be considered as the base case of this recursive procedure. Since this will be used in the latter aggregation of the sub attributes. As used in (Yang and Singh, 1994)27, an attribute aggregation is again used to deduce ER algorithm for combining two assessments $S(e_i)$ and $S(e_j)$. The combined probability masses are generated by aggregating (denoted by $\oplus$) the assessments $S(e_i)$ and $S(e_j)$ are shown as follows:

$$\begin{cases} \{H_n\}: m_{n,I(i+1)} = K_{I(i+1)}\left[m_{n,I(i)}m_{n,i+1} + m_{n,I(i)}m_{H,i+1} + m_{H,I(i)}m_{n,i+1}\right] \\ \{H\}: \widetilde{m}_{H,I(i+1)} = K_{I(i+1)}\left[\widetilde{m}_{H,I(i)}\widetilde{m}_{H,i+1} + \widetilde{m}_{H,I(i)}\overline{m_{H,i+1}} + \overline{m_{H,I(i)}}\widetilde{m}_{H,i+1}\right] \\ \{H\}: \overline{m_{H,I(i+1)}} = K_{I(i+1)}\left[\overline{m_{H,I(i)}}\,\overline{m_{H,i+1}}\right] \\ K_{I(i+1)} = \left[1 - \sum_{n=1}^{N}\sum_{\substack{t=1 \\ t\neq n}}^{N} m_{n,I(i)}m_{t,j+1}\right]^{-1}, i = 1,\ldots,L-1, \end{cases} \quad (8)$$

Where, $K_{I(2)}$ is a normalization factor used to resolve the conflict. Let $m_{n,I(i)}, \widetilde{m}_{H,I(i)}, \overline{m_{H,I(i)}}$ denote the combined probability masses generated by aggregating. The following of ER algorithm is then developed for combining the first assessments with the $th(i+1)$ assessment using the same process as shown in equation (8), with a recursive manner.

The $m_{H,I(i)}$ is decomposed into two parts; $\overline{m_{H,I(i)}}$ and $\widetilde{m}_{H,I(i)}$ where;

$$\begin{cases} \overline{m_{H,I(i)}} = 1 - w_i \\ \widetilde{m}_{H,I(i)} = w_i\left(1 - \sum_{n=1}^{N}\beta_{n,i}\right) \\ m_{H,I(i)} = \overline{m_{H,I(i)}} + \widetilde{m}_{H,I(i)} \end{cases} \quad (9)$$

$\overline{m_{H,I(i)}}$ is the first part of the remaining probability mass that is not yet assigned to individual grades due to the fact that attribute i (denoted by ei) only plays one part in the assessment relative to its weight. $\overline{m_{H,I(i)}}$ is a linear decreasing function of w_i $\widetilde{m}_{H,I(i)}$ is the second part of the remaining probability mass unassigned to individual grades, which is caused due to the incompleteness in the assessment $S(e_i)$.

After all L assessments have been aggregated, the combined degrees of belief are generated by assigning back to all individual grades proportionally using the following normalization process:

$$\begin{cases} \{H_n\}: \beta_n = \dfrac{m_{n,I(L)}}{1-\overline{m}_{H,I(L)}}, n=1,...,N \\ \{H\}: \beta_H = \dfrac{\overline{m}_{H,I(L)}}{1-\overline{m}_{H,I(L)}}, \text{ where } m_{n,I(1)} = m_{n,1} \ (n=1,...,N) \\ \sum_{n=1}^{N} \beta_n + \beta_H = 1 \end{cases} \quad (10)$$

β_n generated above is a likelihood to which H_n is assessed. β_H is the unassigned degree of belief representing the extent of incompleteness in the overall assessment. Finally, similar to equation (1, 2), the generated assessment for (y) can be represented by the following distribution;

$$S(y(a_l)) = \{(H_n, \beta_n(a_l)), n=1,...,N\} \quad (11)$$

Which (y) is assessed to the grade Hn with the degree of belief of $\beta_n \ (n=1,...,N)$.

c) *The Utility Function*

Utility function is used to determine the ranking of the different alternatives. In this research different operators of public transport sector have been considered as the alternatives. Therefore, the determination of ranking of the alternatives will help to take a decision to decide the suitable company. There are three different types of utility functions considered in the ER approach namely; minimum utility, maximum utility and average utility. In this function, a number is assigned to an evaluation or assessment grade. The number is assigned by taking account of the preference of the decision maker to a certain evaluation grade. Suppose the utility of an evaluation grade u(Hn), then the expected utility of the aggregated assessments u(y) defined as follows;

$$u(y) = \sum_{n=1}^{N} u(H_n)\beta_n(a_l) \quad (12)$$

The belief degree $\beta n(a_l)$ represents the lower bound of the likelihood that al is assessed to Hn, whilst the corresponding upper bound of the likelihood is given by $(\beta_n(a_l) + \beta_H(a_l))$.

An alternative *(a)* is preferred to another alternative *(b)* on *(y)* if and only if $u(y(a)) > u(y(b))$, and the maximum, minimum and average utilities of al can be calculated by:

$$\begin{cases} u_{\max}(a_l) = \sum_{n=1}^{N-1} \beta_n(a_l)u(H_n) + (\beta_N(a_l) + \beta_H(a_l))u(H_N) \\ u_{\min}(a_l) = (\beta_l + \beta_H)u(H_l) + \sum_{n=2}^{N} \beta_n(a_l)u(H_n) \\ u_{average}(a_l) = \dfrac{u_{\max}(a_l) + u_{\min}(a_l)}{2} \end{cases} \quad (13)$$

VI. Results and Discussion

In the previous section, we have discussed about the ER method and how to implement it. Therefore, in this section we will look at the results from using this method on the different operators exploits the road network. The ER distributed modeling framework for the different criteria, the recursive ER algorithms, for aggregating multiple attributes, is used to combine probability masses between different levels, and the utility function based ER ranking method which is designed to compare and rank alternatives. We studied the possibility to compare the performance of several operators by determining the most efficient regional operator .i.e. what is the best regional companies exploit the road network. If this comparison shows that the performance of the public operator is insufficient, it will suffer a strong pressure to become more effective and efficient. We calculated the scoring of performance for all possible alternatives. We assured the comparison between 4 operators of urban transport, TRANSTU, SORETRAS, STS and SRTGN, whose activities is to provide passenger transport service by bus in the Tunisian territory, respectively, the Greater Tunis (governorates, of Ariena, Tunis and Ben Arous), Sfax, Sahel (the governorates of Sousse, Monastir and Mahdia) and the governorate of Nabeul. The table 2 below illustrates the data of original performance

assessment of public transport operators, these data has been proposed by the minister of transport for the year 2014.

Table 2 : Original performance assessment of public transport operator

Criteria	TRANSTU	SORETRAS	STS	SRTGN	Weight
• Economic					0.54
Coverage rate	17,56	26,42	34,36	61,99	0.5
Investment	5,5	5,78	4,7	5,9	0.5
• Efficiency					0.09
Displacement per thousand inhabitant	0,3	0,24	0,23	0,21	0.25
Revenue per employee	5,42	9,5	14,4	28,89	0.25
Revenue per vehicle	26,15	38,68	49,58	151,85	0.25
Decongestion	(P, 0.3);(A,0.4)	(W,0.5);(P,0.3)	(A, 0.4);(G,0.4)	(G, 0.8)	0.25
• Effectiveness					0.13
Productivity					0.5
Labor	0,71	0,72	1,93	1,05	0.5
Capital	35,2	29,35	44,48	55,36	0.5
Utilization rate	4,46	4,61	5	3,72	0.5
• Quality of service					0.24
Accessibility					0.33
Kilometer per inhabitant	15,85	11,94	14,47	9,84	0.5
Kilometer par line	5706	1120	1564	1141	0.5
Rolling stock					0.33
Availability	64,16	57	81	83	0.33
Average age of park	7,83	8,08	7,75	8,75	0.33
Environmental impacts	(A, 0.3); (G, 0.5)	(P, 0.5);(A,0.3)	(A,0.5);(G,0.25)	(A,0.5);(G,0.45)	0.33
Information	(W, 0.6);(P, 0.3)	(W, 0.5);(P,0.4)	(P, 0.2);(A,0.7)	(A,0.4);(G,0.3)	0.33

The table 2 above illustrates the local weights for each criterion in each level. The results show that in the second level and third level of criteria, it had been prioritized as the first level followed by economic criteria (0.54), efficiency (0.09), effectiveness (0.13) and quality of service (0.24). Another way, the local weight of each criterion and their importance is proposed by the decision maker of minister of transport in Tunisia urban. The economic criterion was named the most important criterion. It has a more weight in comparison between different criteria for Level 1. This implies that the transport authorities have an interest to improve the economic situation by increasing the revenues and reducing the expenses budgets. In terms of the importance, the quality of service is classified in the second place in order to provide an easy access for commuters. When the quality of service is better than the public of transport will be attractive. In the same way, the effectiveness is classified in the third place. This criterion ensures a comparison between different operators in terms of productivity and commercial profitability. Finally, the efficiency criterion is classed in the fourth place, it is used to measure whether the objectives set have been reached. For measuring the weight of each criterion several techniques have been emerged, and the well-known method, we indicated, the pair-wise comparison in AHP method (Saaty, 1980)28. This technique is used to determine the relative importance of each alternative in terms of each criterion using a scale of importance. Another remark, the sub-attributes and sub sub-attributes of the level 2 and level 3 are a similar weight for each higher criterion. We worked on quantitative and qualitative data under uncertainties as presented in the table 2, for transforming the distributed assessment, a qualitative criterion can be assessed using the grades and a degree of belief to which each grade is assessed, quantitative criteria can also be defined and used together with qualitative criteria for assessment, it can be transformed in the same way as presented in Eq. (4). The assessment problem shown in table 3 is the same format as that defined in the Eq. (1) and (11), The attributes of our model is assessed to a grade, then the over performance also should be assessed to a large graduation, such as, Worst (W), Poor (P), Average (A), Good (G), and Best (B).

Table 3 : Transformed of distributed assessment

Attributes	TRANSTU	SORETRAS	STS	SRTGN
Coverage rate	{(W, 0.29), (P, 0.71)}	{(P, 0.94) ; (A, 0.06)}	{(P, 0.62) ; (A, 0.38)}	{(A, 0.52) ;(G, 0.48)}
Investment	{(A, 0.8) ; (G, 0.2)}	{(A, 0.68) ; (G, 0.32)}	{(P, 0.12) ; (A, 0.88)}	{(A, 0.6) ; (G, 0.4)}
Displacement	{(A, 0.6) ; (G, 0.4)}	{(P, 0.08) ; (A, 0.92)}	{(P, 0.16) ; (A, 0.84)}	{(P, 0.32) ; (A, 0.68)}
Revenue/vehicle	{(W, 0.47) ; (P, 0.53)}	{(W, 0.22) ; (P, 0.78)}	{(W, 0.01) ;(P, 0.99)}	{(G, 0.98) ; (B,0.02)}
Revenue/employee	{(W, 0.27) ; (P, 0.73)}	{(P, 0.73) ; (A, 0.27)}	{(P, 0.08) ; (A, 0.92)}	{(G, 0.14) ; (B, 0.86)}
Reducing congestion	{(P, 0.3) ; (A, 0.4)}	{(W, 0.5) ; (P,0.3)}	{(A, 0.4) ; (G, 0.4)}	{(G, 0.8)}
Use rate	{(A, 0.45) ; (G, 0.55)}	{(A, 0.36) ; (G, 0.64)}	{(A, 0.02) ;(G, 0.98)}	{(A, 0.87) ; (G, 0.13)}
Labor	{(P, 0.56) ; (A, 0.44)}	{(P, 0.58) ; (A, 0.42)}	{(G, 0.14) ;(B, 0.86)}	{(A, 0.9) ; (G, 0.1)}
Capital	{(A, 0.65) ; (G, 0.35)}	{(P, 0.04) ; (A, 0.96)}	{(A, 0.03) ;(G, 0.97)}	{(G, 0.3) ; (B, 0.7)}
Accessibility per inhabitant	{(G, 0.13) ; (B, 0.87)}	{(A, 0.86) ;(G, 0.14)}	{(A, 0.08) ; (G,0.92)}	{(P, 0.51) ; (A, 0.49)}
Accessibility per line	{(G, 0.23) ; (B, 0.77)}	{(W, 0.9) ; (P, 0.1)}	{(W, 0.54) ;(P, 0.46)}	{(W, 0.88) ; (P, 0.12)}
Availability	{(A, 0.53) ; (G, 0.47)}	{(A, 0.72) ; (G, 0.28)}	{(G, 0.76) ; (B,0.24)}	{(G, 0.68) ; (B, 0.38)}
Average age	{(P, 0.08) ; (A, 0.92)}	{(P, 0.15) ; (A, 0.85)}	{(P, 0.06) ; (A, 0.94)}	{(P, 0.33) ; (A, 0.67)}
Environmental impact	{(A, 0.3) ; (G, 0.5)}	{(P, 0.5) ; (A, 0.3)}	{(A, 0.5) ; (G, 0.25)}	{(A, 0.5) ; (G, 0.45)}
Information and comfort	{(W, 0.6) ;(P, 0.3)}	{(W, 0.5) ; (P, 0.4)}	{(P, 0.2) ; (A,0.7)}	{((A,0.4) (G,0.3)}

We can be aggregated using the ER algorithm in Eq. (5) and (8). The ER algorithm can be employed to calculate the overall distributed assessment on performance. The result of calculation is presented in the fig 3. For selecting the best company exploits the road network, the main purpose of such assessment includes the identification of strengths and weaknesses for each operator, which could form a basis for subsequent detailed assessments and for creating action plans to address the weaknesses identified. Clearly, the company has achieved the best performance in many areas, as over 3.61% of the areas are assessed to be “Best”, 40.48% to be “Good”, and 49,31% to be “Average”. So probably the best operator is SRTGN. However, the company TRANSTU needs to improve in nearly 22% of the worst assessed grade. Also, the fig 2 above shows the variation in scores for each regional operator of public urban transportation. This operation has shown that companies are often different within specified criteria, such as TRANSTU has the best quality service, compared to other operators, but it knew, too, a weakness in the other indicators. This is an important element, for each regional operator needs to monitor their performance for all different criteria.

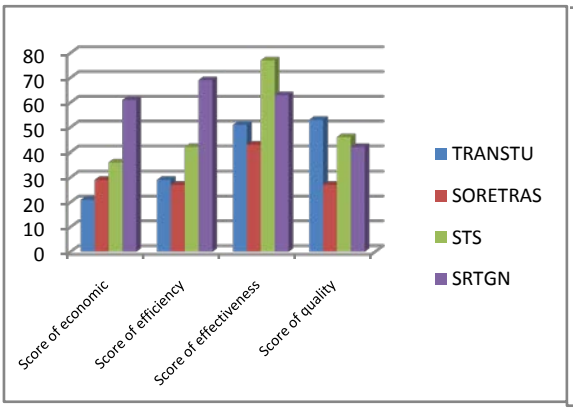


Fig. 2 : The company performance in different criteria

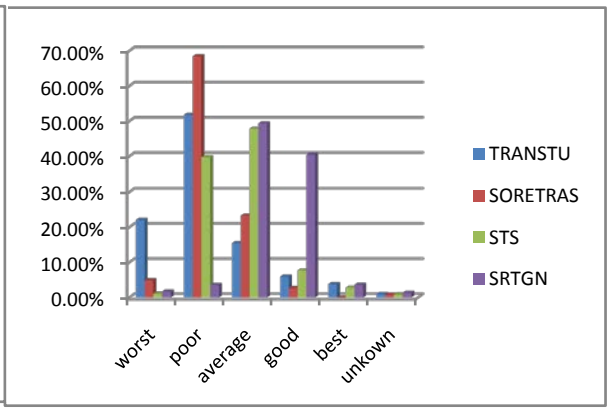


Fig. 3 : The distributed assessment on performance

For calculating the score of each alternative, we used the method of utility function Eq. (13). The assessments in Figure 2 should be used. The numbers under each grade indicate the aggregated assessments of evaluation grade, for example, we applied this method for a STS company. The results for STS presented as follows: STS is assessed to be 1.08% worst, 3.57% poor, 49.31% average, 3.61% good, and 1.32% best. The total degree of belief does not add up to one (or 100%) as a result of incomplete and/or missing assessments. The results in table 4 are supported by the decision making. The operator of public transport could be ranked in order of preference by comparing them with each other as in table 3. However, a comparison may not be possible when the different operators have a very similar degrees of belief assigned to each grade. Therefore, a probability assignment approach could be used to estimate the utilities of five evolution grade. To illustrate the following transformation process and simplify discussion, we proposed the different utilities that it is assigned to each grade;

u(W)=0, u(P)=0.25, u(A)=0.5, u(G)=0.75, u(B)=1.

For example, the result of STS Company is defined as follows;

$$\begin{cases} u_{\min}(STS) = (\beta_1 + \beta_H) \times u(H_1) + \sum_{n=2}^{N} \beta_n \times u(H_n) = 0.424 \\ u_{\max}(STS) = \sum_{n=1}^{4} \beta_n \times u(H_n) + (\beta_5 + \beta_H) \times u(H_5) = 0.43 \\ u_{average}(STS) = \dfrac{u_{\min} + u_{\max}}{2} = 0.427 \end{cases}$$

We applied the method of utility function for all alternatives, we get;

Table 4 : The Expected Utilities of Alternative

Alternatives	Min score	Average score	Max score	Rank
TRANSTU	28%	28,5%	29%	4
SORETRAS	30%	30,5%	31%	3
STS	42%	42,5%	43%	2
SRTGN	59%	59,5%	60%	1

The operators of public transport may be ranked based on the average utility but this may be misleading. In order to say that one company theoretically dominates another, the preferred alternative minimum utility must be equal or greater than the dominated alternative with a maximum utility. The result in the table 4 above shows that the Nabeul 's regional operator (SRTGN) in 2014 is the most successful public company, respectively STS Company, SORETRAS and TRANSTU are ranked in ascending order. We can also measure the degree satisfaction of the customer, by relating the criteria efficiencies with the criteria of effectiveness; it is illustrated in the figure 5. These finding shows that the public transport companies do not reach relieve the travel request, since this ratio is less than 50% of the maximum capacity.

Fig. 4 : The rapport between quality and economic criteria

Fig. 5 : The degree satisfaction of the customer

The rapport between economic and quality of service criteria, view in fig 4, illustrates the company of SRTGN is very far compared to other operators. This company has tried to find a good compromise between expenditure and qualities offered to users, but it can do better when they exploit the resources of a suitable manner.

We have proposed possible solutions to cushion the failure and improve performance in the coming years. We mentioned some indicators of regulations.

- Encourage more the person using public transport
- Reduce the number of people who tend to take the cars during peak hours.
- Develop multimodal platforms that connect public transport with other modes by improving service quality with a modal competitiveness. This means, all modes of transport are competing to ensure the movement.
- Share the power of decision, it must be consistent with the distribution of financial responsibilities, that is to say, the authority decides should have a financing responsibility.
- Share accountability and decision-making power between the Department of Transport and Regional companies.
- Improve business efficiency and productivity by increasing the use rate. Is it justified to make run in distant peripheral, diesel bus consuming 40 liters per 100 km, to transport just 2 people?

VII. Conclusion and Future Work

The regulations related to land transport require a larger contribution of the State, such as the compensation to the operator a loss of earnings due to reduced rates and to free displacement. Also, the financing of investment in equipment (spare parts, fuel consumption, etc.) is funded solely by the state. It is true that the state pays more than 200 thousand dinars per year as reduced internal rates but this amount is insufficient to cover the deficits. This is why the question of the performance of regional public transport companies arises, firstly, we can justify an improvement in regional companies can improve the performance of the transport system. Secondly, the regional companies do not use their full capacity; it is believed that these companies could do better in terms of economic, effectiveness, efficiency, and quality of service. They can improve the decision making in order to amortize some financial damage. Finally, it is convenient to have an approach which can tackle the uncertainties or incompleteness in the data gathered. Therefore, the ER is seen as reasonable method for the performance analysis of public transport operator using both quantitative and qualitative data.

References Références Referencias

1. Nash C. "Competitive tendering of rail services A comparison of Britain and Sweden". The 11th Conference on competition and ownership in land transport. Delft, 2011.
2. Augustin K, Walter M. "Operator changes through competitive tendering: Empirical evidence from German local bus transport". Research in Transportation Economics 2010; 29: 36–44.
3. Hensher D, Wallis I. "Competitive tendering as a contracting mechanism for subsidising transport: the bus experience". Journal of Transport Economics and Policy 2005; 39(3):295-321.
4. TRB-Transportation Research Board. "A guidebook for developing a transit performance-measurement system". TCRP Report 88. Washington D.C: National Academy Press. 2014.
5. Eboli L, Mazzulla G. "Performance indicators for an objective measure of public transport service quality". European Transport/Trasporti Europei, (51/XVII) [online] http://hdl.handle.net/10077/6119. 2012.
6. Schlossberg M, Meyer C, Dill J, Ma L. "Measuring the performance of transit relative to livability". Final report, ODOT/OTREC Research [online] http://www.oregon.gov/ODOT/TD/TP_RES/docs/Reports/2013/SPR735.pdf. 2013.
7. Sheth C, Triantis K, Teodorovic D. "Performance evaluation of bus routes: a provider and passenger perspective". Transportation Research. Part E, Logistics and Transportation Review 2007; 43(4): 453-478.
8. Federal Highway Administration (FHWA). Conditions and performance: Chapter 4 operational performance. Federal Highway Administration. 2008.
9. Eboli L, Mazzulla G. "A methodology for evaluating transit service quality based on subjective and objective measures from the passenger's point of view". Transport Policy 2011; 18:172–181.
10. Cinzia D, Marco D, Flavia D, Claudio L, Giorgio M, Alberto N. "Efficiency and effectiveness in the urban public transport sector: a critical review with directions for future research". European Journal of Operational Research. In Press, 2015.
11. Lupo T. "Strategic Analysis of Transit Service Quality Using Fuzzy AHP Methodology". European Transport\Trasporti Europei 2013; Issue 53, Paper n° 5, [online] http://hdl.handle.net/10077/8691.
12. Katarzyna N, Katarzyna S. "Application of AHP method for multi-criteria evaluation of variants of the integration of urban public transport". 17th Meeting of the EURO Working Group on Transportation. EWGT2014, Seville, Spain. 2014.

13. Vaidya S. "Evaluating the Performance of Public Urban Transportation Systems in India", Journal of Public Transportation 2014; 17(4):174-191.
14. Benjamin D, Bamford D. "Development, test and comparison of two Multiple Criteria Decision Analysis (MCDA) models: A case of healthcare infrastructure location". Expert System with application 2015; 42(19): 6717–6727.
15. Zhang Di, Yan X, Zhang J, Yang Z, Wang J. "Use of fuzzy rule-based evidential reasoning approach in the navigational risk assessment of inland waterway transportation systems". Safety Science 2016; (82): 352–360.
16. Cyrille A, Reynaud R, Sylvie H. "Evidential framework for data fusion in a multi-sensor surveillance system". Engineering Applications of Artificial Intelligence 2015; (43):166–180.
17. Reinhold T. "More passengers and reduced costs e the optimization of the Berlin public transport network". Journal of Public Transportation 2008; 11(3): 57-76.
18. Intergovernmental Panel on Climate Change, climate change 2014, [online] https://ipcc wg2.gov/AR5 /images /uploads/ IPCC_ WG2AR5_SPM_Approved.pdf.
19. Baumstark L, Ménard C, Roy W, Yvrande-Billon A. "Modes de gestion et efficience des opérateurs dans le secteur des transports urbains de personnes", Rapport PREDIT n°03MT24, 154 p. 2005.
20. Chen Y, D. L. Xu, J. B Yang and D. W Tang. "Fire and explosion safety assessment in container line supply chain." In Decision Aid Models for Disaster Management and Emergencies, ed. Begoña Vitoriano, Javier Montero, Da Ruan, 285-306.Springer, 2013.
21. Zhou Z. J, J. B. Yang, C. H. Hu and D. L. Xu. "Belief Rule Base Expert Systems and Complex System Modelling." In Belief Rule Base Expert Systems and Complex System Modelling, Beijing: Science Publisher, 2011a.
22. J. B. Yang and D. L. Xu. "Introduction to the ER rule for evidence combination." In Integrated Uncertainty in Knowledge Modelling and decision Making, ed. Yongchuan Tang, Van-Nam Huynh and Jonathan Lawry, 7-15.2011b.
23. Wang Y.M., Yang J.B., Xu D.L. "Environmental Impact Assessment Using the Evidential Reasoning Approach". European Journal of Operational Research 174 (3): 2006.
24. R., Yang J.B., Dale B.G. "A new modelling framework for organisational self-assessment: development and application". Quality Management Journal 8 (4): 34–47: 2001.
25. Lisa M. "The Sage encyclopedia of qualitative research methods". Los Angeles, Calif.: Sage Publications. ISBN 1-4129-4163-6, 2008.
26. T. Mahmud, K. Rahman, M. Hossain. "Evaluation of Job Offers using the Evidential Reasoning Approach". Global Journal of Computer Science and Technology Neural & Artificial Intelligence. 13 (2): pp35-44. 2013.
27. J. B. Yang and P. Sen, "A general multi-level evaluation process for hybrid MADM with uncertainty", IEEE Trans. Syst. Man Cyber, vol. 24, no. 10, pp. 1458–1473, 1994
28. Saaty T. The Analytic Hierarchy Process: Planning, Priority Setting, Resource Allocation. McGraw-Hill. New York, USA. 1980.

This page is intentionally left blank

Global Journal of Management and Business Research: G Interdisciplinary
Volume 16 Issue 1 Version 1.0 Year 2016
Type: Double Blind Peer Reviewed International Research Journal
Publisher: Global Journals Inc. (USA)
Online ISSN: 2249-4588 & Print ISSN: 0975-5853

The use of the Probability Tree Diagram to Test the Integrated Model in Building the Management Information Systems

By Mohammad M M Abu Omar & Dr. Khairul Anuar Abdullah

Limkokwing University of Creative Technology, Malaysia

Abstract- This paper aims to implement a new test for the integrated model by using the theory of the probability tree diagram. This test is implemented because it gives more accurate results compared with the previous test that was implemented to test the integrated model by using the simple random sampling (SRS) probability theory. So this paper will provide more accurate results, which will increase the confidence of systems builders in the integrated model.

Keywords: probability tree diagram; simple random sampling; SRS; integrated model; classical approach.

GJMBR - G Classification : JEL Code : D82

Strictly as per the compliance and regulations of:

The use of the Probability Tree Diagram to Test the Integrated Model in Building the Management Information Systems

Mohammad M M Abu Omar [α] & Dr. Khairul Anuar Abdullah [σ]

Abstract- This paper aims to implement a new test for the integrated model by using the theory of the probability tree diagram. This test is implemented because it gives more accurate results compared with the previous test that was implemented to test the integrated model by using the simple random sampling (SRS) probability theory. So this paper will provide more accurate results, which will increase the confidence of systems builders in the integrated model.

Keywords: probability tree diagram; simple random sampling; SRS; integrated model; classical approach.

I. Introduction

Mohammad Abu Omar and Khairul Anuar Abdullah have recently developed a new model to improve the use of the classical approach in building the management information systems (MIS's) [1], this model is named as: the integrated model. The importance of the integrated model comes from its mission in overcoming the classical approach drawback which is the additional time and cost consumed while using the classical approach in building the management information systems (MIS's). The integrated model includes a new classification of the management problems, and new sub-approaches that are developed from the life cycle of the classical approach. The integrated model appoints each one of the developed sub-approaches to solve the suitable management problems in order to achieve its mission in saving the time and cost while using the classical approach in building the (MIS's). In the following is the integrated model structure and work [1] :

A. The first level: this level includes three main categories of the management problems, which are:

- First category management problems.
- Second category management problems.
- Combined management problems.

B. The second level: this level includes all types of management problems which are generated and branched from the previous three categories of the management problems in the first level. There are different types of management problems as follows:

- First category management problems generate the following types of management problems:

a. First order management problem.
b. Second order management problem.

- Second category management problems generate the following types of management problems:

a. First level management problem.
b. Second level management problem.

- Combined management problems generate the following types of management problems:

a. First combined management problem.
b. Second combined management problem.
c. Third combined management problem.
d. Fourth combined management problem.

And thus, the second level includes the eight types of management problems, and each one of them has its own nature and characteristics [1].

C. The third level: According to the characteristics of the management problems, that exist in the second level, the integrated model has developed new sub-approaches from the classical approach. These developed sub-approaches have a minimized life cycle compared with current life cycle that is adopted by the classical approach, where each one of these developed sub-approaches is logically appointed to solve the suitable management problems in order to achieve the goal of the integrated model in saving time and cost while using of the classical approach in building the management information systems, as in the following[1] :

- MIS classical approach (1): it is used to solve the following management problems [1]:

a. First order management problem.
b. Second combined management problem.

- MIS classical approach (2): it is used to solve the following management problems [1]:

a. First level management problem.
b. Third combined management problem.

- MIS classical approach (3): it is used to solve the following management problems [1]:

Author α: Limkokwing University of Creative Technology 63000 Cyberjaya-Selangor-Malaysia. e-mail: mmdabuomar@yahoo.com
Author σ: Limkokwing University of Creative Technology 63000 Cyberjaya-Selangor-Malaysia.
e-mail: khairulanuar.abdullah@limkokwing.edu.m

a. Second order management problem.
b. Second level management problem
c. First combined management problem.

Meanwhile, the integrated model maintains the use of the current approach of classical approach to solve the other management problems that are not solved by the previous three developed sub-approaches. The current approach of the classical approach is named as: MIS classical approach. Thus, the third level in the integrated model consists of the following [1]:

- Two from MIS approach (1).
- Two from MIS approach (2).
- One from MIS approach (3).
- Three from MIS classical approach.

The following figure shows the levels of the integrated model [1]:

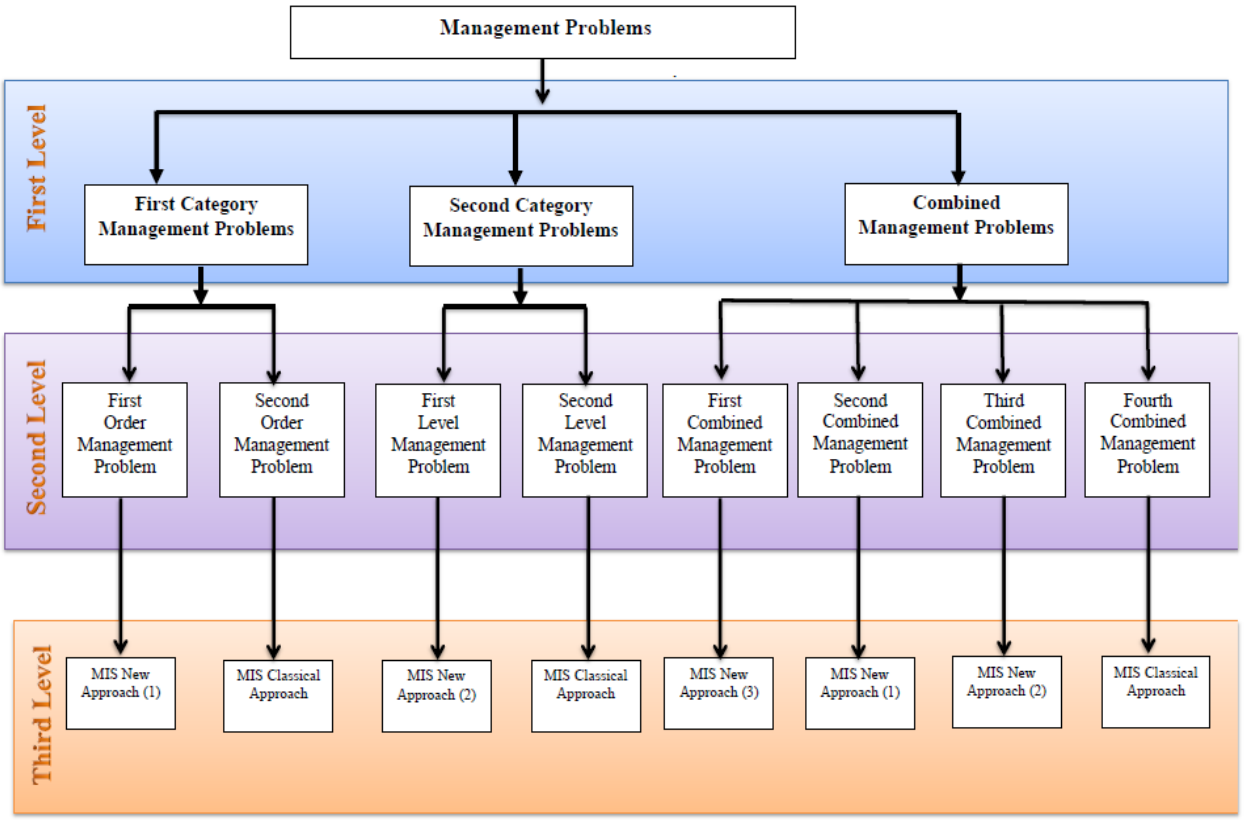


Figure (1) : The integrated model structure

II. Literature Review

The integrated model has been subjected to a test by using the probability theory of the simple random sampling (SRS) [2].

The test has been implemented to examine if the integrated model can achieve its mission and goal in limiting the consumption of additional time and cost through using the classical approach in building the management information systems (MIS's) in order to solve the management problems, the test results have showed that the integrated model can solve 62.5% from the management problems without consuming additional time and cost, while 37.5% of the management problems will be solved without the saving of time and cost [2].

Thus, the test results have recorded the success of the integrated model in its work and mission.

The new work in this paper, aims to implement a new test to the integrated model by using another probability method which is the probability tree diagram. This method is used because it gives more accurate results than the simple random sampling (SRS) probability method results, and this will increase the confident of the efficiency of the integrated model work.

III. Methods

This paper uses the probability tree diagram to implement an internal test that measures the probability of each element in each level of the integrated model in order to obtain the probabilities of the final outcomes of the integrated model, which are the following probabilities:

1. The expected probability of using each developed sub-approach: [MIS approach (1), MIS approach

(2), MIS approach (3)] which will solve the management problems without consuming additional time and cost.

2. The expected probability of using the MIS classical approach that will solve the management problems without saving time and cost.

This test is used, because of its property in providing more accurate results in measuring the probabilities, compared with other probability methods such as the simple random sampling probability theory [3], [4], [5].

The probability tree diagram test will be implemented to the integrated model through the following steps and procedures:

1. Define the tree of the integrated model.
2. Apply the simple random sampling probability theory in each branch of the integrated model tree.
3. Define the integrated model probability tree outcome events and find their probabilities.
4. Finding the net probability value for each outcome combined event in the integrated model probability tree.

a) The Implementation of Probability Tree Diagram Test

Here, the probability tree diagram test will be implemented to the integrated model through the following test- steps and procedures:

1. Define the tree of the integrated model:

Here, the integrated model is defined as a set of multi-branches, which makes it appropriate for the probability tree diagram test.

The following figures show the branches of the integrated model tree:

- Branch (1): it is obtained from the first level of the integrated model structure as it is shown in the figure (1). Branch (1) includes three sub-branches which are: (1.a), (1.b), and (1.c), is as follows:

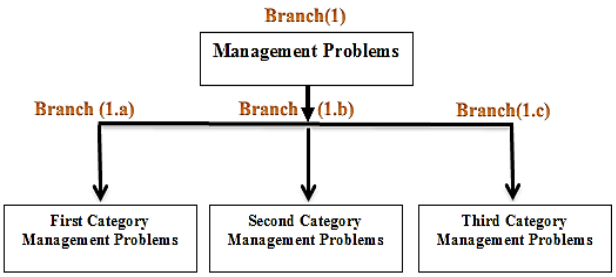


Figure (2) : Branch (1) in the integrated model tree

- Branch (2): it is generated from the end of branch (1.a), and includes two sub-branches which are: (2.a), and (2.b), is as follows:

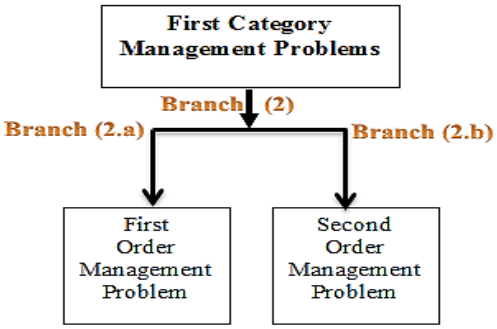


Figure (3) : Branch (2) in the integrated model tree

- Branch (3): it is generated from the end of branch (1.b), and includes two sub-branches which are: (3.a), and (3.b), is as follows:

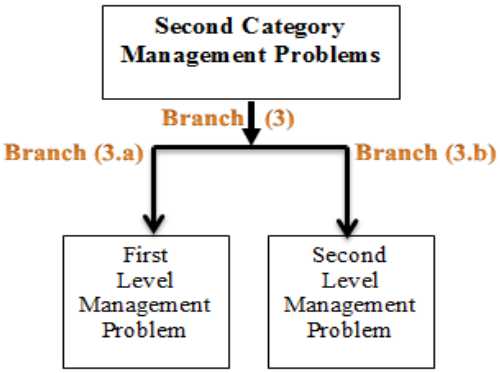


Figure (4) : Branch (3) in the integrated model tree.

- Branch (4): it is generated from the end of branch (1.c), and includes four sub-branches which are: (4.a), (4.b), (4.c), and (4.d), is as follows:

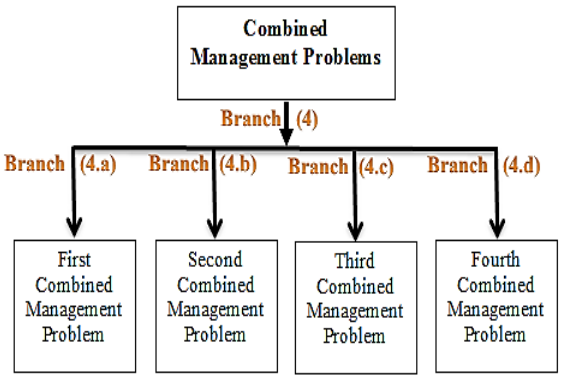


Figure (5) : Branch (4) in the integrated model tree

2. Apply the simple random sampling probability theory in each branch of the integrated model tree:

Here, an experiment is created to each branch in the integrated model tree by using the simple random sampling (SRS) probability method. Each experiment includes the following ingredients:

- The Sample Space (Ω):

It is the set of all possible outcomes of the experiment [2].

- The Event:

The event (E) is a set of outcomes of an experiment (a subset of the sample space) to which a probability is assigned [2],[3].

- The Probability Theory:

The simple random sampling (SRS) probability method defines the probability of an event E [P (E)], as the number of outcomes favorable to the event, divided by the total number of outcomes [2],[4],[3]:

$$P(E) = \frac{Number\ of\ Elements\ of\ E}{Total\ Number\ of\ Elements\ in\ \Omega} = \frac{Favorable\ Outcomes}{Total\ Outcomes}$$

In the (SRS) probability theory, each element in the sample space (Ω) has an equal probability of selection [2].

Now, the (SRS) probability method will implement an experiment in each branch of the integrated model tree, is as follows:

a. Branch (1) Experiment:

This experiment is implemented by the (SRS) probability method, as in the following:

- The sample space (Ω) in the experiment includes three elements, as follows:

$$\Omega = \{First\ Category\ Management\ Problems,\ Second\ Category\ Management\ Problems,\ Combined\ Management\ Problems\ \}$$

- The events in the experiment are:

E1: {First Category Management Problems}.

E2 :{Second Category Management Problems}.

E3: {Combined Management Problems}.

Additionally, there is one element from each event.

Now, the probability theory of the (SRS) method will be applied to each event in the experiment, as in the following:

$$P(First\ Category\ Management\ Problems) = \frac{1}{3}$$

$$P(Second\ Category\ Management\ Problems) = \frac{1}{3}$$

$$P(Combined\ Management\ Problems) = \frac{1}{3}$$

b. Branch (2) Experiment:

This experiment is implemented by the (SRS) probability method, as in the following:

- The sample space (Ω) in the experiment includes two elements, is as follows:

$$\Omega = \{First\ Order\ Management\ Problems,\ Second\ Order\ Management\ Problems\ \}$$

- The events in the experiment are:

E1: {First Order Management Problems}.

E2 :{ Second Order Management Problems}.

And there is one element from each event.

Now, the probability theory of the (SRS) method will be applied to each event in the experiment, as in the following:

$$P(First\ Order\ Management\ Problems) = \frac{1}{2}$$

$$P(Second\ Order\ Management\ Problems) = \frac{1}{2}$$

c. Branch (3) Experiment:

This experiment is implemented by the (SRS) probability method, as in the following:

- The sample space (Ω) in the experiment includes two elements, is as follows:

$$\Omega = \{First\ Level\ Management\ Problems,\ Second\ Level\ Management\ Problems\ \}$$

- The events in the experiment are:

E1: {First Level Management Problems}.

E2 :{ Second Level Management Problems}.

And there is one element from each event.

Now, the probability theory of the (SRS) method will be applied to each event in the experiment, as in the following:

$$P(First\ Level\ Management\ Problems) = \frac{1}{2}$$

$$P(Second\ Level\ Management\ Problems) = \frac{1}{2}$$

d. Branch (4) Experiment:

This experiment is implemented by the (SRS) probability method, as in the following:

- The sample space (Ω) in the experiment includes four elements, is as follows:

$$\Omega = \{First\ Combined\ Management\ \ oblems\ Second\ Combined\ Management\ Problems,\ Third\ Combined\ Management\ Problems,\ Fourth\ Combined\ Management\ Problems\ \}$$

- The events in the experiment are:

E1: {First Combined Management Problems}.

E2:{Second Combined Management Problems}.

E3: {Third Combined Management Problems}.

E4:{Fourth Combined Management Problems}.

And there is one element from each event.

Now, the probability theory of the (SRS) method will be applied to each event in the experiment, as in the following:

$$P(First\ Combined\ Management\ Problems) = \frac{1}{4}$$

$$P(Second\ Combined\ Management\ Problems) = \frac{1}{4}$$

$$P(Third\ Combined\ Management\ Problems) = \frac{1}{4}$$

$$P(Fourth\ Combined\ Management\ Problems) = \frac{1}{4}$$

3. Define the integrated model probability tree outcome events and find their probabilities:

In the probability tree diagrams, the tree outcomes are combined events [3],[4],[5].In the case of the integrated model probability tree, and as it is shown in figure (1), the outcomes are also combined events that are resulted from the branches: (2), (3), and (4) of the integrated model tree, is as follows:

a. The outcome events of branch (2): there are two outcome events of branch (2), as follows:

- The first outcome event is: MIS new approach (1), It is a combined event that is generated from the two events which are: first category management problems event, and first order management problems event. It appears as output of the line of branch (1.a) - (2.a).
- The second outcome event is: MIS classical approach, It is a combined event that is generated from the two events which are: first category management problems event, and second order management problems event. It appears as output of the line of branch (1.a) - (2.b).

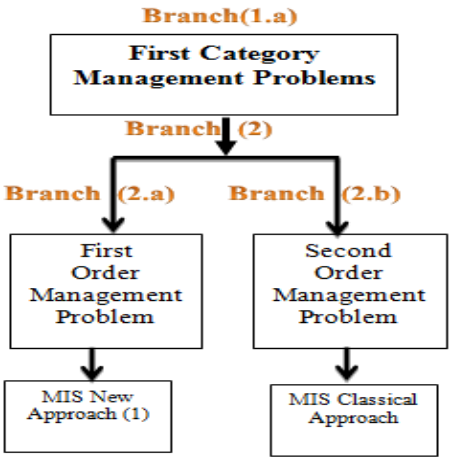


Figure (6) : The outcomes of branch(2) in the integrated model tree

To find the probability of each outcome combined event in the probability tree diagram, the probability tree diagram method uses the intersection probability formula between the events that generate the outcome combined event. Now, this method will be applied to find the probability of branch (2) outcome combined events in the integrated model probability tree, is as follows [3], [4], [5]:

$$P(MIS\ New\ Approach\ (1)) =$$
$$P(First\ Category\ Management\ Problems) \cap P(First\ Order\ Management\ Problems)$$

$$P(MIS\ Classical\ Approach) =$$
$$P(First\ Category\ Management\ Problems) \cap P(Second\ Order\ Management\ Problems)$$

And because that all of the events: first category management problems, first order management problems, and second order management problems are independent events, so the intersection process between these independent events will be converted to a multiply process [3],[4],[5], is as follows:

$$P(MIS\ New\ Approach\ (1)) =$$
$$P(First\ Category\ Management\ Problems)\ X\ P(First\ Order\ Management\ Problems)$$

$$P(MIS\ Classical\ Approach) =$$
$$P(First\ Category\ Management\ Problems)\ X\ P(Second\ Order\ Management\ Problems)$$

Now, and from the results of branch (1) and branch (2) experiments, the following values can be obtained:

$$P(First\ Category\ Management\ Problems) = \frac{1}{3}$$

$$P(First\ Order\ Management\ Problems) = \frac{1}{2}$$

$$P(Second\ Order\ Management\ Problems) = \frac{1}{2}$$

So, the probability of (MIS new approach (1)) will be calculated as follows:

$$P(MIS\ New\ Approach(1)) = \frac{1}{3} \text{ X } \frac{1}{2} = \frac{1}{6}$$

And the probability of (MIS classical approach) will be calculated as follows:

$$P(MIS\ Classical\ Approach) = \frac{1}{3} \text{ X } \frac{1}{2} = \frac{1}{6}$$

The following figure clarifies the finding of probability of the outcome combined events of branch (2) which are: MIS new approach (1) event, and MIS classical approach event:

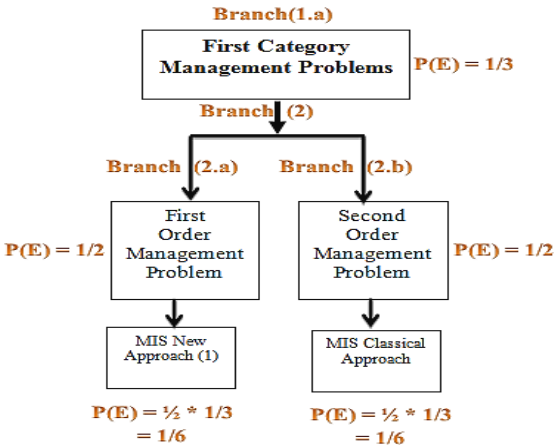


Figure (7) : Finding the probability of the outcome combined events of branch (2)

b. The outcome events of branch (3): there are two outcome events of branch (2), is as follows:

- The first outcome event is: MIS new approach (2), It is a combined event that is generated from the two events which are: second category management problems event, and first level management problems event. It appears as output of the line of branch (1.b) - (3.a).
- The second outcome event is: MIS classical approach, It is a combined event that is generated from the two events which are: second category management problems event, and second level management problems event. It appears as output of the line of branch (1.b) - (3.b).

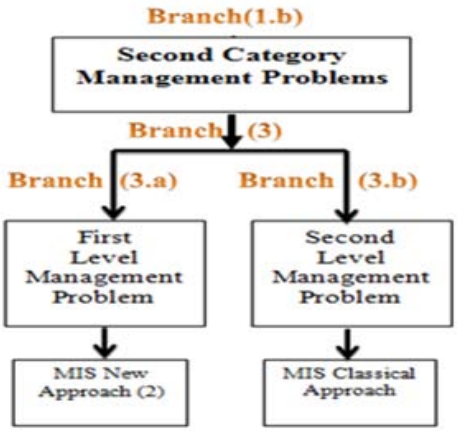


Figure (8) : The outcomes of branch(3) in the integrated model tree

To find the probability of each outcome combined event in the probability tree diagram, the probability tree diagram method uses the intersection probability formula between the events that are generated the outcome combined event. Now, this method will be applied to find the probability of branch (3) outcome combined events in the integrated model probability tree, is as follows [3], [4], [5]:

$$P(MIS\ New\ Approach(2)) =$$
$$P(Second\ Category\ Management\ Problems) \cap P(First\ Level\ Management\ Problems)$$

$$P(MIS\ Classical\ Approach) =$$
$$P(Second\ Category\ Management\ Problems) \cap P(Second\ Level\ Management\ Problems)$$

And because that all of the events: second category management problems, first level management problems, and second level management problems are independent events, so the intersection process between these independent events will be converted to a multiply process [3],[4],[5], is as follows:

$$P(MIS\ New\ Approach(2)) =$$
$$P(Second\ Category\ Management\ Problems) \text{ X } P(First\ Level\ Management\ Problems)$$

$$P(MIS\ Classical\ Approach) =$$
$$P(Second\ Category\ Management\ Problems) \text{ X } P(Second\ Level\ Management\ Problems)$$

Now, and from the results of branch (1) and branch (3) experiments, the following values can be obtained:

$$P(Second\ Category\ Management\ Problems) = \frac{1}{3}$$

$$P(First\ Level\ Management\ Problems) = \frac{1}{2}$$

$$P(Second\ Level\ Management\ Problems) = \frac{1}{2}$$

So, the probability of (MIS new approach (1)) will be calculated as follows:

$$P(MIS\ New\ Approach(2)) = \frac{1}{3} \text{ X } \frac{1}{2} = \frac{1}{6}$$

And the probability of (MIS classical approach) will be calculated as follows:

$$P(MIS\ Classical\ Approach) = \frac{1}{3} \text{ X } \frac{1}{2} = \frac{1}{6}$$

The following figure clarifies the finding of probability of the outcome combined events of branch (3) which are: MIS new approach (2) event, and MIS classical approach:

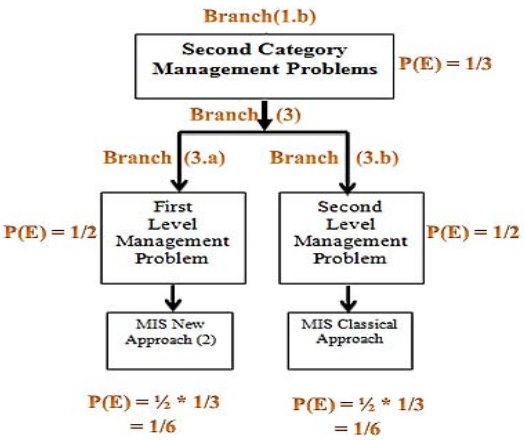


Figure (9) : Finding the probability of the outcome combined events of branch (3)

c. The outcome events of branch (4): there are four outcome events of branch (4), is as follows:

- The first outcome event is: MIS new approach (3). It is a combined event that is generated from the two events which are: combined management problems event, and first combined management problems event. It appears as output of the line of branch (1.c) - (4.a).
- The second outcome event is: MIS new approach (1). It is a combined event that is generated from the two events which are: combined management problems event, and second combined management problems event. It appears as output of the line of branch (1.c) - (4.b).
- The third outcome event is: MIS new approach (2), It is a combined event that is generated from the two events which are: combined management problems event, and third combined management problems event. It appears as output of the line of branch (1.c) - (4.c).
- The fourth outcome event is: MIS classical approach, It is a combined event that is generated from the two events which are: combined management problems event, and fourth combined management problems event. It appears as output of the line of branch (1.c) - (4.d).

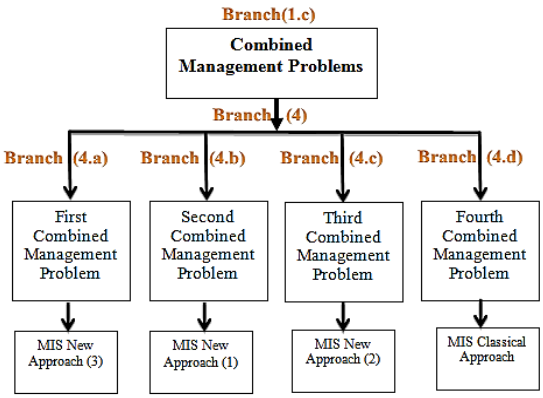


Figure (10) : The outcomes of branch(4) in the integrated model tree

To find the probability of each outcome combined event in the probability tree diagram, the probability tree diagram method uses the intersection probability formula between the events that generate the outcome combined event. Now, this method will be applied to find the probability of branch (4) outcome combined events in the integrated model probability tree, is as follows [3],[4],[5]:

$$P(MIS\ New\ Approach(3)) =$$
$$P(Combined\ Management\ Problems) \cap P(First\ Combined\ Management\ Problems)$$

$$P(MIS\ New\ Approach(1)) =$$
$$P(Combined\ Management\ Problems) \cap P(Second\ Combined\ Management\ Problems)$$

$$P(MIS\ New\ Approach(2)) =$$
$$P(Combined\ Management\ Problems) \cap P(Third\ Combined\ Management\ Problems)$$

$$P(MIS\ Classical\ Approach) =$$
$$P(Combined\ Management\ Problems) \cap P(Fourth\ Combined\ Management\ Problems)$$

And because that all of the events: combined management problems, first combined management problems, second combined management problems, third combined management problems, and fourth combined management problems are independent events will be converted to a multiply process [3],[4],[5], is as follows:

$$P(MIS\ New\ Approach(3)) = P(Combined\ Management\ Problems) \text{ X } P(First\ Combined\ Management\ Problems)$$

$$P(MIS\ New\ Approach(1)) = P(Combined\ Management\ Problems) \text{ X } P(Second\ Combined\ Management\ Problems)$$

$$P(MIS\ New\ Approach(2)) = P(Combined\ Management\ Problems) \text{ X } P(Third\ Combined\ Management\ Problems)$$

$$P(MIS\ Classical\ Approach) = P(Combined\ Management\ Problems) \text{ X } P(Fourth\ Combined\ Management\ Problems)$$

Now, and from the results of branch (1) and branch (4) experiments, the following values can be obtained:

$$P(Combined\ Management\ Problems) = \frac{1}{3}$$

$$P(First\ Combined\ Management\ Problems) = \frac{1}{4}$$

$$P(Second\ Combined\ Management\ Problems) = \frac{1}{4}$$

$$P(Third\ Combined\ Management\ Problems) = \frac{1}{4}$$

$$P(Fourth\ Combined\ Management\ Problems) = \frac{1}{4}$$

So, the probability of (MIS new approach (3)) will be calculated as follows:

$$P(MIS\ New\ Approach(3)) = \frac{1}{3} \text{ X } \frac{1}{4} = \frac{1}{12}$$

And the probability of (MIS new approach (1)) will be calculated as follows:

$$P(MIS\ New\ Approach(1)) = \frac{1}{3} \text{ X } \frac{1}{4} = \frac{1}{12}$$

And the probability of (MIS new approach (2)) will be calculated as follows:

$$P(MIS\ New\ Approach(2)) = \frac{1}{3} \text{ X } \frac{1}{4} = \frac{1}{12}$$

And the probability of (MIS classical approach) will be calculated as follows:

$$P(MIS\ Classical\ Approach) = \frac{1}{3} \text{ X } \frac{1}{4} = \frac{1}{12}$$

The following figure clarifies the finding of probability of the outcome combined events of branch (4) which are: MIS new approach (3) event, MIS new approach (1) event, MIS new approach (2) event, and MIS classical approach:

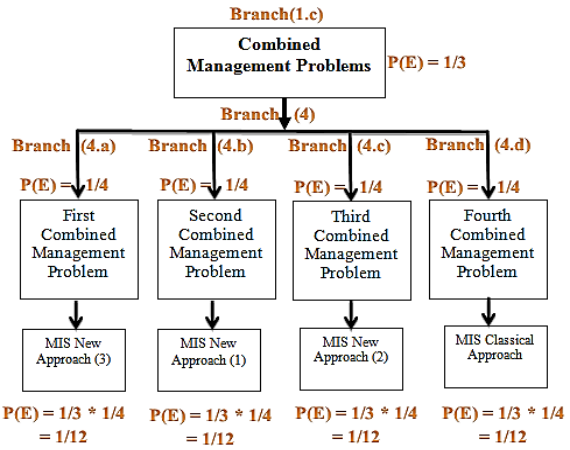


Figure (11) : Finding the probability of the outcome combined events of branch (4).

Thus, the following table (1) shows the summary of probability values for the outcome combined events of the integrated model probability tree:

Table (1) : All probability values of all outcome combined events of the integrated model probability tree

The outcome combined events	The probability values		
MIS new approach (1)	1/6	1/12	
MIS new approach (2)	1/6	1/12	
MIS new approach (3)	1/12		

- The MIS new approach (3) event: has the following probability: (1/12), so:

$$P_{net}(MIS\ New\ Approach(1)) = (1/6) + (1/12) = 3/12 = 0.25$$

- The MIS classical approach event: has the following probabilities: (1/6, 1/6, 1/12), so:

$$P_{net}(MIS\ New\ Approach(2)) = (1/6) + (1/12) = 3/12 = 0.25$$

And, if all these probability values of all outcome events are added, the result should be (1), as in the following:

(3/12) + (3/12) + (1/12) + (5/12) = 12/12 = 1

IV. Results and Discussion

The probability tree diagram test gives the following probability results as in the following table (2):

Table (2) : The net probability values of all outcome combined events of the integrated model probability tree

The Outcome Combined Event of the Integrated Model Tree	The Net probability value
MIS new approach (1)	0.25
MIS new approach (2)	0.25
MIS new approach (3)	0.0833
MIS classical approach	0.416

And, as it is mentioned in the theory of the integrated model through the introduction, the use of the developed new approaches (1, 2, and 3) will help the integrated model to build the management information systems (MIS's) without consuming additional time and cost, while the use of the MIS classical approach will consume additional time and cost in building the (MIS's) [7], [8], [1].

Now the research will determine the probability value of building the (MIS's) without consuming additional time and cost, which is (the probability of the success of the integrated model work), this probability can be found as follows:

$$P(MIS\ New\ Approach\ (1)) + P(MIS\ New\ Approach\ (2)) + P(MIS\ New\ Approach\ (3))$$

$$= 0.25 + 0.25 + 0.0833$$

$$= 0.5833$$

And also, the probability value of building the (MIS's) without saving additional time and cost, which is (the probability of the fail of the integrated model work), this probability is the probability of using the MIS classical approach which is as follows:

Thus, the research will present the final decision whether the integrated model success in its mission or fail, as in the following:

Firstly: the integrated model can build the management information system (MIS's) by using classical approach to solve the management problems without consuming additional time and cost, with the probability of: (0.5833), this probability value is a likely result according to the probability scale, as in the following [9],[5] :

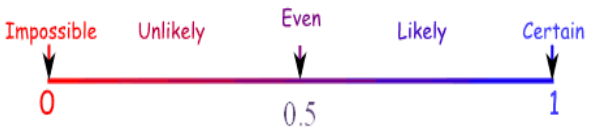


Figure (12) : The Probability line scale

Secondly: the integrated model can build the management information system (MIS's) by using classical approach to solve the management problems, without saving additional time and cost, with the probability of: (0.416), this probability value is an unlikely result according to the probability scale, as it is shown in figure (12).

So, the previous results indicate the success of the integrated model in its work, with probability of: (58%).

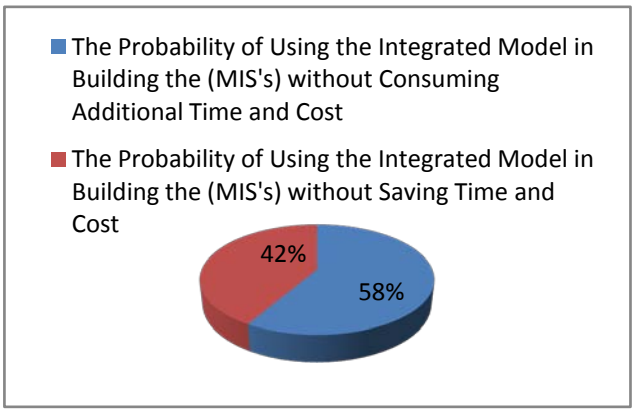


Figure (13) : The results of the probability tree diagram test

V. Conclusion

The integrated model is a recently developed model that is designed to reduce the drawback of the classical approach which is the consumption of additional time and cost while building the management information systems (MIS's) to solve the management problems.

The work of the integrated model has been recently tested by using the simple random sampling probability theory, and the test results have confirmed the success of the integrated model in its work.

This paper uses the probability tree diagram test to implement another new test of the integrated model work; this test is implemented because it gives more accurate results compared with the simple random sampling test.

The results of the probability tree diagram test add a new success to the integrated model work and mission, since these results show that the integrated model can solve more than 58% of the management problems without consuming additional time and cost, while less than 42% of the management problems will be solved without the saving of time and cost.

References Références Referencias

1. M. M. A. Omar and K. A. Abdullah, "Developing a New Integrated Model to improve the using of Classical Approach in Designing Management Information Systems," International Journal of

Advanced Computer Science & Applications, vol. 1, pp. 190-197, 2015.
2. M. M. A. Omar and K. A. Abdullah, "Testing the Use of the Integrated Model in Designing the Management Information Systems by Using the Mathematical Probability Theories," International Journal of Advanced Computer Science & Applications, vol. 1, pp. 159-165, 2015.
3. R. B. Ash, Basic probability theory: Courier Corporation, 2012.
4. F. M. Dekking, A Modern Introduction to Probability and Statistics: Understanding why and how: Springer Science & Business Media, 2005.
5. Available: http://www.mathgoodies.com/
6. S. Abu-Soud, Ed., Systems Analysis and Design. Jordan: Al-Quds Open University, 2007.
7. M. M. Abu Omar, "Developing New Methods in designing Management Information Systems to solve Management Problems by using Classical Approach," International Journal of Computer Applications, vol. 101, 2014.
8. M. M. Abu Omar, "A New Approach to Increase the Efficiency of Classical Approach In Designing Management Information Systems (MIS'S)," IJRCCT, vol. 3, pp. 1421-1424, 2014.
9. H. Jones, Ed., Introduction to Probability.
10. L. Anderson, Management information systems: Solving business problems with information technology: McGraw-Hill, Inc., 2000.
11. R. W. Griffin, Ed., Management. Boston: Houghton Mifflin Company, 2002.
12. N. M. A. Munassar and A. Govardhan, "Comparison between traditional approach and object-oriented approach in software engineering development," International Journal of Advanced Computer Science and Applications, vol. 2, 2011.

Global Journal of Management and Business Research: G Interdisciplinary
Volume 16 Issue 1 Version 1.0 Year 2016
Type: Double Blind Peer Reviewed International Research Journal
Publisher: Global Journals Inc. (USA)
Online ISSN: 2249-4588 & Print ISSN: 0975-5853

Strategies that Led to Failure - Case Study of Corporate Governance

By Dr. Navita Mahajan

Abstract- The case study is about Corporate Governance and its failure in India. We consider the corporate governance to be the main element when we have to talk about the success of a company but at the same time if it fails due to different reasons such as, the financial, social and political reasons, the consequences can be very serious. In order to understand the importance of this system we have tried to explain and define the notion of corporate governance being inspired by the studies already made in this field. In the second part of the paper we pointed out the benefits that a company enjoys when good corporate governance practices are embraced. In the third part we highlighted the principles and the models of corporate governance. In the fourth part of the paper we focused out attention on some resounding financial scandals from all over the world and then analyzed the causes that led to failures. Towards the end, we took a close look at the failure in corporate governance and tried to analyse the reasons that lead to failure.

Keywords: *corporate governance, principles, failure, scandals, stakeholders.*

GJMBR - G Classification : *JEL Code : G34*

Strictly as per the compliance and regulations of:

Strategies that Led to Failure - Case Study of Corporate Governance

Dr. Navita Mahajan

Abstract- The case study is about Corporate Governance and its failure in India. We consider the corporate governance to be the main element when we have to talk about the success of a company but at the same time if it fails due to different reasons such as, the financial, social and political reasons, the consequences can be very serious. In order to understand the importance of this system we have tried to explain and define the notion of corporate governance being inspired by the studies already made in this field. In the second part of the paper we pointed out the benefits that a company enjoys when good corporate governance practices are embraced. In the third part we highlighted the principles and the models of corporate governance. In the fourth part of the paper we focused out attention on some resounding financial scandals from all over the world and then analyzed the causes that led to failures. Towards the end, we took a close look at the failure in corporate governance and tried to analyse the reasons that lead to failure. The conclusions express our point of view regarding failure and we agree that in most of the cases, no matter the system of corporate governance, the country in which the company activates or the stakeholders involved in the business, human nature, the power of money and control are too hard to overcome.

Keywords: corporate governance, principles, failure, scandals, stakeholders.

I. Introduction

Corporate governance begins with power who holds the power in an organization, how it is delegated and exercised, its purpose, and what control mechanisms the power holders use. With power comes the responsibility of decision making, the right to choose, and the option to delegate. Power in a company is not absolute because it is always exercised within guidelines or constraints. In public corporations, the purpose of power is the creation of value, and the structure of shareholder owned corporations means that the value created must be shared. Therefore, a comprehensive definition of corporate governance will cover all the activities involved in creating and sharing value.

II. Factors Influencing Corporate Governance

a) The ownership structure

The structure of ownership of a company determines, to a considerable extent, how a Corporation is managed and controlled. The ownership structure can be dispersed among individual and institutional shareholders as in the US and UK or can be concentrated in the hands of a few large shareholders as in Germany and Japan. But the pattern of shareholding is not as simple as the above statement seeks to convey. The pattern varies the across the globe.

Our corporate sector is characterized by the co-existence of state owned, private and multinational Enterprises. The shares of these enterprises (except those belonging to a public sector) are held by institutional as well as small investors.

Specifically, the shares are held by:

1) The term-lending institutions.
2) Institutional investors, comprising government-owned mutual funds, Unit Trust of India and the government owned insurance corporations.
3) Corporate bodies.
4) Directors and their relatives, and
5) Foreign investors

Apart from these block holdings, there is a sizable equity holding by small investors.

b) The structure of company boards

Along with the structure of ownership, the structure of company boards has considerable influence on the way the companies are managed and controlled. The board of directors is responsible for establishing corporate objectives, developing broad policies and selecting top-level executives to carry out those objectives and policies.

c) The financial structure

Along with the notion that the structure of ownership matters in corporate governance is the notion that the financial structure of the company, that is proportion between debt and equity, has implications for the quality of governance.

d) The institutional environment

The legal, regulatory, and political environment within which a company operates determines in large measure the quality of corporate governance. In fact, corporate governance mechanisms are economic and legal institutions and often the outcome of political decisions. For example, the extent to which shareholders can control the management depends on their voting right as defined in the Company Law, the extent to which creditors will be able to exercise financial

Author: e-mail: nmahajan@amity.edu

claims on a bankrupt unit will depend on bankruptcy laws and procedures etc.

III. Corporate Governance Failure in India

a) Reebok India case

Agencies probing the alleged Rs 870 crore corporate fraud in the operation of Reebok India have detected a systemic "mismanagement" in the business planning and governance of the company reportedly done by some of its officials and employees.

Three different agencies -- the I-T department under Finance Ministry, the Serious Fraud Investigation Office (SFIO) under Corporate Affairs Ministry and the Economic Offences Wing of Gurgaon police -- have recorded the findings almost four months after a criminal case was filed by Reebok India against two of its former employees.

The main reason for this scam were the governance and operations in the company were mismanaged. The bills were inflated and not recorded correctly. So, the probe clearly indicates that it was not a corporate scam in the apparel manufacturing firm but it was non-adherence to the rules and guidelines of business procedures in the firm," sources privy to the probe said. The guidelines under the Companies Act were violated which is suspected to have led to other contraventions like tax evasion. The I-T which has indicated to an alleged Rs 140 crore tax evasion in the case, the sources said, will now work to ensure that the company, later, does not claim any "bad debt". A bad debt is that amount that is owed to a business or individual and has to be written off by the creditor as a loss because the debt cannot be collected because of a host of reasons.

There were no serious borrowings or lending of Reebok India. The probe agencies investigation will make sure that the firm does not qualify to claim bad debt from anywhere in the later course, Probe agencies have also found that some of the officials of the company could have been involved in the inflation of bills and over-valuation of the goods of the firm.

In the much publicized criminal complaint filed at the Gurgaon police's Economic Offence Wing in May, Reebok India had alleged that its former Managing Director Subhinder Singh Prem and Chief Operating Officer Vishnu Bhagat were involved in an Rs 870-crore fraud by indulging in "criminal conspiracy" and "fraudulent" practises over a period of time. Gurgaon police had some days back arrested Subhinder Singh and Vishnu Bhagat along with three others – Sanjay Mishra, Prashant Bhatnagar and Surakshit Bhat.

Subhinder Singh and Vishnu Bhagat were booked for fraud, criminal conspiracy and other charges under IPC for allegedly siphoning off the sportswear company's money by creating ghost distributors across the country and generating forged bills over the last five years. While the I-T department is scrutinising documents related to accounts and imports of the firm, the SFIO is probing the entire governance affairs of the company under Section 235 of the Companies Act. According to sources, the probe agencies also do not rule out the culpability of accounting officials of the firm at this stage for their "deliberate" or "mistaken oversight" in account books which led to the alleged financial irregularities.

In the much publicised criminal complaint filed at the Gurgaon police's Economic Offence Wing in May, Reebok India had alleged that its former Managing Director Subhinder Singh Prem and Chief Operating Officer Vishnu Bhagat were involved in a Rs 870-crore fraud by indulging in "criminal conspiracy" and "fraudulent" practices over a period of time. Gurgaon police had some days back arrested Singh and Bhagat along with three others -- Sanjay Mishra, Prashant Bhatnagar and Surakshit Bhat. Singh and Bhat were booked for fraud, criminal conspiracy and other charges under IPC for allegedly siphoning off the sportswear company's money by creating ghost distributors across the country and generating forged bills over the last five years. While the I-T is scrutinising documents related to accounts and imports of the firm, the SFIO is probing the entire governance affairs of the company under Section 235 of the Companies Act.

Investigating authorities blamed it on the gross mismanagement in corporate governance and collapse of business planning and ruling of the company. SFIO investigations reveal Reebok India ran a "franchisee referral programme", through which it collected Rs 88.11 crore from 60-odd high net-worth individuals, including former attorney general Soli J Sorabjee, promising interest of 16-20 per cent. The SFIO investigators say these funds were recycled by Reebok India employees as part of effort to boost cash flow. SFIO said there was a lapse in corporate governance practices at Reebok India by the Adidas group.

IV. Corporate Governance Failure at CRB Capital Markets ltd(financial Irregularities & Illegalities)

The case examines:

- How the CRB group was able to defraud the investors and the regulatory authorities with ease. The role of RBI and SBI is also explored.
- It exposes ineffectiveness of regulators, and risk faced by small investors.

The Bhansali scam resulted in a loss of over INR 1200 cr. He launched the finance company CRB Capital Markets, a public limited company and ruled like a financial wizard from 1992 to 1996 by collecting money from the public in the form of fixed deposits,

bonds and debentures and money was transferred to the 133 subsidiaries and unlisted companies that never existed. The company offered various services including merchant banking, leasing and hire purchase, bill discounting and corporate funds management, fixed deposit and resources mobilization, mutual funds and asset management, international finance and forex operations.

The group's global outlook and timely foreign collaborations were responsible for its success. Suspicions arose when CRB cap's net-worth grew from INR 2 crores in 1992 to INR430 crores in 1996. In mid 1996, reports regarding frauds being committed by CRB group started to reveal out.

a) Problem

- The company collected money from the public in the form of fixed deposits, bonds and debentures and money was transferred to the 133 subsidiaries and unlisted companies that never existed.
- Financial irregularities & illegalities were taking place. The company had allegedly used its SBI accounts to siphon off bank funds, claiming it was cashing interest warrants and refund warrants of principal amounts.
- Rigging share prices through own money, Dummy companies made by Bhansali.
- The company was not making payments to the fixed deposits.
- CRB Capital was a defaulting NBFC and as a consequence was liable to be wound up under Section 45MC of the RBI Act. A number of co-operative banks in the State of Gujarat had placed funds aggregating INR 50 crores with CRB Capital and they had received a severe jolt because of the non-payment of those deposits by CRB.
- Siphoning off of funds from SBI; as the alleged large scale misuse of the 'at par' discounting facility by CRB Capital.
- CRB Capital, although it had net owned funds of more than INR 50 Lakhs, did not apply for registration till the year 1996 though it was pointed out by the RBI that on 12.04.1993, based on the Shah Committee recommendations on the role of NBFCs a circular was issued to all the NBFCs advising them to get themselves registered with RBI if their net owned funds were more than INR 50 Lakhs.
- Several illegalities and irregularities came to light. RBI had also received complaints from the Tourism Finance Corporation of India Limited regarding non-payment of deposits. CRB corporation's income more than doubled between 1994-1996.
- Defrauding the SBI; dividend warrants treated as demand drafts, no overdraft allowed. Bhansali used fake accounts in Chennai, Calcutta and rajasthan to withdraw the dividends from SBI accounts.

b) Solutions

The problems were analysed thoroughly & solutions were implemented immediately as the problem was declining investor confidence in banks, poor performance of NBFC's, for creation of smart investors and much more.

The following solutions were implemented:

- RBI filed a winding up petition claiming that the continuance of the CRB Group was not in interest of the public and depositors. The order prohibited CRB from selling, transferring, mortgaging or dealing in any manner with its assets & from accepting public deposits.
- Cases had been registered against all the accused under sections 120-B and 420 of the Criminal Procedure Code and the Prevention of Corruption Act.
- The high court here has set up a three-member committee with a year's term, chaired by retired district judge S K Tandon, with wide powers to ensure termination of the scheme and repayment to unit holders.
- RBI agreed that the continuance of CRB Capital, a Non-Banking Financial Company, was detrimental to public interest and also detrimental to the interest of depositors of the company. Hence, RBI decided to apply for winding up of CRB Capital by invoking the provisions of Section 45MC (1) (d) of the RBI Act.
- RBI issued a prohibitory order under Section 45K read with Section 45MB (1) and 45MB (2) of the RBI Act. By virtue of the said order, RBI prohibited CRB Capital from accepting deposits with immediate effect and CRB Capital was also precluded from accepting deposits from any person in any form whether by way of fresh deposits or renewal or otherwise.
- RBI directed CRB Capital not to sell, transfer, create charge or mortgage or deal in any manner with its property and assets without prior written permission of RBI for a period of six months from the date of the order.

At last, all happened because of:

- Lack of communication between the banks, RBI and the government officials.
- Blame game between RBI and SEBI.
- RBI claimed that it had no power to examine the asset quality.

V. Corporate Governance Failure at Ranbaxy Laboratories

At Ranbaxy, the corporate governance failures manifested in the board's failure to check fraud, absence of the adequate risk management system and unethical practices. The top management overrode the internal system. The board had several independent directors who are enlightened leaders in their own field. It is very unlikely that those who were on the Ranbaxy Board had no exposure to the corporate governance models. According to the media reports, Ranbaxy committed systematic fraud in its worldwide regulatory filings. They also systematically perpetrated fraud on shareholders by exposing their investment to huge reputation and compliance risks by fuzzing data submitted to regulators. They also committed perpetrated fraud on consumers, hospitals, value chain partners and common Indians who took pride that Ranbaxy had emerged as the first Indian multinational in the pharmaceutical sector by selling adulterated drugs. Everyone expected corporate governance of highest order with the illustrious Board and significant foreign and institutional shareholding, however the reality was different.

This failure of the Ranbaxy's corporate governance has exposed the Indian regulators'. First up, it proves beyond doubt that there is no monitoring, by an independent agency, of business practices of wannabe Indian multinationals. The Ranbaxy affair also raises issues of executive conduct. The men, who were at the helm of the company in the days when it was growing rapidly on the back of such fraud, have mostly moved out now. But that does not absolve them. The company has acknowledged that in 2003 and 2005 it was informed of current good manufacturing practice (cGMP) violations by consultants it hired to conduct audits at its Paonta Sahib and Dewas facilities.

The company was fined $500 million. It was considered that the fine it has to pay is actually fairly light sentence for what it has done to the generics business out of India. The rapidly growing industry is now under a cloud. The first consequences of Ranbaxy's actions are already being felt with the FDA issuing an alert banning import of products made at another pharma exporter Wockhardt's plant in Aurangabad. Ranbaxy's is no ordinary misdemeanor. The US department of justice said the company had "pleaded guilty today to felony charges relating to the manufacture of certain adulterated drugs". Felony is a serious criminal charge. By accepting to pay a criminal fine and forfeiture and agreeing to settle civil claims, Ranbaxy may have succeeded in effecting damage control. That does not, however, mitigate the seriousness of its actions.

VI. Aftermath

In 2008, the company was acquired by the Japanese pharmaceutical company Daiichi Sankyo acquired a controlling stake. *In 2014*, Sun Pharma acquired the entire 63.4% share of Ranbaxy and is currently held under the parental company Sun Pharmaceuticals Limited.

VII. Corporate Governance Failure at Sahara

Parties involved

Two groups of Sahara India:

a) *Sahara India Real Estate Corporation and Sahara Housing Investment Corporation*

Sahara's investment program included schemes that were similar to a typical Indian bank's fixed or recurring deposits. The company largely sold such schemes to small investors in towns and rural areas through their network of agents. These financial products allowed investors to deposit small amounts such as 50 rupees per day for returns that were said to be higher than what bank deposits would generate.

OFCD instruments were issued in the name of the two companies but the cheques were sought in the name of Sahara India. The money raise through OFCDs was camouflaged as private placements whereas they were public issues. These debentures can be converted into shares at the will of the debt holder or the investor but the price is decided by the company.

b) *Problem*

The public notice comes after RBI received complaints from individuals that the Sahara group is mobilizing money from the public under the generic name of Sahara Pariwar and Sahara India Pariwar. These two companies are not registered under RBI. Only three Sahara group entities are registered with RBI -- Sahara India Financial Corp. Ltd (SIFCL), Sahara India Corp Investment Ltd (SICIL) and Sahara India Infrastructural Development Ltd. (SIIDL).Of these three entities, SIFCL, a residual non-banking company, has been directed by RBI to phase out acceptance of deposits from the public. SICIL and SIIDL are not authorized to accept deposits from the public.

The order to arrest Subrata Roy and two directors of Sahara was issued for their failure to appear before the apex court in a contempt case arising out of non refund of Rs 24,600 crores to investors by two of the Sahara group companies.

c) *The Year 2012*

The apex court by its August 31, 2012 order had asked Sahara India Real Estate Corp Ltd. (SIRECL) and Sahara Housing Investment Corporation Limited (SHICL) to return, along with 15 percent interest, the investors INR 24,600 crore that two companies had

collected through optionally fully convertible debentures (OFCSs) in 2007-08

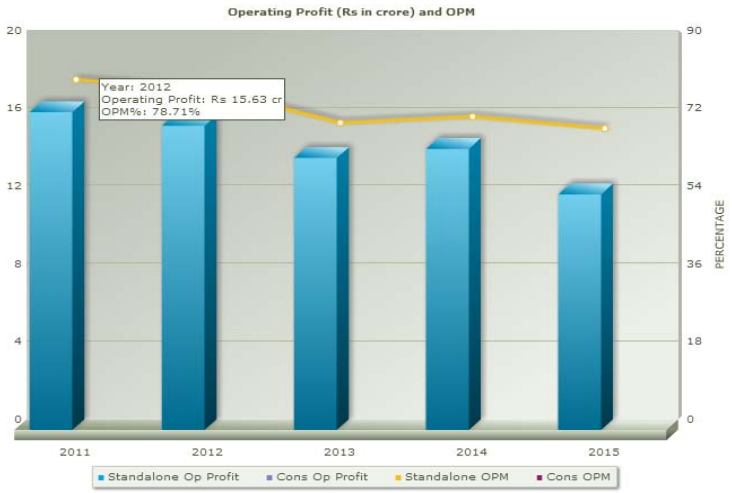
d) 2014

The apex court by its March 26, 2014 order had asked Sahara to deposit INR10, 000crore - INR 5000 crores in cash and INR 5,000 crores in bank guarantee - towards the repayment of the investors money. It had said that this was also a condition for the release of Roy and the other directors from Tihar Jail where they are locked in judicial custody.

e) 2015

Sahara India now claims that it has already repaid around INR 23,000crore directly to the investors and above that it has already submitted INR 12000crore to SEBI. Out of the investors it has repaid it has submitted proof for about 75% and 25% still remains which they say is lying in their Mumbai godowns. But the proof of investors which they have submitted is generally incomplete with some forms only consisting of village name or only mobile number or even only name of the investor. SEBI also required details of bank accounts in the form of financial papers but Sahara contented that bulk of their investors did not have bank accounts in formal financial papers.

Between 2008 and 2012 the RBI auditors have been checking the authenticity of investors under strict norms and only then the next months payments were allowed and they have not found even one fictitious account during these four years Sahara claims to deposit around Rs 18000 crores by the time Subrata Roy is bailed out of jail and has already deposited Rs 12000 crores with SEBI so far out of which SEBI has refunded only Rs 2000 crores to the investors.



(Source: BSE Analytics)

VIII. Recommendations

1. The ultimate power in a company must rest with the shareholders.
2. No shareholder should benefit from special advantages.
3. The shareholders must approve executive compensation. The board of directors must ensure alignment between executive and shareholder interests.
4. The board of directors must have access to all the information it requires to fully discharge its responsibilities.
5. The corporate governance related laws and practices should be strongly implemented and adhered to by all corporate houses.
6. There should be stringent control measures to prevent corporate frauds and an ambit for quick procedure to deal with such cases. The whistle-blowers must be given more autonomy and security.

IX. Conclusion

- As Indian companies compete for globally for access to capital markets, may are finding that the ability to benchmark against world-class organization is essential.
- For a long time, India was a managed, protected economy with the corporate sector operating in the insular fashion.
- But as restrictions have eased, Indian corporations are emerging on the world stage and discovering that the old ways of doing business are no longer sufficient in such a fast paced global environment.

A transparent and timely communication between those who are involved in decision making process must be the first tool that can prevent cases of failure. The link between information and fraud prevention must go beyond the particular mode of corporate governance chosen, organizational structure and control mechanisms applied. People are more

important than processes, so one of the main goals is to encourage the diffusion of advanced practices, which lead not only to defend the interests of investors but also to ensure social stability, improving the quality of human capital and promoting authentic values. Financial crises detached from economic crises about we heard last year's can head us on two ways, namely, accounting fraud can be attributed to excessive control or lack of control, external standards provided by the company or by internal regulations. Highlight the close links between fraud and corporate governance is relevant again. These items mentioned are really important, in idea that the regulations remain ineffective if there is not a tandem with organizational culture, supported by strong ethical principles, to point out the priorities, transparency of accounting information and efficiency of exercised control. Removing conflicts of interest is the safest way to ensure the correct functioning of control systems.

As possible ways to avoid future cases of collapse may be the following:

- Separation of powers of the Chairman and CEO. Each has to activate on its own pathway, otherwise we could reach a situation of excessive concentration of power and control capabilities of the supervisory board to be diluted.
- Integrity and missing of conflict of interest between managers, that should not target capital gains from the position they occupy, rather than wage remuneration they deserve.
- The existence of a strict flow of information so that decision-makers, have to receive timely and adequate information to perform their duties.
- Drawing concrete tasks and functions, especially in management teams, where decisions require a sustained effort and a great responsibility.

Finally Although here have been treated just a few of the many cases of corporative governance failure, we attend to believe that we managed to emphasize the main ideas, which are the interpretation and point of view of the authors, and as a solution to eliminate or at least to reduce the differences between the three main types of corporate governance, we would see a set of standards and requirements that include features of all types of governance factors, namely an attempt to globalize the management techniques.

References Références Referencias

1. http://www.business-standard.com/article/opinion/corporate-governance-failure-at-ranbaxy-113060900607_1.html.
2. http://investopedia.com/
3. http://indiatoday.in/
4. http://www.business-standard.com/article/markets/crb-investors-to-finally-see-closure-113053000508_1.html
5. http://indiankanoon.org/doc/109890185/
6. http://indiaforensic.com/
7. https://www.academia.edu/6816216/Sahara_India_corporate_governance_Failure_of_two_Sahara_companies
8. http://zeenews.india.com/business/news/companies/supreme-court-verdict-on-sahara-chief-subrata-roy-likely-today_129349.html
9. http://www.tribuneindia.com/news/business/investment-scam-sc-tells-sahara-to-pay-rs-36-000-cr-in-18-months/96022.html
10. http://www.business-standard.com/article/current-affairs/10-things-you-need-to-know-about-sahara-row-114022600863_1.html
11. http://www.firstpost.com/tag/ranbaxy-500-million-fraud
12. http://www.cbsnews.com/news/ranbaxy-whistleblower-reveals-how-he-exposed-massive-pharmaceutical-fraud/
13. http://www.fraud-magazine.com/article.aspx?id=4294983341.
14. http://indiaforensic.com/CRBhansali.htm
15. http://www.icmrindia.org/free%20resources/casestudies/Finance%20freecasep2.htm.

Global Journal of Management and Business Research: G Interdisciplinary
Volume 16 Issue 1 Version 1.0 Year 2016
Type: Double Blind Peer Reviewed International Research Journal
Publisher: Global Journals Inc. (USA)
Online ISSN: 2249-4588 & Print ISSN: 0975-5853

The Constitutional Validity of the Ohada Treaty in Cameroon

By Dr. Ngaundje Doris Leno

University of Buea, Cameroon

Abstract- The incompatibility of articles 42 and 63 of the treaty relating to the Organization for the Harmonization of Business Law in Africa (OHADA treaty) and article 1 (3) of the constitution of Cameroon gives rise to the question: is the OHADA treaty constitutionally valid in Cameroon given its mixed legal system? The author answers in the affirmative. The paper seeks to investigate into the constitutional validity of the OHADA treaty. In so doing, the paper shall explore the Cameroonian legal system and some key provisions of the OHADA Treaty, which will be highly selective for this article with the view to determine whether the Treaty establishing OHADA is constitutionally valid in Cameroon. The value of this article lies in the insight it offers into OHADA and Cameroon's legal system.

Keywords: *constitution, validity, ohada, treaty, cameroon, legal system.*

GJMBR - G Classification : *JEL Code : A29*

Strictly as per the compliance and regulations of:

The Constitutional Validity of the Ohada Treaty in Cameroon

Dr. Ngaundje Doris Leno

Abstract- The incompatibility of articles 42 and 63 of the treaty relating to the Organization for the Harmonization of Business Law in Africa (OHADA treaty) and article 1 (3) of the constitution of Cameroon gives rise to the question: is the OHADA treaty constitutionally valid in Cameroon given its mixed legal system? The author answers in the affirmative. The paper seeks to investigate into the constitutional validity of the OHADA treaty. In so doing, the paper shall explore the Cameroonian legal system and some key provisions of the OHADA Treaty, which will be highly selective for this article with the view to determine whether the Treaty establishing OHADA is constitutionally valid in Cameroon. The value of this article lies in the insight it offers into OHADA and Cameroon's legal system.

Keywords: constitution, validity, ohada, treaty, cameroon, legal system.

I. Introduction

In the early 1960s, the African states in the franc zone applied outdated and inconsistent French laws, ranging from the French civil code to the 1804 commercial code (Tiger 2004, p35). This inconsistency resulted in legal uncertainty regarding the applicable laws and incurred unnecessary costs to cross-border business transactions, considerably harming investment prospects in the zone. Consequently, the ministers of finance in the franc zone decided to appoint high-level working group to investigate the problem, and consider the possible solutions (Martor and Thouvenot 2004, pp 5-11). After months of investigations, the group concluded that it was feasible and necessary to create a new business law for the francophone African states. This led to the signing of the Treaty relating to the harmonization of business law in Africa (OHADA Treaty) by 14 African states which established OHADA, literally translated as the organization for the harmonization of business Law, with the signatory states agreeing to relinquish some of their sovereignty (Abarchi 2000, pp10-11).

The OHADA treaty strives for the harmonization of business law in Africa with the aim to attract foreign investment in order to foster regional economic integration and development of member states. This is not to say that harmonized laws are enough. Harmonized laws are necessary but not a sufficient condition for development because there are other factors which must be considered for the development of a country or continent. To date, this treaty is ratified by 17 western and central African states. Anglophone Cameroon is distinct from the rest of OHADA member states because it inherited the British common law system while the rest of the member states inherited the French civil law from their colonial past and OHADA's official language is French (Article 42 OHADA treaty). Taking into account articles 42 and 63 of the OHADA treaty and article 1 (3) of the Constitution of the Republic of Cameroon which formalized the equality of English and French by introducing the phrase "having the same status", this paper raises one important question: Is the treaty establishing OHADA constitutionally valid in Cameroon? The author answers in the affirmative.

II. Cameroonian Legal System

Historically, Cameroon was colonised by Germany and then Great Britain and France. France took the larger eastern sector and Britain the smaller western sector, which they administered separately as mandated territories under the League of Nations. Britain transplanted her English common law system in West Cameroon while France transplanted the civil law system in East Cameroon. In 1960, East Cameroon gained independence as *La Republique du Cameroun* (Republic of Cameroon). In 1961, West Cameroon joined the Republic of Cameroon to form the Federal Republic of Cameroon made up of West and East Cameroon, with each section maintaining its own legal system. The federation was replaced in 1972 by a Unitary Republic of Cameroon while the name of the unitary state was subsequently changed in 1984 to the Republic of Cameroon. The Federal Republic was formed with article 1 of the Federal constitution of 1961 providing that the official languages shall be French and English. This was retaken in article 1 of the unitary constitution of 2 June 1972 and article 1 (3) of the revised constitution. This reunification left the country with two distinct legal systems: the civil law system operating in francophone Cameroon, and the common law system operating in anglophone Cameroon.

Legal systems varied greatly across the world, but civil and common law is the most used. Like South Africa, Cameroon operates a dual legal system, the difference of which is demonstrated herein. First and foremost, civil law is defined as written rules of law enacted by parliament. Its originates from Europe and

Author: University of Buea Higher Technical Teachers' Training College (HTTTC) Kumba P.O. Box 63, Buea. e-mail: dorisleno2008@gmail.com

does not recognize the English concept of *stare decisis*, a concept that obliges lowers courts to comply with decisions of the higher courts (Tetley 1999, pp 591-618). On the other hand, Common law is what francophones refer to as "driot anglophone". In both systems, judges play an important role. In civil law, the inquisitorial or investigatory system obtains. Under the system, the judge is the chief investigator who comes to court already acquainted with the facts of the case. He is assisted by a lawyer whose role is to advise a client on legal proceedings, write pleadings and help provide favorable evidence to the judge. In common law, adversarial or accusatorial system prevails. Under the system, the judge acts as a referee that is neutral person or obiter – ignorant of the facts of the case while the two lawyers argue their sides of the case. The judge listens to both sides to come to a conclusion about the case.

Examination of witnesses is a key feature under the common law system, the importance of which rest with the concept of presumption of innocence. Meaning an accused is presumed innocent until proven guilty (*actori incumbit probatio onus probandi incumbit et qui dicit* meaning imputes no guilt until guilt is proven). This concept is well outlined in section 11 of the Universal Declaration of Human Rights 1948 and the preamble of Cameroon's constitution which affirms Cameroon's firm attachment to the United Nations. More so, trial is done by a jury be it in a criminal or civil suit while in civil law, there is no trial by jury except in criminal cases because the fact finding function is entrusted to a specially appointed judge called *"le juge d'instruction". le juge d'instruction* is an investigatory magistrate who never sits in the panel of trial judges. In civil law, police have arbitrary powers where it is believed that the fear of gendarmes is the beginning of wisdom. A contrary view obtains in Anglo-Saxon where the fear of the law is the beginning of wisdom (rule of law shall prevail) (Anyangwe 1983, p245).

Based on the differences in legal education and training in francophone and Anglophone Cameroon, the judges approached the question of statutory interpretation differently, which, according to Tabe-Tabe Simon (2009, p18) hinders the uniform interpretation and application of the OHADA UAs. Technically, interpretation is a process whereby meaning is accorded or assigned to words in a statute while construction is the process whereby exuberances in a statute are resolved or the process whereby uncertainties or ambiguities in a statute are resolved. Interpretation is both a power and obligation for judges. Judges are obliged to interpret the law failing which they shall be prosecution for denial of justice. This is on the bases of article 37 of the Cameroon's constitution and article 4 of the Civil Code. Generally speaking, interpretation is part of legal reasoning and every statute that comes before the court must be interpreted and interpretation is generally when a word in a statute is obscure which may have resulted from drafting error made by parliament without noticing. It may also result from the use of broad terms designed to cover several possibilities like motorcycle taken to include motorbike, from changes in the use of language and ambiguity, that is, when a word has two more meanings with difficulty of ascertaining the right one.

French codes do not contain provisions regarding methods of interpretation. It is thus left for the judges to decide on the methods to be used or to find ways of interpreting statutes. In francophone Cameroon, judges rely on grammatical, logical, historical and teleogical approaches to the interpretation of states Anyangwe 1983, p294). Anglophone judges like their counterparts in England and other Anglophone countries rely on rules of construction such as the literal rule, golden rule and the mischief rule (Tabe-Tabe, 2009 pp 9-10). In Practical terms, the approaches are similar because the literal rule correlates to the grammatical method, the golden rule to the logical method and the mischief rule to the both the historical and teleogical methods.

The historical evolution of Cameroon equally leaves the legal landscape with three laws: rules of customary law (which most Cameroonians follow in matters such as marriage and divorce), English- derived laws and French-derived laws) and two distinct languages: English and French (Leno 2014, p 26). By virtue of Art 1(3) of the Republic of Cameroon's constitution, "The official languages of the Republic of Cameroon shall be French and English, both having the same status. The state shall guarantee the promotion of bilingualism throughout the country. It shall endeavour to protect and promote national languages". Art 1(3) lays down the principle of equality of both languages, which involves equal protection and promotion". Accordingly, Art 31(3) Cameroon Constitution provides that "laws shall be published in the official gazette of the Republic in English and French". This means that any act of parliament, ordinance of the president, treaty or convention, decree, order, or regulation intended to apply throughout the Republic of Cameroon must be made, enacted, printed, or published simultaneously in French and English (Enonchong 2007, p 101).

In practical terms, most of the laws of the country are enacted and published in French. An example of such is the presidential decree (Decree 2006/441 of 14 December 2006) appointing the vice-chancellor of the English-speaking University of Buea; although it was a decree appointing an English-speaking Cameroonian, it was issued and published in French only. Coins and notes of the national currency which were bilingual in the past have become unilingual in French only. Even the road signs in the English-speaking parts of Cameroon are sometimes printed with the French version more conspicuous and prominent

than the English version. The principle of equality of languages is only enshrined in the constitution without actual implementation. The principle of equality does not avail English-speaking Cameroonians the right to receive information from state institutions in the official language of their choice. Moreover, it does not give equal opportunity to obtain employment in state institutions or regional bodies such as OHADA. On the strength of article 1 (3) of the Cameroon constitution, such discriminatory practices should be condemned as outright violation of a core constitutional provision.

Cameroon is signatory to several international agreements and treaties including but not limited to the OHADA treaty. Business laws fall within the jurisdiction of the legislative power that is the parliament, meaning that the area covered by the treaty is effectively reserved for parliament. However, "with regard to the subjects listed in Art 26 (2) [of the Constitution], Parliament may empower the President of the Republic to legislate by way of ordinance for a limited period and for given purposes" (art 28 (1)). Art 36 (1) further states that:

> The President of the Republic *may* after consulting with the President of the Constitutional Council, the President of the National Assembly and the President of the Senate, submit to a referendum any reform bill which, although normally reserved to the legislative power, could have profound repercussions on the future of the Nation and National Institutions. This shall apply in particular to; inter alia, bills to ratify international agreements or treaties having particularly important consequences.
>
> (Italics are author's emphasis).

It follows that the President of the Republic of Cameroon may ratify international agreements or treaties within the area of competence of the parliament, but only with the authorisation of parliament. With the power bestowed on the president of the republic (law 94/04 of 4 August 1994 authorizing the President of the Republic of Cameroon) to ratify the Treaty, The OHADA treaty was ratified (decree 96/177 of 5 September 1996) but without consideration of the legal peculiarities of the country, that is, art 1 (3). The constitutional principle of "hierarchy of norms" confers precedence on duly ratified international treaties and agreements over national laws. This is properly underscored in art 45 of the Cameroonian constitution which clearly states that: "Duly approved or ratified treaties and international agreements shall, following their publication, override national laws, provided the other party implements the said treaty or agreement". Art 45 underscored the supremacy of ratified international treaties to the effect that in the event of conflict between a ratified treaty and national law, ratified treaty shall prevail. The ratification of the OHADA treaty is Cameroon's first attempt to provide a uniform law on business law matters. But is that ipso facto enough to militate for the ratification of the OHADA treaty if not in line with a constitutional provision? As regards Cameroon in particular, it would be an aberration for Cameroon to ratify a treaty which clearly excludes any of these languages (French and English) as working languages.

III. Appraisal of Ohada and its Legal Framework (OHADA Treaty)

OHADA is a French acronym literally translated as an Organisation for the Harmonisation of Business Law in Africa. For Martor *et al* (2007, pp284-285), OHADA is a manifestation of the political will of the ministers of finance and justice of the France zone to create uniform rules for the restructuring and amendment of the legal environment. Keba (2004, p7) succinctly describes OHADA as "a legal tool thought out and designed by and for Africa to serve the purposes of regional integration and economic growth on the continent." Dickerson (2005, p21) provides a more elaborate definition; she predicates that:

> OHADA is a system of uniform laws; it is a unified legal system designed to protect and enhance the pro-investment qualities of OHADA laws. It accomplishes this by erecting an entire legislative and judicial structure that formulates and interprets the OHADA laws, and prepares them for enforcement.

Martor *et al* (2007, p1) described OHADA as an international organization with a legal personality distinct from those of its members. As a legal entity, it has the capacity to conclude or negotiate international contracts. It is useful to note that OHADA cannot be sued but can appear before domestic courts, and it enjoys privileges and immunities in the exercise of its functions in all member states. The judges of the CCJA enjoy diplomatic immunity, and so do the officials, employees, and the court-appointed arbitrators. OHADA is not a federation, economic or monetary union, but it does possess certain characteristics thereof (Paillusseau 2004, pp 1-2). OHADA member states have control over their own affairs, but are subject to OHADA for national decisions pertaining to business laws. Although it remains to be seen how Anglophone countries might be integrated into OHADA, by virtue of article 53 of the OHADA treaty, it might be described as a continental organization that seeks to unify the business law of the African states.

The beginnings of OHADA can be traced to the signing of the treaty, which entered into force in 1995. The OHADA treaty is to be read with the Revised OHADA treaty. To date, this treaty is ratified by 17 western and central African states. Ratification is in accordance with constitutional procedures of the member states. The constitution of most of the member states requires the intervention of the national parliament for its authorization. For Abarchi (2000, p10), the

immediate effects of ratification are to modify the internal laws of the signatory states and engage those states financially. In other words, following ratification member states are obliged to apply the UAs and contribute financially towards the functioning of OHADA's institutions. Apart from Cameroon, which was colonized by the Germans and then the French and British, the rest of OHADA's member states were French colonies where consequently, the French imparted their tradition and laws on which OHADA is prodigiously based. Accordingly, French is the official language and Article 42 of the OHADA treaty provides "*le francais est la langue de travail*", meaning French is the working language of OHADA. This means that the drafting of the Uniform Acts (UAs), the language of instruction at Higher Regional School of Magistracy and Administration (ERSUMA) and proceedings at the Common Court of Justice and Arbitration (CCJA) and council meetings are all conducted in French.

The treaty seeks for the harmonization of business law in Africa through the "….elaboration and adoption of simple modern common rules adapted to their economies, by setting up appropriate judicial procedures, and by encouraging arbitration for the settlement of contractual disputes". Underlying this is the aim to attract foreign investment in order to foster regional economic integration and development of the member states. To this effect, nine UAs have been adopted by the council of ministers. The provisions of the UAs are self-executing and enjoy precedence over nationally-enacted business laws. This implies that upon ratification of the OHADA treaty by a state, the state becomes automatically bound by the provisions of the treaty and the UAs (Leno 2012, pp 261-262). According to Leno (2014, p133), this eliminates any possibility of escape by contracting states from the provisions of the treaty and the UAs. Because the provisions of the UAs are automatically binding, there is no need for any transformation or enactment by national parliaments.

The OHADA treaty has put in place five supranational institutions to serve the organization. These include the Conference of Heads of State, the Council of Ministers of Justice and Finance, the Permanent Secretariat, ERSUMA and the CCJA whose role is to ensure that the treaty and the UAs are interpreted uniformly across the entire OHADA territory. Every qualified citizen of the signatory states is eligible for employment by any of these institutions. Given that the working language is French, the possibility of Anglophone Cameroonians serving in some of the institutions is limited. This is true for admission into ERSUMA predicated to train and improve knowledge of the UAs and other regional laws. This is equally true for conduct of proceedings in the CCJA. The altitude of art 42 clearly explains why most of the cases to the court originate from the French-speaking countries of OHADA. Saadani (2008, p487) showed that 90 percent of the cases decided by the CCJA are transferred locally from the Ivorian courts. English, Portuguese and Spanish translators have been appointed to serve the non-French citizens of the organization but it leaves much to be desired.

In recognition of the difficulties raised by article 42 of the treaty, the provision of article 42 has been amended providing for four official languages: French, English, Spanish and Portuguese. The author commends OHADA for its effort and postulates that the new article 42 will have far-reaching effect on the membership of OHADA. According to Leno (2014, p25), it will encourage other African states to join the organization. The new article 42 not only portrays OHADA's effort in integrating English, Spanish and Portuguese-speaking African states into the system, but also a laudable step towards fulfilling article 53 of the OHADA treaty, which gives every member and non-member of the African Union the opportunity to join OHADA. A significant feature of the treaty is the opportunity it provides for other African states to join. Art 53 of the OHADA treaty offers every member and non-member of the African Union the opportunity to join OHADA. Considering the benefits to be derived from a unified business law, many African leaders have agreed to the extension of this priceless tool of economic integration to their respective countries. Nigeria, Ghana, Liberia and Angola have expressed interests in joining OHADA. This is a sign of confidence in the OHADA initiative. The initiative has also attracted the attention of the international community which, through the World Bank, European Union (EU) and the United Nations Development Program, has significantly contributed to and participated in its projects (Dickerson 2009, P 1).

It is noteworthy that the new article 42 emphasizes the supremacy of the French language in which the UAs are first published before being translated into the different languages. In the event of conflict between the languages, the French version prevails. This situation raises the issue of the authencity of the translated versions of the UAs. Unfortunately, the new art 42 has not resolved the difficulty created by the old article 42. French remains the working language in the drafting and printing of the UAs and conduct of proceedings at the CCJA (Thouvenot 2006, p3). This is in line with article 63 of the OHADA treaty which provides that: "the present treaty, written in two copies in the French language, will be deposited in the archives of the Republic of Senegal which shall deliver a certified true copy to each Government of the contracting States. This is another aspect to show that the treaty is discriminatory and unconstitutional.

Article 31 (3) of the UA on Arbitration excludes English when it provides that where the documents on recognition and enforcement of arbitral awards are not in French, a party shall have to produce a translated version, certified by a translator registered on the list of

experts established by a competent court. These articles contradict the various constitutions which have always provided English and French as the official languages with equal status. It is no secret that English is the leading commercial language in the world of business today. And this has been excluded by the OHADA treaty. This is wrong and leaves us with the impression that Cameroonian authorities just appended their signatures to the treaty without having read through them or worse still that they did not participate in the elaboration of the treaty.

IV. The Constitutional Validity of the Ohada Treaty in Cameroon

The constitution is the fundamental law of the country to which all laws must conform to. Thus, for any law to be constitutionally valid, it must conform to all the provisions of the constitution. When we look at the OHADA treaty critically, there are some articles such as articles 42 and 63 of the OHADA treaty discussed above which do not conform to the provisions of the Cameroonian constitution. A summary of articles 42 and 63 of the OHADA treaty reveals that the treaty is unconstitutional and therefore cannot be applied in Cameroon, because the articles are contrary to article 1 (3) of the Cameroonian constitution. The said articles violate the educational, justice and employment rights of Anglophone Cameroonians guaranteed by international human rights instruments such as the African Charter on Human and People's Rights, the Universal Declaration of Human Rights, and the International Covenant on Civil and Political Rights. These instruments have been signed and ratified by Cameroon, confirming their strong support and respect of fundamental human rights. In light of the international instruments, the application of the OHADA treaty amounts to domination, discrimination and marginalisation of the minority Anglophone Cameroonians by the majority francophone Cameroonians (Lerner 1991, pp 23-37).

The marginalisation of Anglophone Cameroon has caused great resentment and resistance by Anglophone practitioners, who see OHADA as a form of domination and as an instrument to undermine the cherished common law of the provinces. The following examples illustrate Anglophone Cameroonians grave resentment and reluctance to apply the UAs. In *Meme lawyers association v Court registrars of Kumba,* a group of Anglophone lawyers demonstrated their resentment against the extension of a ministerial order to anglophone Cameroon. In terms of the circular, a claimant is required to pay a fee of five percent of the amount of his claim before the claim can be listed for hearing. In response to this circular, the group of lawyers brought an action before the High Court of Kumba seeking a declaration that the ministerial circular was unconstitutional and illegal in that part of the country (Enonchong 2007, p 111). The High Court ruled in favour of the lawyers to the effect that it is illegal to collect five percent of a claimant's amount as condition precedent for filing.

In fact, while some judges in Cameroon west of the Mungo have persistently refused to apply the UAs, others only make allusions to the OHADA treaty without discussing the substantive law (Ekome 2002, p86). A case in point is that of *Mariner Max and DM Ltd v Dumas Jean Raymond* which involves mismanagement, fraud and misappropriation of a company's funds by the defendant (Raymond), a director and shareholder of the company. The applicants (DM Ltd) sought a restraining order against the defendant on the following terms:

> An order restraining the defendant from exercising the functions of director or any other administrative or supervisory functions, whatsoever in regard to the affairs of the company; to hand over all key documents of title, records of accounts, money and other objects which were the property of the company and from interfering with the day to day business of the company or from visiting the premises of the company save for the purpose of inspecting documents of accounts.

In deciding the matter the trial judge referred to the provisions of article 326 of the Uniform Act on Commercial Companies and Economic Interest Groups (Companies Act) and the Companies Ordinance of 1958 applicable in that part of the country. On appeal, his judgment was revised without reference to any provision of the uniform Act. The same strand of reasoning was followed in the case of *Ngu Chang Celestin and Maitre Mba Godwill v Celestin Asangwe* wherein the uniform Act on Simplified Recovery Procedures and Enforcement Measures was set aside for Law 92/008 of 14 August 1992 relating to the execution of court judgments in anglophone Cameroon, on the basis that it was the applicable law in part of the country.

In Akiangan Fombin Sebastin v Foto Joseph and Others, Ayah (2000) dismissed the application of the OHADA treaty in Cameroon on the basis that, "a treaty which is basically French suffers from self-exclusion from the English-speaking provinces". For him, the treaty as well as the UAs are not applicable in Cameroon, and are thus constitutionally invalid. He further argue that "no piece of legislation can bring in Napoleonic or civil law principles through the back door and even parliament cannot make laws which will abrogate the duality of laws in Cameroon since it was a matter at the heart of negotiations leading to the reunification of the federated states." The same line of reasoning was adopted in *Limbe Urban Council v Isidore Bongam* wherein the presiding judge of the High Court of Fako Division said: "as to the OHADA treaty, I want to point here straightforward that it is not applicable in this part of the Mungo and i find it idle to discuss its effects on this matter".

Since the OHADA treaty infringes on the constitutional and human rights of anglophone Cameroonians, the question is whether it can be declared unconstitutional by the Cameroonian Constitutional Council (CC). Article 46 of the constitution provides for a CC whose responsibility, *inter alia,* is to rule on the constitutionality of laws, treaties and international agreements. Even though the CC has not gone operational, article 67 (4) states that: "the Supreme Court shall perform the duties of the Constitutional Council until the latter is set up". Based on article 1 (3), the CC or the Supreme Court can declare the OHADA treaty unconstitutional. However, the government of Cameroon cannot invalidate its consent to be bound by the OHADA treaty on the basis that it is in violation of its internal laws, because the treaty was duly approved by the parliament and ratified by the president, giving the treaty the force of international law in the country. This is supported by article 46 of the constitution which provides: "duly approved or ratified treaties and international agreements shall, following their publication, override national laws, provided the other party implements the said treaty or agreement".

The validity of the treaty is also based on the fact that no threat was used against the president of Cameroon to secure its consent, which implies that the treaty is legally binding on Cameroon in accordance with the principle of *pacta sunt servanda.* Articles 43 and 47 (3) of the Constitution also seem to suggest that the OHADA treaty is valid and applicable in Cameroon. Article 43 provides:

> The President of the Republic shall negotiate and ratify treaties and international agreements. Treaties and international agreements failing within the area of competence of the Legislative Power as defined in Article 26… of the constitution shall be submitted to Parliament for ratification.

On the other hand, article 47 (3) of the constitution provides: "laws as well as treaties and international agreements may, prior to their enactment, be referred to the Constitutional Council by the President of the Republic, the President of the National Assembly, the President of the Senate, one-third of the members of the National Assembly, one-third of the Senators, or the Presidents of regional executives". It follows therefore, that after the enactment or ratification of a law or treaty, it cannot be questioned or challenged the constitutional council, which indicates that the OHADA treaty is valid and constitutional. From this article, it can be deduced that even though the treaty is unconstitutional, there is nothing the state can do once it has been ratified. Thus, Anglophone Cameroonians cannot appeal against the fact that the president has not complied with the constitutional requirements as justification for non-compliance with the treaty.

Article 9 of the OHADA treaty provides yet another argument in support of the author's view that the treaty is constitutionally valid in Cameroon. Article 9 gives signatory states like Cameroon the opportunity to oppose the authencity of the treaty and UAs after 30 days yet the power that be did nothing about it. Thus, despite the verdict in anglophone Cameroon, referred to above, one can say without fear of contradiction that the treaty is constitutionally valid in Cameroon and the rest of the signatory states. If it intends to bring together all African states as depicted in article 53 of the OHADA treaty, OHADA should be authorized to adopt legal rules independent of national interests but without losing sight of each signatory's state legal peculiarities. To achieve this, OHADA should have many official working languages. This requires an amendment of article 42 and consequently article 63 of the OHADA treaty.

Drawing from article 1 (3) of the Cameroonian constitution, the languages shall have the same status and OHADA should be entrusted with the task of guarantying the promotion and protection of the languages throughout the African continent. The implication is that all drafting and printing of the UAs shall be done in the different official working languages. It also requires a democratic decision-making processes involving all stakeholders such as business people who live daily with the laws, academics and experts from signatory states for the treaty and it UAs to be internationally accepted. For Leno (2014, p 133), this would enhance the prospect of common law jurisdiction to joining OHADA and the potential of OHADA being a model for the development of uniform commercial rules in Africa.

V. Conclusion

Having looked at OHADA, one thing is clear, OHADA is a good initiative. The mile stone made by OHADA in a bid to harmonise and unify business law in Africa given the prevailing circumstances is a gesture worth commending and not to carry such initiative like red hot potato in the mouth ready to spit it out at any moment. But is that ipso facto enough to militate for its ratification if not in line with the constitution? The ratification of the OHADA treaty we say violated a constitutional provision, that is article 1 (3) of the constitution, a provision which Cameroonian authorities should have insisted on during the negotiations leading to the signing of the treaty and which they failed to do. Thus, the treaty should not have been ratified or better still should not have been ratified in the present form for reasons discussed above. Despite the verdict in anglophone Cameroon, the OHADA treaty is constitutionally valid and remains so notwithstanding the numerous arguments against its application which, though logical, are void of statutory backings. Thus,

anglophone Cameroonians cannot appeal against the fact that the president has not complied with the constitutional requirements as justification for non-compliance with the treaty.

References Références Referencias

Books and Chapters in Books

1. Anyangwe, C 1983, *Introduction to Law and Legal Systems,* University of Yaoundé, Faculty of Law and Economics.
2. Allan, M 2003, *Regional Integration and Food Security in Developing Countries,* Food and Agriculture Organisation of the United Nations.
3. Dickerson, M 2009, *Community Laws in International Business Transaction' in M Dickerson* (ed) *Unified Business Laws in Africa: Common Perspectives on OHADA,* Kogan Pages London, p1.
4. Evans, M and Murray, R (eds.) 2008, *The African Charter on Human and People's Rights: The System in practice* 1986-2006, 2 ed Cambridge University Press, Cambridge, pp 1-6.
5. Lerner, N 1991, *Group Rights and Discrimination in International law,* Kluwer Academics Publishers, Netherlands pp 23-37.
6. Martor, B, Pilkington, N. Sellers, D and Thouvenot, S, 2002 *Business Law in Africa: OHADA Harmonization Process,* kogan Page Ltd, London 2002, p 147.
7. Sohn, L 1986, *International Organizations and Integration,* Kluwer Academics Publishers, Boston, pp 1060-1075
8. Wehmeier, S and Asby, M (eds.) 2000, *Oxford Advanced Learner's Dictionary of Current English* 6th ed, Oxford University Press, Clarendon, pp 428.

Journal Articles

9. Abarchi, D 2000, 'La Supranationalité de l'Organisation pour Harmonisation en Afrique du Droit des Affaires (OHADA)', *Revue Burkinabé du Droit*, pp10-11 (translated as the Supranationality of OHADA).
10. Dickerson, M 2005, 'Harmonizing Business Laws in Africa: OHADA calls the Tune', *Columbia Journal of Transnational Law,* pp 21.
11. Ekome, E 2002, 'Landmark Development in Commercial Law Practice in Anglophone Cameroon: Conflicts beyond Relief', *Juris-Périodique*, P 86.
12. Enonchong, N 2007, 'The Harmonisation of business law in Africa: Is article 42 of the OHADA Treaty a problem?', *Journal of African Law*, p 111.
13. Germain, J 2013, 'Approaches to Statutory Interpretation and Legislative History in France', *Duke Journal of Comparative and International Law,* PP 195-206.
14. Keba, M 2004, 'L'histoire et les Objectifs des l'OHADA', *Le Quotidien Juridique,* P 7 (translated as 'History and Objectives of OHADA').
15. Leno, N 2004, 'Regionalism: Lessons the SADC may learn from OHADA' *Journal of Contemporary Roman-Dutch Law,* PP 261-262.
16. Martor, B, and Thouvenot, S 2004, 'L'Uniformisation du Droit des Affairs par l'OHADA', Juridis *periodique*, PP 5-11 (translated as "Unification of business laws by OHADA").
17. Paillusseau, J 2004, "Le Droit de l'OHADA: Un Droit très Important et Original', *Juridis periodique,* PP 1-2 (translated as 'OHADA Laws: A very Important and Original Law').
18. Saadani, S 2008, 'Communication: Ohada, a Continent-wide Perspective', Uniform *Law Review*, P 487.
19. Tiger, P 2004, 'Les Procédures Collectives après Cessation des Paiements en Droit Harmonise de l'OHADA', *Petites Affiches,* P 35 (translated as 'Collective Insolvency Proceedings under OHADA Law').
20. Tetley, W 1999, 'Mixed Jurisdictions: Common Law vs. Civil Law (Codified uncodified) (Part 1)' Uniform *Law Review,* PP 591-618.
21. Thouvenot, S 2006, 'News on the Development of the Organization for the Harmonization of Business Law in Africa (Ohada)', *International Business Law Journal*, P 3.
22. Youmis, J 1997, 'Traite relative a Harmonization du Droit des Affaires en Afrique Commentaire', *Juridis Periodique,* P 98 (translated as 'Treaty relating to the Harmonisation of Business Law in Africa').

Legislation

23. African Charter on Human and People's Rights, 1981/1986.
24. Circular 00012MJ/SG/DAG of 13 May 1996
25. Cameroon's Constitution of 11
26. French Decree of 16 April 1924
27. International Covenant on Civil and Political Rights 7 July 1994.
28. League of Nations 1992
29. Rules of Procedure of the Joint Court of Justice and Arbitration 1998
30. Revised OHADA Treaty 17th of October 2008
31. Southern Cameroon's High Court Law of 1955
32. Treaty relating to the Harmonisation of Business Law in Africa 17 October 1993
33. Uniform Act on Arbitration 11 March 1999
34. Universal Declaration of Human Rights 10 December 1948
35. Vienna Convention 1945

Thesis and Dissertation

36. Leno, N 2014 'The Development of a Commercial Law Structure in the SADC with Specific References

to OHADA', LLD Thesis, University of Pretoria, South Africa.

37. Tabe-Tabe, S 2009 'Company Formation under the OHADA Uniform Act on Commercial Companies and Economic Interest Groups: Changes in the Law Hitherto Applicable in Former West Cameroon' LLD Thesis, University of Yaoundé 11, Cameroon.

Websites

38. Penda A 2004, *The Applicability of OHADA Treaty in Cameroon: the Way Forward,* viewed 29 February 2016 <www.ohada.com/infohada_details.phpat 1-6>
39. Fontaine M 2004, OHADA Uniform Act on Contract Law: Explanatory Notes to the Preliminary Draft, viewed 29 February 2016 <http://www.unidroit.org/english/legalcooperation/ohada%20explanatory%20note-e.pdf>

Cases

40. *Ngu Chang Celestin and Maitre Mba Godwill v Celestin Asangwe, Case 59/92-2000 (unreported).*
41. *R v Judge of the City of London Court [1892] 1 QB 273.*
42. *Mariner Max and DM Ltd v Dumas Jean Raymond, Case 36/OM/200-2001 (unreported).*
43. *Limbe Urban Council v Isidore Bongam, Suit HCF/E98/IN/99 (unreported).*
44. *Akiangan Fombin Sebastin v Foto Joseph and Others, Suit HCK/3/96 of 6 January 2000 (unreported).*

Global Journal of Management and Business Research: G Interdisciplinary
Volume 16 Issue 1 Version 1.0 Year 2016
Type: Double Blind Peer Reviewed International Research Journal
Publisher: Global Journals Inc. (USA)
Online ISSN: 2249-4588 & Print ISSN: 0975-5853

Impact of Continuous Learning Culture and Employee Self Efficacy on Training Effectiveness: Empirical Evidence from Insurance Sector in India

By Pooja Sharma & Richa Sharma

Jiwaji University, India

Abstract- In today's competitive global era, organizations need to retain efficient and competent employees who perform excellent work in a congenial environment. The purpose of the research is to examine the positive and significant impact of continuous learning culture and self efficacy on training effectiveness in the context of insurance sector. Three variables were being examined, continuous learning culture and self efficacy as an independent variable and training effectiveness as a dependent variable. For this purpose data was collected from two hundred employees from various two insurance companies in India especially Delhi through questionnaires. Data from target respondents was analyzed in the form of reliability analysis. Linear and multiple regression were applied to find the impact of independent variables on dependent variable. Findings of the study revealed that continuous learning culture and self efficacy have a positive and significant impact on training effectiveness.

Keywords: continuous learning culture, insurance sector, self efficacy and training effectiveness.

GJMBR - G Classification : JEL Code : M53

Impact of Continuous Learning Culture and Employee Self Efficacy on Training Effectiveness: Empirical Evidence from Insurance Sector in India

Pooja Sharma [α] & Richa Sharma [σ]

Abstract- In today's competitive global era, organizations need to retain efficient and competent employees who perform excellent work in a congenial environment. The purpose of the research is to examine the positive and significant impact of continuous learning culture and self efficacy on training effectiveness in the context of insurance sector. Three variables were being examined, continuous learning culture and self efficacy as an independent variable and training effectiveness as a dependent variable. For this purpose data was collected from two hundred employees from various two insurance companies in India especially Delhi through questionnaires. Data from target respondents was analyzed in the form of reliability analysis. Linear and multiple regression were applied to find the impact of independent variables on dependent variable. Findings of the study revealed that continuous learning culture and self efficacy have a positive and significant impact on training effectiveness. This study has several managerial implications and directions for future research.

Keywords: continuous learning culture, insurance sector, self efficacy and training effectiveness.

I. Introduction

India is a developing country and it has the capability to become a strong nation with its huge natural, technological and human resources. In this era of stiff competition, rapidly changing the needs and preferences of customer, only a learning organization can stay ahead. In developing the human resource and instilling a culture of learning in an organization, training plays a crucial role in deciding the competitive edge of an organization over the market players. Training is inevitable function of an organization as it develops the skills and knowledge of an employee, enables them to take up challenging tasks and assist the organization to compete the today's rapidly changing situations of business.

a) Continuous Learning Culture

Systematic training enables an opportunity for learning and these learning processes depends upon many factors such as the design of the training programme, learning style of the trainees and the learning environment of the organization. As organizations struggle to survive in an increasingly competitive environment, Continuous knowledge acquisition potentially leads to increased productivity and help organizations to remain effective and competitive.

b) Self efficacy

Self-efficacy is an individual's general belief, that they are able to change their performance when desired. It is the people's judgment of their capabilities to organize and execute courses of action, required to attain designated types of performance.

c) Training effectiveness

Training effectiveness is evaluated by measuring a number of training and transfer results. It basically deals with how trainees are applying newly acquired skills from training to the job or behaviour that is retained and applied in the workplace.

d) Insurance sector

In the current scenario insurance sector has become a challenging field which is full of exciting tasks for the employees. Life Insurance Corporation (LIC) is the sole public sector company in life insurance business and General Insurance Corporation of India is a public sector non life insurance company.

i. *Training strategies in LIC:* With a view to retain competitive excellence LIC of India formulated various programs:

1. Standard programme on repetitive basis: This program is conducted to help the newly appointed Branch, Divisional or Ronal Managers to understand the demands of his or her new role.
2. Role orientation courses in functional areas: It is arranged regularly for officers of divisional, zonal and central office level to understand the job roles and responsibilities of that functional area.
3. Special courses and seminars: These courses are special programmes depending on the specific requirements of the particular level or the group.

Author α σ: UGC-NET senior Research Fellow, Jiwaji University, Gwalior, Madhya Pradesh, India Mailing address: 07, aliza bagh, shinde ki chhawani, lashkar, Gwalior, Madhya Pradesh, India.
e-mails: smileypoojasharma90@gmail.com, rich_sharma29@yahoo.co.in

4. Sales training for supervisory and field personnel: These courses are meant for field staff-development officers and Agents.

II. Objectives of the Study

1. To standardize a questionnaire on continuous learning culture, self efficacy and training effectiveness.
2. To study the impact of continuous learning culture on training effectiveness.
3. To study the impact of self efficacy on training effectiveness.
4. To examine the combined impact of continuous learning culture and self efficacy on training effectiveness.
5. To test the hypothesized model.
6. To open new vistas for further research.

III. Review of Literature

(Gundry et al, 1994; McGill et al., 1992) emphasized that organization should encourage and motivate the employees to learn new skills in order to engage them in learning activities. A continuous learning culture is an environmental factor that has an impact on the effectiveness of training. (Bhatti and Kaur, 2010) identified several factors that affect the training effectiveness. These factors are: transfer design, perceive content validity, performance self-efficacy, evaluation of training and training transfer motivation. (Tziner et. al., 2007) examined the training effectiveness by studying six employee characteristics such as conscientiousness, self-efficacy, motivation to learn, learning goal orientation, performance goal orientation, instrumentality. (Mathieu, Martineau & Tannenbaum, 1993) stated that self efficacy plays a central role for enhancing training effectiveness and the transfer development. (A. K. L. Jayawardana & H. A. D. Prasanna, 2007) identified the factors that influence training effectiveness of merchandisers of garment industry and revealed that the availability of a continuous learning culture in the organization, self-efficacy of trainees and supervisor support positively influence training effectiveness. (Vikas Agarwal, 2011) studied the employee's attitude towards Training and Development practices in Life Insurance Corporation of India. He found that training and development programmes were helpful in improving employee's performance. (David Pollitt, 2009) stated the significance of training to customer facing staff of AXA sun life insurance sector. He said that in a fiercely competitive, tightly regulated insurance sector, a customer-facing staff must be trained to fairly sell the right product at the right time. (Cody Cox. B, 2009) examined the moderating effect of individual differences in the relationship between framing training for technical and nontechnical content areas. Self-efficacy and goal orientation were examined as moderators. Result indicated that there was a three-way interaction between performance orientation, age, and frame for technical training and a three-way interaction between performance orientation, self-efficacy, and frame for nontechnical training. (Ramachandran, 2010) studied the effectiveness of training programme of different cadre of employees, working in a public sector organization and suggested that employees were differed in effectiveness of training programme on the basis of demographic characters. (Canning, 2011) suggested that the organizations should develop working groups where younger workers can learn the knowledge and skills from older employees and benefitted by the experiences of them. So that experiences of older employees should be valued. When an individual willingly learn new skills then the individual takes the "education initiative" (Warr & Fay 2001). (Sessa and London, 2006) proposed three approaches, through which individuals can learn. These approaches are: adaptation, generation and transformation. In adaptation approach an employee can learn by continuously adapting to changes in the environment. This learning is unintentional and unintended. Through generation, an Individual can learn by generating new knowledge and conditions. In transformation learning encourages reflection and result in transfer of knowledge from learning to work. (Maurer, Weiss and Barbeite, 2003) found that the perceived intrinsic benefits like career planning was the key predictor of an individual's willingness to participate in a learning activity. (Hinds et al., 2001) revealed some differences which were shown by experts and beginners in a way of communication during training program. He stated that matching the skill levels of the trainer and the trainee increase the likelihood that the trainees can learn.

IV. Rationale of the Study

Present study reports the empirical results of a study designed to examine the impact of certain variables on training effectiveness and highlights the significance of training activities. Broadly the research seeks to enlighten the public insurance sector enterprises specifically the LIC of India with the knowledge and experience to expand the horizon of training practices for a sustainable organizational development.

But, the research gap that we found by the study of aforementioned literature is that, there is no in-depth study was conducted in insurance sector for measuring the outcomes through training practices. This study is expected to provide some insights in that area, and fill an important knowledge gap. Hence this study is rationale for measuring the impact of all the independent variables (continuous learning culture and self efficacy)

on the dependent variable (training effectiveness.) in Indian insurance sector.

V. Hypothesis

Based on the above discussions and supports from the preceding works, the following hypothesis was established for this study:

H_1: There is positive and significant impact of continuous learning culture on training effectiveness.

H_2: There is positive and significant impact of self efficacy on training effectiveness.

H_{03}: There is no significant combined impact of both the independent variables (continuous learning culture and self efficacy) on training effectiveness.

PROPOSED MODEL

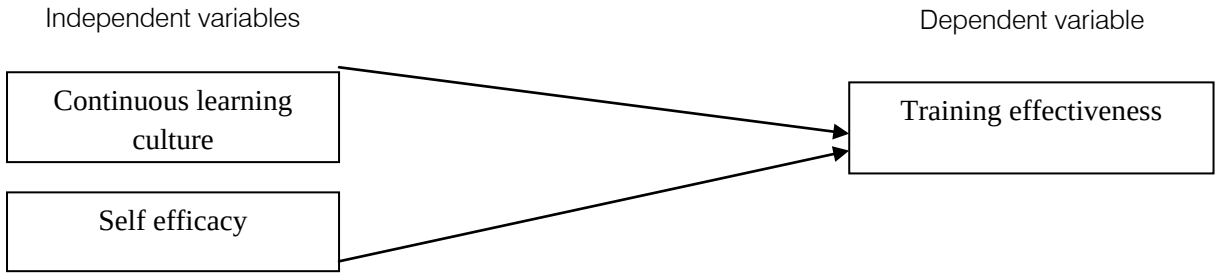


Figure 1 : Model shows the relationship between the variables

VI. Research Methodology

a) *Study and Sample:* The study was quantitative, in nature where survey method was used to collect the data. The population included employees of insurance sector in India. The data was collected from two insurance companies that is LIC (Life insurance corporation of India and General Insurance Corporation of Delhi region and 220 questionnaires were distributed out of which 210 were returned showing 95% response rate. After deleting incomplete responses data for this study were obtained from 200 respondents.

b) *Collection of Data:* Collection of data is done through standardized questionnaires. The responses taken on the Likert type of 1 to 5 where 1 represent strongly disagree and 5 represent the strongly agree. Total responses were elicited on 30 items, which took 15 minutes to answer.

c) *Measurement*

- Self-efficacy. An eight-item scale to measure self-efficacy was drawn from previous research (Jones, 1986).
- Continuous learning culture is assessed using a ten items scale taken from Tracy et al., (1995).
- Training Effectiveness: This will be measured with five item scale from xiao (1996) and six items from Galanou, E. & Priporas, and C. V., (2009).

d) *Tools Used for data Analysis:* Cronbach alpha was applied to assess reliability and the relationship between the variables was established through linear and multiple Regression.

VII. Results and Discussions

a) *Reliability:* Reliability reflects the consistence of a set of items variables scale by measuring the concept in a particular. In this study, reliability measurement is important to verify the variables consistencies through continuous learning culture, self efficacy and training effectiveness. Cronbach's alpha is computed using SPSS scale reliability programme for each set of constructs. The value of Cronbach's alpha is reported in Table 1.

Table 1 : Reliability analysis

Factor	Items	Cronbach's Alpha
Continuous learning culture	10	.900
Self efficacy	8	.863
Training effectiveness	11	.902

From the above table it can be concluded that the value of Cronbach Alpha for all the three variables is more than 0.7. Therefore it could be used in this study.

b) Linear regression

The regression table provides the result of constant, coefficient of determination, t-value. Coefficient is the slope of regression line and it explains that 1 unit change in independent

Variable will bring how much change in dependent variable. The coefficient of determination (R^2) explains how much variation in the dependent variable is explained by the independent variable.

i. *Linear regression values for continuous learning culture as independent variable and training effectiveness as dependent variable*

Table 2 : Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
dimension0 1	.846[a]	.628	.626	8.58373	.628	231.450	1	198	.000

a. Predictors: (Constant), continuous learning culture

b. Dependent Variable: training effectiveness

Model summary table indicates that value of coefficient of determination (R^2) is .628 reveals that continuous learning culture accounts to 62.8% variation in effectiveness.

Table 3 : Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	12.101	2.175		4.547	.000
	Continuous learning culture	.602	.045	.729	14.780	.000

a. Dependent Variable: training effectiveness

The regression results interpret the value of coefficient .729 that indicates 1% change in independent variable (continuous learning culture) can result in 72.9% change in dependent variable (Training effectiveness). This relationship is positive and significant as shown by small p value.

ii. *Linear regression values for self efficacy as independent variable and training effectiveness as dependent variable:*

Table 4 : Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
dimension0 1	.810[a]	.684	.683	7.35126	.684	367.954	1	198	.000

a. Predictors: (Constant), self efficacy

b. Dependent Variable: training effectiveness

Model summary table indicates that value of coefficient of determination (R^2) is .684 reveals that self efficacy accounts to 68.4% variation in training effectiveness.

Table 5 : Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	8.226	1.897		4.268	.000
	Self efficacy	1.010	.045	.809	19.264	.000

a. Dependent Variable: training effectiveness

The regression results interpret the value of coefficient .809 that indicates 1% change in independent variable (self efficacy) can result in 80.9% change in dependent variable (training effectiveness). Thus, if self efficacy is increased by 1%, this will result in 80.9% increase in effectiveness. This relationship is positive and significant as shown by small p value. Thus supporting H_2, that self efficacy has positive impact on training effectiveness.

iii. *Multiple regression values for continuous learning culture and self efficacy as independent variables and training effectiveness as dependent variable*

Table 6 : Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
dimension0 1	.827[a]	.656	.653	6.84535	.656	235.539	2	197	.000	1.548

a. Predictors: (Constant), continuous learning culture and self efficacy

b. Dependent Variable: training effectiveness

Table 7 : Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.835	2.047		2.340	.019
	Continuous learning culture	.265	.057	.281	4.467	.000
	Self efficacy	.760	.057	.604	9.875	.000

$$Y = a + bx + cx$$

$$Y = 4.835 + .265X_1 + .760X_2 + \text{Error}$$

Where, X1 = continuous learning culture (independent variable)

X2 = self efficacy (independent variable)

Y = Training effectiveness (dependent variable)

a (alpha) = constant or intercept

b1 is slope (Beta coefficient) for X1

X1 first independent variable that is explaining the variance in Y.

The Result of regression is indicated in the coefficient table indicates that values for continuous learning culture and self efficacy have significant relationship with training effectiveness having beta values of .281 and .604 which were significant at .000 and .000 level of significance as indicated by t-value of 4.467 and 9.875 respectively. The model summary table indicates that value for continuous learning culture and self efficacy explained 65.3% variance in training effectiveness as indicated by adjusted r^2 value of 0.653. Durbin Watson value is 1.548 which is greater than 1.5 indicating that there is no autocorrelation.

So we can conclude that there is significant combined impact of continuous learning culture and self efficacy on training effectiveness. Hence null hypothesis of our study has been rejected.

VIII. Implications of Study

The results of this study have contributed to the body of knowledge in the field of individual characteristics (self efficacy) in the insurance sector of India. Our study discovered the positive and noteworthy association between training and effectiveness. Theoretically speaking, findings of the study revealed a significant relationship between continuous learning culture, self efficacy and transfer of training. There are few practical indications that we can draw from this study for academician, researchers and various service industries. For researchers, it acts as a knowledge base for further studies related with this topic. For service industry the result will provide a great help in developing a learning culture where employees conveniently learn new knowledge and skills related their task. It provides guidelines to enhance self efficacy of employees.

IX. Limitations of the Study

This study has some limitations, firstly this study examined relationship between continuous learning culture and training effectiveness, and it took only some dimensions under each variable. Secondly the study was done on few cities of India, all cities were not covered in it, and so the generalization of the results and findings are not warranted. Thirdly, the data was collected within a period of time, so the findings are confined for a particular period and cannot be generalized for longer period of time. Fourthly, we applied multiple regressions but if other measurement versions were used, then the result would be different.

X. Future Research

Firstly, future work can overcome limitations of the present study in terms of number of respondents and focusing on the whole state that will help in generalizing the findings of the study. Secondly, future research can look for other moderating and mediating variables that can affect the relationship between continuous learning culture, self efficacy and training effectiveness. Other variables may be considered like supervisory support and motivation to learn for examining the effectiveness of training.

XI. Conclusion

In today's global dynamic era organizations are forced to function effectively in changing situations and under various complications, and it is crucial for companies to have the qualified employees at the right job at the right time in order to survive the surrounding competition. So that training is considered as a fundamental and effectual instrument in accomplishment of the firm's objectives. Training is a performance development process to foster learning new techniques and methods to perform job with fullest efficiency and effectiveness. Training builds and strengthens relationships with and among workplace partners and better engage employers, unions to respond to the challenges of workplace.

References Références Referencias

1. Agarwal Vikas (2011) "training & development in public organization with reference to lic, India" *Gurukul Business Review (GBR)* Vol. 7 pp. 87-95
2. Bhatti, M. A., & Kaur, S., (2010). The Role Individual and Training Design Factors on Training Transfer, *Journal of European Industrial Training,* Vol. 34 No. 7 pp. 656-672.
3. Canning, R. (2011). Older workers in the hospitality industry: valuing experience and informal learning. *International Journal of Lifelong Education, 30*(5), 667-679
4. Cody B. Cox and Margaret E. Beier, (2009). The Moderating effect of individual differences on the relationship between the framing of training and interest in training. The International Journal Training and Development 13(4): 247-60.
5. Galanou, E. & Priporas, C. V., (2009). A model for evaluating the effectiveness of middle managers' training courses: evidence from a major banking organization in Greek, *International Journal of Training and Development*, Vol. 13 No. 4 pp. 221-246.
6. Gundry, L., Kickul, J., & Prather, C. (1994). Building the creative organization. *Organizational Dynamics, 22*(4), 22-37
7. Hinds, P. J., Patterson, M., & Pfeffer, J. (2001), Bothered by abstraction: The effect of expertise on knowledge transfer and subsequent novice performance. *Journal of Applied Psychology, 86*, 1232-1243.
8. *Jayawardana A.K.L and Prasanna H.A.D (2007)* Factors Affecting the Effectiveness of Training Provided to Merchandisers of Garment Industry in Sri Lanka Sri Lankan Journal of Management *Volume 12, Nos. 3 & 4, July-December 200, Volume 13, Nos. 1 & 2, January-June 2008.*
9. Jones, G. R. (1986). Socialization tactics, self-efficacy, and newcomers' adjustments to organizations. Academy of Management Journal, 29, 262-279.
10. Mathieu, J. E., Martineau, J. W. and Tannenbaum, S. I. (1993), 'individual and situational influences on the development of self-efficacy: implications for training effectiveness', *Personnel Psychology,* 46, 125–47.
11. Maurer, T.J., Weiss, E.M., & Barbeite, F.G. 2003. A model of involvement in work-related learning and development activity: The effects of individual,

situational, motivational and age variables. *Journal of Applied Psychology, 88*, 707-724.
12. McGill, M., Slocum, W., & Lei, D. (1992). Management practice in learning organization. *Organizational Dynamics, 21*(1), 5-17.
13. Pollitt David, (2009). Southern coaches' managers in a better way of working. Journal of human resource management international digest 17(5): 17-19
14. R. Ramachandaran, Effectiveness of training programs of NLC – An Analysis, *Kegees Journal of Social Science*, *2(1)*, 2010, 119-129.
15. Sessa, V. I., & London, M. (2006). Continuous Learning in Organizations: Individual, Group, and Organizational Perspectives. Taylor & Francis.
16. Tracey, J. B., Tannenbaum, S. I., and Kavanagh, M. J. (1995). Applying trained skills on the job: The importance of the work environment. *Journal of Applied Psychology, 80*(2), 239-252.
17. Tziner A., Fisher M., Senior T. and Weisberg J., (2007). "Effects of Trainee Characteristics on Training Effectiveness". *International Journal of Selection and Assessment*, 15 (2), 167 – 174.
18. Warr, P., & Fay, D. (2001). Short report: Age and personal initiative at work. *European Journal of Work and Organizational Psychology, 10*(3), 343-353.
19. Xiao, J. (1996), The relationship between organizational factors and the transfer of training in the electronic industry in Shenzhen, China, Human Resource Development Quarterly, Vol. 7, no. 1, pp. 55-86.

Global Journals Inc. (US) Guidelines Handbook 2016

www.GlobalJournals.org

FELLOW OF ASSOCIATION OF RESEARCH SOCIETY IN BUSINESS (FARSB)

Global Journals Incorporate (USA) is accredited by Open Association of Research Society (OARS), U.S.A and in turn, awards "FARSB" title to individuals. The 'FARSB' title is accorded to a selected professional after the approval of the Editor-in-Chief/Editorial Board Members/Dean.

- The "FARSB" is a dignified title which is accorded to a person's name viz. Dr. John E. Hall, Ph.D., FARSB or William Walldroff, M.S., FARSB.

FARSB accrediting is an honor. It authenticates your research activities. After recognition as FARSB, you can add 'FARSB' title with your name as you use this recognition as additional suffix to your status. This will definitely enhance and add more value and repute to your name. You may use it on your professional Counseling Materials such as CV, Resume, and Visiting Card etc.

The following benefits can be availed by you only for next three years from the date of certification:

FARSB designated members are entitled to avail a 40% discount while publishing their research papers (of a single author) with Global Journals Incorporation (USA), if the same is accepted by Editorial Board/Peer Reviewers. If you are a main author or co-author in case of multiple authors, you will be entitled to avail discount of 10%.

Once FARSB title is accorded, the Fellow is authorized to organize a symposium/seminar/conference on behalf of Global Journal Incorporation (USA).The Fellow can also participate in conference/seminar/symposium organized by another institution as representative of Global Journal. In both the cases, it is mandatory for him to discuss with us and obtain our consent.

You may join as member of the Editorial Board of Global Journals Incorporation (USA) after successful completion of three years as Fellow and as Peer Reviewer. In addition, it is also desirable that you should organize seminar/symposium/conference at least once.

We shall provide you intimation regarding launching of e-version of journal of your stream time to time.This may be utilized in your library for the enrichment of knowledge of your students as well as it can also be helpful for the concerned faculty members.

The FARSB can go through standards of OARS. You can also play vital role if you have any suggestions so that proper amendment can take place to improve the same for the benefit of entire research community.

As FARSB, you will be given a renowned, secure and free professional email address with 100 GB of space e.g. johnhall@globaljournals.org. This will include Webmail, Spam Assassin, Email Forwarders,Auto-Responders, Email Delivery Route tracing, etc.

The FARSB will be eligible for a free application of standardization of their researches. Standardization of research will be subject to acceptability within stipulated norms as the next step after publishing in a journal. We shall depute a team of specialized research professionals who will render their services for elevating your researches to next higher level, which is worldwide open standardization.

The FARSB member can apply for grading and certification of standards of their educational and Institutional Degrees to Open Association of Research, Society U.S.A. Once you are designated as FARSB, you may send us a scanned copy of all of your credentials. OARS will verify, grade and certify them. This will be based on your academic records, quality of research papers published by you, and some more criteria. After certification of all your credentials by OARS, they will be published on your Fellow Profile link on website https://associationofresearch.org which will be helpful to upgrade the dignity.

The FARSB members can avail the benefits of free research podcasting in Global Research Radio with their research documents. After publishing the work, (including published elsewhere worldwide with proper authorization) you can upload your research paper with your recorded voice or you can utilize chargeable services of our professional RJs to record your paper in their voice on request.

The FARSB member also entitled to get the benefits of free research podcasting of their research documents through video clips. We can also streamline your conference videos and display your slides/ online slides and online research video clips at reasonable charges, on request.

The FARSB is eligible to earn from sales proceeds of his/her researches/reference/review Books or literature, while publishing with Global Journals. The FARSB can decide whether he/she would like to publish his/her research in a closed manner. In this case, whenever readers purchase that individual research paper for reading, maximum 60% of its profit earned as royalty by Global Journals, will be credited to his/her bank account. The entire entitled amount will be credited to his/her bank account exceeding limit of minimum fixed balance. There is no minimum time limit for collection. The FARSC member can decide its price and we can help in making the right decision.

The FARSB member is eligible to join as a paid peer reviewer at Global Journals Incorporation (USA) and can get remuneration of 15% of author fees, taken from the author of a respective paper. After reviewing 5 or more papers you can request to transfer the amount to your bank account.

MEMBER OF ASSOCIATION OF RESEARCH SOCIETY IN BUSINESS (MARSB)

The ' MARSB ' title is accorded to a selected professional after the approval of the Editor-in-Chief / Editorial Board Members/Dean.

The "MARSB" is a dignified ornament which is accorded to a person's name viz. Dr. John E. Hall, Ph.D., MARSB or William Walldroff, M.S., MARSB.

MARSB accrediting is an honor. It authenticates your research activities. After becoming MARSB, you can add 'MARSB' title with your name as you use this recognition as additional suffix to your status. This will definitely enhance and add more value and repute to your name. You may use it on your professional Counseling Materials such as CV, Resume, Visiting Card and Name Plate etc.

The following benefitscan be availed by you only for next three years from the date of certification.

MARSB designated members are entitled to avail a 25% discount while publishing their research papers (of a single author) in Global Journals Inc., if the same is accepted by our Editorial Board and Peer Reviewers. If you are a main author or co-author of a group of authors, you will get discount of 10%.

As MARSB, you will be given a renowned, secure and free professional email address with 30 GB of space e.g. johnhall@globaljournals.org. This will include Webmail, Spam Assassin, Email Forwarders,Auto-Responders, Email Delivery Route tracing, etc.

We shall provide you intimation regarding launching of e-version of journal of your stream time to time.This may be utilized in your library for the enrichment of knowledge of your students as well as it can also be helpful for the concerned faculty members.

The MARSB member can apply for approval, grading and certification of standards of their educational and Institutional Degrees to Open Association of Research, Society U.S.A.

Once you are designated as MARSB, you may send us a scanned copy of all of your credentials. OARS will verify, grade and certify them. This will be based on your academic records, quality of research papers published by you, and some more criteria.

It is mandatory to read all terms and conditions carefully.

AUXILIARY MEMBERSHIPS

Institutional Fellow of Open Association of Research Society (USA)-OARS (USA)

Global Journals Incorporation (USA) is accredited by Open Association of Research Society, U.S.A (OARS) and in turn, affiliates research institutions as "Institutional Fellow of Open Association of Research Society" (IFOARS).

The "FARSC" is a dignified title which is accorded to a person's name viz. Dr. John E. Hall, Ph.D., FARSC or William Walldroff, M.S., FARSC.

The IFOARS institution is entitled to form a Board comprised of one Chairperson and three to five board members preferably from different streams. The Board will be recognized as "Institutional Board of Open Association of Research Society"-(IBOARS).

The Institute will be entitled to following benefits:

The IBOARS can initially review research papers of their institute and recommend them to publish with respective journal of Global Journals. It can also review the papers of other institutions after obtaining our consent. The second review will be done by peer reviewer of Global Journals Incorporation (USA) The Board is at liberty to appoint a peer reviewer with the approval of chairperson after consulting us.

The author fees of such paper may be waived off up to 40%.

The Global Journals Incorporation (USA) at its discretion can also refer double blind peer reviewed paper at their end to the board for the verification and to get recommendation for final stage of acceptance of publication.

The IBOARS can organize symposium/seminar/conference in their country on behalf of Global Journals Incorporation (USA)-OARS (USA). The terms and conditions can be discussed separately.

The Board can also play vital role by exploring and giving valuable suggestions regarding the Standards of "Open Association of Research Society, U.S.A (OARS)" so that proper amendment can take place for the benefit of entire research community. We shall provide details of particular standard only on receipt of request from the Board.

The board members can also join us as Individual Fellow with 40% discount on total fees applicable to Individual Fellow. They will be entitled to avail all the benefits as declared. Please visit Individual Fellow-sub menu of GlobalJournals.org to have more relevant details.

We shall provide you intimation regarding launching of e-version of journal of your stream time to time. This may be utilized in your library for the enrichment of knowledge of your students as well as it can also be helpful for the concerned faculty members.

After nomination of your institution as "Institutional Fellow" and constantly functioning successfully for one year, we can consider giving recognition to your institute to function as Regional/Zonal office on our behalf.
The board can also take up the additional allied activities for betterment after our consultation.

The following entitlements are applicable to individual Fellows:

Open Association of Research Society, U.S.A (OARS) By-laws states that an individual Fellow may use the designations as applicable, or the corresponding initials. The Credentials of individual Fellow and Associate designations signify that the individual has gained knowledge of the fundamental concepts. One is magnanimous and proficient in an expertise course covering the professional code of conduct, and follows recognized standards of practice.

Open Association of Research Society (US)/ Global Journals Incorporation (USA), as described in Corporate Statements, are educational, research publishing and professional membership organizations. Achieving our individual Fellow or Associate status is based mainly on meeting stated educational research requirements.

Disbursement of 40% Royalty earned through Global Journals : Researcher = 50%, Peer Reviewer = 37.50%, Institution = 12.50% E.g. Out of 40%, the 20% benefit should be passed on to researcher, 15 % benefit towards remuneration should be given to a reviewer and remaining 5% is to be retained by the institution.

We shall provide print version of 12 issues of any three journals [as per your requirement] out of our 38 journals worth $ 2376 USD.

Other:

The individual Fellow and Associate designations accredited by Open Association of Research Society (US) credentials signify guarantees following achievements:

- The professional accredited with Fellow honor, is entitled to various benefits viz. name, fame, honor, regular flow of income, secured bright future, social status etc.

- In addition to above, if one is single author, then entitled to 40% discount on publishing research paper and can get 10%discount if one is co-author or main author among group of authors.
- The Fellow can organize symposium/seminar/conference on behalf of Global Journals Incorporation (USA) and he/she can also attend the same organized by other institutes on behalf of Global Journals.
- The Fellow can become member of Editorial Board Member after completing 3yrs.
- The Fellow can earn 60% of sales proceeds from the sale of reference/review books/literature/publishing of research paper.
- Fellow can also join as paid peer reviewer and earn 15% remuneration of author charges and can also get an opportunity to join as member of the Editorial Board of Global Journals Incorporation (USA)
- • This individual has learned the basic methods of applying those concepts and techniques to common challenging situations. This individual has further demonstrated an in–depth understanding of the application of suitable techniques to a particular area of research practice.

Note :

"

- In future, if the board feels the necessity to change any board member, the same can be done with the consent of the chairperson along with anyone board member without our approval.
- In case, the chairperson needs to be replaced then consent of 2/3rd board members are required and they are also required to jointly pass the resolution copy of which should be sent to us. In such case, it will be compulsory to obtain our approval before replacement.
- In case of "Difference of Opinion [if any]" among the Board members, our decision will be final and binding to everyone.

"

Process of submission of Research Paper

The Area or field of specialization may or may not be of any category as mentioned in 'Scope of Journal' menu of the GlobalJournals.org website. There are 37 Research Journal categorized with Six parental Journals GJCST, GJMR, GJRE, GJMBR, GJSFR, GJHSS. For Authors should prefer the mentioned categories. There are three widely used systems UDC, DDC and LCC. The details are available as 'Knowledge Abstract' at Home page. The major advantage of this coding is that, the research work will be exposed to and shared with all over the world as we are being abstracted and indexed worldwide.

The paper should be in proper format. The format can be downloaded from first page of 'Author Guideline' Menu. The Author is expected to follow the general rules as mentioned in this menu. The paper should be written in MS-Word Format (*.DOC,*.DOCX).

The Author can submit the paper either online or offline. The authors should prefer online submission.Online Submission: There are three ways to submit your paper:

(A) (I) First, register yourself using top right corner of Home page then Login. If you are already registered, then login using your username and password.

(II) Choose corresponding Journal.

(III) Click 'Submit Manuscript'. Fill required information and Upload the paper.

(B) If you are using Internet Explorer, then Direct Submission through Homepage is also available.

(C) If these two are not convenient, and then email the paper directly to dean@globaljournals.org.

Offline Submission: Author can send the typed form of paper by Post. However, online submission should be preferred.

Preferred Author Guidelines

MANUSCRIPT STYLE INSTRUCTION (Must be strictly followed)

Page Size: 8.27" X 11'"

- Left Margin: 0.65
- Right Margin: 0.65
- Top Margin: 0.75
- Bottom Margin: 0.75
- Font type of all text should be Swis 721 Lt BT.
- Paper Title should be of Font Size 24 with one Column section.
- Author Name in Font Size of 11 with one column as of Title.
- Abstract Font size of 9 Bold, "Abstract" word in Italic Bold.
- Main Text: Font size 10 with justified two columns section
- Two Column with Equal Column with of 3.38 and Gaping of .2
- First Character must be three lines Drop capped.
- Paragraph before Spacing of 1 pt and After of 0 pt.
- Line Spacing of 1 pt
- Large Images must be in One Column
- Numbering of First Main Headings (Heading 1) must be in Roman Letters, Capital Letter, and Font Size of 10.
- Numbering of Second Main Headings (Heading 2) must be in Alphabets, Italic, and Font Size of 10.

You can use your own standard format also.
Author Guidelines:

1. General,

2. Ethical Guidelines,

3. Submission of Manuscripts,

4. Manuscript's Category,

5. Structure and Format of Manuscript,

6. After Acceptance.

1. GENERAL

Before submitting your research paper, one is advised to go through the details as mentioned in following heads. It will be beneficial, while peer reviewer justify your paper for publication.

Scope

The Global Journals Inc. (US) welcome the submission of original paper, review paper, survey article relevant to the all the streams of Philosophy and knowledge. The Global Journals Inc. (US) is parental platform for Global Journal of Computer Science and Technology, Researches in Engineering, Medical Research, Science Frontier Research, Human Social Science, Management, and Business organization. The choice of specific field can be done otherwise as following in Abstracting and Indexing Page on this Website. As the all Global

Journals Inc. (US) are being abstracted and indexed (in process) by most of the reputed organizations. Topics of only narrow interest will not be accepted unless they have wider potential or consequences.

2. ETHICAL GUIDELINES

Authors should follow the ethical guidelines as mentioned below for publication of research paper and research activities.

Papers are accepted on strict understanding that the material in whole or in part has not been, nor is being, considered for publication elsewhere. If the paper once accepted by Global Journals Inc. (US) and Editorial Board, will become the copyright of the Global Journals Inc. (US).

Authorship: The authors and coauthors should have active contribution to conception design, analysis and interpretation of findings. They should critically review the contents and drafting of the paper. All should approve the final version of the paper before submission

The Global Journals Inc. (US) follows the definition of authorship set up by the Global Academy of Research and Development. According to the Global Academy of R&D authorship, criteria must be based on:

1) Substantial contributions to conception and acquisition of data, analysis and interpretation of the findings.

2) Drafting the paper and revising it critically regarding important academic content.

3) Final approval of the version of the paper to be published.

All authors should have been credited according to their appropriate contribution in research activity and preparing paper. Contributors who do not match the criteria as authors may be mentioned under Acknowledgement.

Acknowledgements: Contributors to the research other than authors credited should be mentioned under acknowledgement. The specifications of the source of funding for the research if appropriate can be included. Suppliers of resources may be mentioned along with address.

Appeal of Decision: The Editorial Board's decision on publication of the paper is final and cannot be appealed elsewhere.

Permissions: It is the author's responsibility to have prior permission if all or parts of earlier published illustrations are used in this paper.

Please mention proper reference and appropriate acknowledgements wherever expected.

If all or parts of previously published illustrations are used, permission must be taken from the copyright holder concerned. It is the author's responsibility to take these in writing.

Approval for reproduction/modification of any information (including figures and tables) published elsewhere must be obtained by the authors/copyright holders before submission of the manuscript. Contributors (Authors) are responsible for any copyright fee involved.

3. SUBMISSION OF MANUSCRIPTS

Manuscripts should be uploaded via this online submission page. The online submission is most efficient method for submission of papers, as it enables rapid distribution of manuscripts and consequently speeds up the review procedure. It also enables authors to know the status of their own manuscripts by emailing us. Complete instructions for submitting a paper is available below.

Manuscript submission is a systematic procedure and little preparation is required beyond having all parts of your manuscript in a given format and a computer with an Internet connection and a Web browser. Full help and instructions are provided on-screen. As an author, you will be prompted for login and manuscript details as Field of Paper and then to upload your manuscript file(s) according to the instructions.

To avoid postal delays, all transaction is preferred by e-mail. A finished manuscript submission is confirmed by e-mail immediately and your paper enters the editorial process with no postal delays. When a conclusion is made about the publication of your paper by our Editorial Board, revisions can be submitted online with the same procedure, with an occasion to view and respond to all comments.

Complete support for both authors and co-author is provided.

4. MANUSCRIPT'S CATEGORY

Based on potential and nature, the manuscript can be categorized under the following heads:

Original research paper: Such papers are reports of high-level significant original research work.

Review papers: These are concise, significant but helpful and decisive topics for young researchers.

Research articles: These are handled with small investigation and applications

Research letters: The letters are small and concise comments on previously published matters.

5.STRUCTURE AND FORMAT OF MANUSCRIPT

The recommended size of original research paper is less than seven thousand words, review papers fewer than seven thousands words also.Preparation of research paper or how to write research paper, are major hurdle, while writing manuscript. The research articles and research letters should be fewer than three thousand words, the structure original research paper; sometime review paper should be as follows:

Papers: These are reports of significant research (typically less than 7000 words equivalent, including tables, figures, references), and comprise:

(a)Title should be relevant and commensurate with the theme of the paper.

(b) A brief Summary, "Abstract" (less than 150 words) containing the major results and conclusions.

(c) Up to ten keywords, that precisely identifies the paper's subject, purpose, and focus.

(d) An Introduction, giving necessary background excluding subheadings; objectives must be clearly declared.

(e) Resources and techniques with sufficient complete experimental details (wherever possible by reference) to permit repetition; sources of information must be given and numerical methods must be specified by reference, unless non-standard.

(f) Results should be presented concisely, by well-designed tables and/or figures; the same data may not be used in both; suitable statistical data should be given. All data must be obtained with attention to numerical detail in the planning stage. As reproduced design has been recognized to be important to experiments for a considerable time, the Editor has decided that any paper that appears not to have adequate numerical treatments of the data will be returned un-refereed;

(g) Discussion should cover the implications and consequences, not just recapitulating the results; conclusions should be summarizing.

(h) Brief Acknowledgements.

(i) References in the proper form.

Authors should very cautiously consider the preparation of papers to ensure that they communicate efficiently. Papers are much more likely to be accepted, if they are cautiously designed and laid out, contain few or no errors, are summarizing, and be conventional to the approach and instructions. They will in addition, be published with much less delays than those that require much technical and editorial correction.

The Editorial Board reserves the right to make literary corrections and to make suggestions to improve briefness.

It is vital, that authors take care in submitting a manuscript that is written in simple language and adheres to published guidelines.

Format

Language: The language of publication is UK English. Authors, for whom English is a second language, must have their manuscript efficiently edited by an English-speaking person before submission to make sure that, the English is of high excellence. It is preferable, that manuscripts should be professionally edited.

Standard Usage, Abbreviations, and Units: Spelling and hyphenation should be conventional to The Concise Oxford English Dictionary. Statistics and measurements should at all times be given in figures, e.g. 16 min, except for when the number begins a sentence. When the number does not refer to a unit of measurement it should be spelt in full unless, it is 160 or greater.

Abbreviations supposed to be used carefully. The abbreviated name or expression is supposed to be cited in full at first usage, followed by the conventional abbreviation in parentheses.

Metric SI units are supposed to generally be used excluding where they conflict with current practice or are confusing. For illustration, 1.4 l rather than 1.4 × 10-3 m3, or 4 mm somewhat than 4 × 10-3 m. Chemical formula and solutions must identify the form used, e.g. anhydrous or hydrated, and the concentration must be in clearly defined units. Common species names should be followed by underlines at the first mention. For following use the generic name should be constricted to a single letter, if it is clear.

Structure

All manuscripts submitted to Global Journals Inc. (US), ought to include:

Title: The title page must carry an instructive title that reflects the content, a running title (less than 45 characters together with spaces), names of the authors and co-authors, and the place(s) wherever the work was carried out. The full postal address in addition with the e-mail address of related author must be given. Up to eleven keywords or very brief phrases have to be given to help data retrieval, mining and indexing.

Abstract, used in Original Papers and Reviews:

Optimizing Abstract for Search Engines

Many researchers searching for information online will use search engines such as Google, Yahoo or similar. By optimizing your paper for search engines, you will amplify the chance of someone finding it. This in turn will make it more likely to be viewed and/or cited in a further work. Global Journals Inc. (US) have compiled these guidelines to facilitate you to maximize the web-friendliness of the most public part of your paper.

Key Words

A major linchpin in research work for the writing research paper is the keyword search, which one will employ to find both library and Internet resources.

One must be persistent and creative in using keywords. An effective keyword search requires a strategy and planning a list of possible keywords and phrases to try.

Search engines for most searches, use Boolean searching, which is somewhat different from Internet searches. The Boolean search uses "operators," words (and, or, not, and near) that enable you to expand or narrow your affords. Tips for research paper while preparing research paper are very helpful guideline of research paper.

Choice of key words is first tool of tips to write research paper. Research paper writing is an art.A few tips for deciding as strategically as possible about keyword search:

- One should start brainstorming lists of possible keywords before even begin searching. Think about the most important concepts related to research work. Ask, "What words would a source have to include to be truly valuable in research paper?" Then consider synonyms for the important words.
- It may take the discovery of only one relevant paper to let steer in the right keyword direction because in most databases, the keywords under which a research paper is abstracted are listed with the paper.
- One should avoid outdated words.

Keywords are the key that opens a door to research work sources. Keyword searching is an art in which researcher's skills are bound to improve with experience and time.

Numerical Methods: Numerical methods used should be clear and, where appropriate, supported by references.

Acknowledgements: Please make these as concise as possible.

References

References follow the Harvard scheme of referencing. References in the text should cite the authors' names followed by the time of their publication, unless there are three or more authors when simply the first author's name is quoted followed by et al. unpublished work has to only be cited where necessary, and only in the text. Copies of references in press in other journals have to be supplied with submitted typescripts. It is necessary that all citations and references be carefully checked before submission, as mistakes or omissions will cause delays.

References to information on the World Wide Web can be given, but only if the information is available without charge to readers on an official site. Wikipedia and Similar websites are not allowed where anyone can change the information. Authors will be asked to make available electronic copies of the cited information for inclusion on the Global Journals Inc. (US) homepage at the judgment of the Editorial Board.

The Editorial Board and Global Journals Inc. (US) recommend that, citation of online-published papers and other material should be done via a DOI (digital object identifier). If an author cites anything, which does not have a DOI, they run the risk of the cited material not being noticeable.

The Editorial Board and Global Journals Inc. (US) recommend the use of a tool such as Reference Manager for reference management and formatting.

Tables, Figures and Figure Legends

Tables: Tables should be few in number, cautiously designed, uncrowned, and include only essential data. Each must have an Arabic number, e.g. Table 4, a self-explanatory caption and be on a separate sheet. Vertical lines should not be used.

Figures: Figures are supposed to be submitted as separate files. Always take in a citation in the text for each figure using Arabic numbers, e.g. Fig. 4. Artwork must be submitted online in electronic form by e-mailing them.

Preparation of Electronic Figures for Publication

Even though low quality images are sufficient for review purposes, print publication requires high quality images to prevent the final product being blurred or fuzzy. Submit (or e-mail) EPS (line art) or TIFF (halftone/photographs) files only. MS PowerPoint and Word Graphics are unsuitable for printed pictures. Do not use pixel-oriented software. Scans (TIFF only) should have a resolution of at least 350 dpi (halftone) or 700 to 1100 dpi (line drawings) in relation to the imitation size. Please give the data for figures in black and white or submit a Color Work Agreement Form. EPS files must be saved with fonts embedded (and with a TIFF preview, if possible).

For scanned images, the scanning resolution (at final image size) ought to be as follows to ensure good reproduction: line art: >650 dpi; halftones (including gel photographs) : >350 dpi; figures containing both halftone and line images: >650 dpi.

Color Charges: It is the rule of the Global Journals Inc. (US) for authors to pay the full cost for the reproduction of their color artwork. Hence, please note that, if there is color artwork in your manuscript when it is accepted for publication, we would require you to complete and return a color work agreement form before your paper can be published.

Figure Legends: Self-explanatory legends of all figures should be incorporated separately under the heading 'Legends to Figures'. In the full-text online edition of the journal, figure legends may possibly be truncated in abbreviated links to the full screen version. Therefore, the first 100 characters of any legend should notify the reader, about the key aspects of the figure.

6. AFTER ACCEPTANCE

Upon approval of a paper for publication, the manuscript will be forwarded to the dean, who is responsible for the publication of the Global Journals Inc. (US).

6.1 Proof Corrections

The corresponding author will receive an e-mail alert containing a link to a website or will be attached. A working e-mail address must therefore be provided for the related author.

Acrobat Reader will be required in order to read this file. This software can be downloaded

(Free of charge) from the following website:

www.adobe.com/products/acrobat/readstep2.html. This will facilitate the file to be opened, read on screen, and printed out in order for any corrections to be added. Further instructions will be sent with the proof.

Proofs must be returned to the dean at dean@globaljournals.org within three days of receipt.

As changes to proofs are costly, we inquire that you only correct typesetting errors. All illustrations are retained by the publisher. Please note that the authors are responsible for all statements made in their work, including changes made by the copy editor.

6.2 Early View of Global Journals Inc. (US) (Publication Prior to Print)

The Global Journals Inc. (US) are enclosed by our publishing's Early View service. Early View articles are complete full-text articles sent in advance of their publication. Early View articles are absolute and final. They have been completely reviewed, revised and edited for publication, and the authors' final corrections have been incorporated. Because they are in final form, no changes can be made after sending them. The nature of Early View articles means that they do not yet have volume, issue or page numbers, so Early View articles cannot be cited in the conventional way.

6.3 Author Services

Online production tracking is available for your article through Author Services. Author Services enables authors to track their article - once it has been accepted - through the production process to publication online and in print. Authors can check the status of their articles online and choose to receive automated e-mails at key stages of production. The authors will receive an e-mail with a unique link that enables them to register and have their article automatically added to the system. Please ensure that a complete e-mail address is provided when submitting the manuscript.

6.4 Author Material Archive Policy

Please note that if not specifically requested, publisher will dispose off hardcopy & electronic information submitted, after the two months of publication. If you require the return of any information submitted, please inform the Editorial Board or dean as soon as possible.

6.5 Offprint and Extra Copies

A PDF offprint of the online-published article will be provided free of charge to the related author, and may be distributed according to the Publisher's terms and conditions. Additional paper offprint may be ordered by emailing us at: editor@globaljournals.org .

You must strictly follow above Author Guidelines before submitting your paper or else we will not at all be responsible for any corrections in future in any of the way.

Before start writing a good quality Computer Science Research Paper, let us first understand what is Computer Science Research Paper? So, Computer Science Research Paper is the paper which is written by professionals or scientists who are associated to Computer Science and Information Technology, or doing research study in these areas. If you are novel to this field then you can consult about this field from your supervisor or guide.

TECHNIQUES FOR WRITING A GOOD QUALITY RESEARCH PAPER:

1. Choosing the topic: In most cases, the topic is searched by the interest of author but it can be also suggested by the guides. You can have several topics and then you can judge that in which topic or subject you are finding yourself most comfortable. This can be done by asking several questions to yourself, like Will I be able to carry our search in this area? Will I find all necessary recourses to accomplish the search? Will I be able to find all information in this field area? If the answer of these types of questions will be "Yes" then you can choose that topic. In most of the cases, you may have to conduct the surveys and have to visit several places because this field is related to Computer Science and Information Technology. Also, you may have to do a lot of work to find all rise and falls regarding the various data of that subject. Sometimes, detailed information plays a vital role, instead of short information.

2. Evaluators are human: First thing to remember that evaluators are also human being. They are not only meant for rejecting a paper. They are here to evaluate your paper. So, present your Best.

3. Think Like Evaluators: If you are in a confusion or getting demotivated that your paper will be accepted by evaluators or not, then think and try to evaluate your paper like an Evaluator. Try to understand that what an evaluator wants in your research paper and automatically you will have your answer.

4. Make blueprints of paper: The outline is the plan or framework that will help you to arrange your thoughts. It will make your paper logical. But remember that all points of your outline must be related to the topic you have chosen.

5. Ask your Guides: If you are having any difficulty in your research, then do not hesitate to share your difficulty to your guide (if you have any). They will surely help you out and resolve your doubts. If you can't clarify what exactly you require for your work then ask the supervisor to help you with the alternative. He might also provide you the list of essential readings.

6. Use of computer is recommended: As you are doing research in the field of Computer Science, then this point is quite obvious.

7. Use right software: Always use good quality software packages. If you are not capable to judge good software then you can lose quality of your paper unknowingly. There are various software programs available to help you, which you can get through Internet.

8. Use the Internet for help: An excellent start for your paper can be by using the Google. It is an excellent search engine, where you can have your doubts resolved. You may also read some answers for the frequent question how to write my research paper or find model research paper. From the internet library you can download books. If you have all required books make important reading selecting and analyzing the specified information. Then put together research paper sketch out.

9. Use and get big pictures: Always use encyclopedias, Wikipedia to get pictures so that you can go into the depth.

10. Bookmarks are useful: When you read any book or magazine, you generally use bookmarks, right! It is a good habit, which helps to not to lose your continuity. You should always use bookmarks while searching on Internet also, which will make your search easier.

11. Revise what you wrote: When you write anything, always read it, summarize it and then finalize it.

12. Make all efforts: Make all efforts to mention what you are going to write in your paper. That means always have a good start. Try to mention everything in introduction, that what is the need of a particular research paper. Polish your work by good skill of writing and always give an evaluator, what he wants.

13. Have backups: When you are going to do any important thing like making research paper, you should always have backup copies of it either in your computer or in paper. This will help you to not to lose any of your important.

14. Produce good diagrams of your own: Always try to include good charts or diagrams in your paper to improve quality. Using several and unnecessary diagrams will degrade the quality of your paper by creating "hotchpotch." So always, try to make and include those diagrams, which are made by your own to improve readability and understandability of your paper.

15. Use of direct quotes: When you do research relevant to literature, history or current affairs then use of quotes become essential but if study is relevant to science then use of quotes is not preferable.

16. Use proper verb tense: Use proper verb tenses in your paper. Use past tense, to present those events that happened. Use present tense to indicate events that are going on. Use future tense to indicate future happening events. Use of improper and wrong tenses will confuse the evaluator. Avoid the sentences that are incomplete.

17. Never use online paper: If you are getting any paper on Internet, then never use it as your research paper because it might be possible that evaluator has already seen it or maybe it is outdated version.

18. Pick a good study spot: To do your research studies always try to pick a spot, which is quiet. Every spot is not for studies. Spot that suits you choose it and proceed further.

19. Know what you know: Always try to know, what you know by making objectives. Else, you will be confused and cannot achieve your target.

20. Use good quality grammar: Always use a good quality grammar and use words that will throw positive impact on evaluator. Use of good quality grammar does not mean to use tough words, that for each word the evaluator has to go through dictionary. Do not start sentence with a conjunction. Do not fragment sentences. Eliminate one-word sentences. Ignore passive voice. Do not ever use a big word when a diminutive one would suffice. Verbs have to be in agreement with their subjects. Prepositions are not expressions to finish sentences with. It is incorrect to ever divide an infinitive. Avoid clichés like the disease. Also, always shun irritating alliteration. Use language that is simple and straight forward. put together a neat summary.

21. Arrangement of information: Each section of the main body should start with an opening sentence and there should be a changeover at the end of the section. Give only valid and powerful arguments to your topic. You may also maintain your arguments with records.

22. Never start in last minute: Always start at right time and give enough time to research work. Leaving everything to the last minute will degrade your paper and spoil your work.

23. Multitasking in research is not good: Doing several things at the same time proves bad habit in case of research activity. Research is an area, where everything has a particular time slot. Divide your research work in parts and do particular part in particular time slot.

24. Never copy others' work: Never copy others' work and give it your name because if evaluator has seen it anywhere you will be in trouble.

25. Take proper rest and food: No matter how many hours you spend for your research activity, if you are not taking care of your health then all your efforts will be in vain. For a quality research, study is must, and this can be done by taking proper rest and food.

26. Go for seminars: Attend seminars if the topic is relevant to your research area. Utilize all your resources.

27. Refresh your mind after intervals: Try to give rest to your mind by listening to soft music or by sleeping in intervals. This will also improve your memory.

28. Make colleagues: Always try to make colleagues. No matter how sharper or intelligent you are, if you make colleagues you can have several ideas, which will be helpful for your research.

29. Think technically: Always think technically. If anything happens, then search its reasons, its benefits, and demerits.

30. Think and then print: When you will go to print your paper, notice that tables are not be split, headings are not detached from their descriptions, and page sequence is maintained.

31. Adding unnecessary information: Do not add unnecessary information, like, I have used MS Excel to draw graph. Do not add irrelevant and inappropriate material. These all will create superfluous. Foreign terminology and phrases are not apropos. One should NEVER take a broad view. Analogy in script is like feathers on a snake. Not at all use a large word when a very small one would be sufficient. Use words properly, regardless of how others use them. Remove quotations. Puns are for kids, not grunt readers. Amplification is a billion times of inferior quality than sarcasm.

32. Never oversimplify everything: To add material in your research paper, never go for oversimplification. This will definitely irritate the evaluator. Be more or less specific. Also too, by no means, ever use rhythmic redundancies. Contractions aren't essential and shouldn't be there used. Comparisons are as terrible as clichés. Give up ampersands and abbreviations, and so on. Remove commas, that are, not necessary. Parenthetical words however should be together with this in commas. Understatement is all the time the complete best way to put onward earth-shaking thoughts. Give a detailed literary review.

33. Report concluded results: Use concluded results. From raw data, filter the results and then conclude your studies based on measurements and observations taken. Significant figures and appropriate number of decimal places should be used. Parenthetical remarks are prohibitive. Proofread carefully at final stage. In the end give outline to your arguments. Spot out perspectives of further study of this subject. Justify your conclusion by at the bottom of them with sufficient justifications and examples.

34. After conclusion: Once you have concluded your research, the next most important step is to present your findings. Presentation is extremely important as it is the definite medium though which your research is going to be in print to the rest of the crowd. Care should be taken to categorize your thoughts well and present them in a logical and neat manner. A good quality research paper format is essential because it serves to highlight your research paper and bring to light all necessary aspects in your research.

Informal Guidelines of Research Paper Writing

Key points to remember:

- Submit all work in its final form.
- Write your paper in the form, which is presented in the guidelines using the template.
- Please note the criterion for grading the final paper by peer-reviewers.

Final Points:

A purpose of organizing a research paper is to let people to interpret your effort selectively. The journal requires the following sections, submitted in the order listed, each section to start on a new page.

The introduction will be compiled from reference matter and will reflect the design processes or outline of basis that direct you to make study. As you will carry out the process of study, the method and process section will be constructed as like that. The result segment will show related statistics in nearly sequential order and will direct the reviewers next to the similar intellectual paths throughout the data that you took to carry out your study. The discussion section will provide understanding of the data and projections as to the implication of the results. The use of good quality references all through the paper will give the effort trustworthiness by representing an alertness of prior workings.

Writing a research paper is not an easy job no matter how trouble-free the actual research or concept. Practice, excellent preparation, and controlled record keeping are the only means to make straightforward the progression.

General style:

Specific editorial column necessities for compliance of a manuscript will always take over from directions in these general guidelines.

To make a paper clear

· Adhere to recommended page limits

Mistakes to evade

- Insertion a title at the foot of a page with the subsequent text on the next page
- Separating a table/chart or figure - impound each figure/table to a single page
- Submitting a manuscript with pages out of sequence

In every sections of your document

· Use standard writing style including articles ("a", "the," etc.)

· Keep on paying attention on the research topic of the paper

· Use paragraphs to split each significant point (excluding for the abstract)

· Align the primary line of each section

· Present your points in sound order

· Use present tense to report well accepted

· Use past tense to describe specific results

· Shun familiar wording, don't address the reviewer directly, and don't use slang, slang language, or superlatives

· Shun use of extra pictures - include only those figures essential to presenting results

Title Page:

Choose a revealing title. It should be short. It should not have non-standard acronyms or abbreviations. It should not exceed two printed lines. It should include the name(s) and address (es) of all authors.

Abstract:

The summary should be two hundred words or less. It should briefly and clearly explain the key findings reported in the manuscript--must have precise statistics. It should not have abnormal acronyms or abbreviations. It should be logical in itself. Shun citing references at this point.

An abstract is a brief distinct paragraph summary of finished work or work in development. In a minute or less a reviewer can be taught the foundation behind the study, common approach to the problem, relevant results, and significant conclusions or new questions.

Write your summary when your paper is completed because how can you write the summary of anything which is not yet written? Wealth of terminology is very essential in abstract. Yet, use comprehensive sentences and do not let go readability for briefness. You can maintain it succinct by phrasing sentences so that they provide more than lone rationale. The author can at this moment go straight to shortening the outcome. Sum up the study, with the subsequent elements in any summary. Try to maintain the initial two items to no more than one ruling each.

- Reason of the study - theory, overall issue, purpose
- Fundamental goal
- To the point depiction of the research
- Consequences, including definite statistics - if the consequences are quantitative in nature, account quantitative data; results of any numerical analysis should be reported
- Significant conclusions or questions that track from the research(es)

Approach:

- Single section, and succinct
- As a outline of job done, it is always written in past tense
- A conceptual should situate on its own, and not submit to any other part of the paper such as a form or table
- Center on shortening results - bound background information to a verdict or two, if completely necessary
- What you account in an conceptual must be regular with what you reported in the manuscript
- Exact spelling, clearness of sentences and phrases, and appropriate reporting of quantities (proper units, important statistics) are just as significant in an abstract as they are anywhere else

Introduction:

The **Introduction** should "introduce" the manuscript. The reviewer should be presented with sufficient background information to be capable to comprehend and calculate the purpose of your study without having to submit to other works. The basis for the study should be offered. Give most important references but shun difficult to make a comprehensive appraisal of the topic. In the introduction, describe the problem visibly. If the problem is not acknowledged in a logical, reasonable way, the reviewer will have no attention in your result. Speak in common terms about techniques used to explain the problem, if needed, but do not present any particulars about the protocols here. Following approach can create a valuable beginning:

- Explain the value (significance) of the study
- Shield the model - why did you employ this particular system or method? What is its compensation? You strength remark on its appropriateness from a abstract point of vision as well as point out sensible reasons for using it.
- Present a justification. Status your particular theory (es) or aim(s), and describe the logic that led you to choose them.
- Very for a short time explain the tentative propose and how it skilled the declared objectives.

Approach:

- Use past tense except for when referring to recognized facts. After all, the manuscript will be submitted after the entire job is done.
- Sort out your thoughts; manufacture one key point with every section. If you make the four points listed above, you will need a least of four paragraphs.

- Present surroundings information only as desirable in order hold up a situation. The reviewer does not desire to read the whole thing you know about a topic.
- Shape the theory/purpose specifically - do not take a broad view.
- As always, give awareness to spelling, simplicity and correctness of sentences and phrases.

Procedures (Methods and Materials):

This part is supposed to be the easiest to carve if you have good skills. A sound written Procedures segment allows a capable scientist to replacement your results. Present precise information about your supplies. The suppliers and clarity of reagents can be helpful bits of information. Present methods in sequential order but linked methodologies can be grouped as a segment. Be concise when relating the protocols. Attempt for the least amount of information that would permit another capable scientist to spare your outcome but be cautious that vital information is integrated. The use of subheadings is suggested and ought to be synchronized with the results section. When a technique is used that has been well described in another object, mention the specific item describing a way but draw the basic principle while stating the situation. The purpose is to text all particular resources and broad procedures, so that another person may use some or all of the methods in one more study or referee the scientific value of your work. It is not to be a step by step report of the whole thing you did, nor is a methods section a set of orders.

Materials:

- Explain materials individually only if the study is so complex that it saves liberty this way.
- Embrace particular materials, and any tools or provisions that are not frequently found in laboratories.
- Do not take in frequently found.
- If use of a definite type of tools.
- Materials may be reported in a part section or else they may be recognized along with your measures.

Methods:

- Report the method (not particulars of each process that engaged the same methodology)
- Describe the method entirely
- To be succinct, present methods under headings dedicated to specific dealings or groups of measures
- Simplify - details how procedures were completed not how they were exclusively performed on a particular day.
- If well known procedures were used, account the procedure by name, possibly with reference, and that's all.

Approach:

- It is embarrassed or not possible to use vigorous voice when documenting methods with no using first person, which would focus the reviewer's interest on the researcher rather than the job. As a result when script up the methods most authors use third person passive voice.
- Use standard style in this and in every other part of the paper - avoid familiar lists, and use full sentences.

What to keep away from

- Resources and methods are not a set of information.
- Skip all descriptive information and surroundings - save it for the argument.
- Leave out information that is immaterial to a third party.

Results:

The principle of a results segment is to present and demonstrate your conclusion. Create this part a entirely objective details of the outcome, and save all understanding for the discussion.

The page length of this segment is set by the sum and types of data to be reported. Carry on to be to the point, by means of statistics and tables, if suitable, to present consequences most efficiently.You must obviously differentiate material that would usually be incorporated in a study editorial from any unprocessed data or additional appendix matter that would not be available. In fact, such matter should not be submitted at all except requested by the instructor.

Content

- Sum up your conclusion in text and demonstrate them, if suitable, with figures and tables.
- In manuscript, explain each of your consequences, point the reader to remarks that are most appropriate.
- Present a background, such as by describing the question that was addressed by creation an exacting study.
- Explain results of control experiments and comprise remarks that are not accessible in a prescribed figure or table, if appropriate.
- Examine your data, then prepare the analyzed (transformed) data in the form of a figure (graph), table, or in manuscript form.

What to stay away from

- Do not discuss or infer your outcome, report surroundings information, or try to explain anything.
- Not at all, take in raw data or intermediate calculations in a research manuscript.
- Do not present the similar data more than once.
- Manuscript should complement any figures or tables, not duplicate the identical information.
- Never confuse figures with tables - there is a difference.

Approach

- As forever, use past tense when you submit to your results, and put the whole thing in a reasonable order.
- Put figures and tables, appropriately numbered, in order at the end of the report
- If you desire, you may place your figures and tables properly within the text of your results part.

Figures and tables

- If you put figures and tables at the end of the details, make certain that they are visibly distinguished from any attach appendix materials, such as raw facts
- Despite of position, each figure must be numbered one after the other and complete with subtitle
- In spite of position, each table must be titled, numbered one after the other and complete with heading
- All figure and table must be adequately complete that it could situate on its own, divide from text

Discussion:

The Discussion is expected the trickiest segment to write and describe. A lot of papers submitted for journal are discarded based on problems with the Discussion. There is no head of state for how long a argument should be. Position your understanding of the outcome visibly to lead the reviewer through your conclusions, and then finish the paper with a summing up of the implication of the study. The purpose here is to offer an understanding of your results and hold up for all of your conclusions, using facts from your research and generally accepted information, if suitable. The implication of result should be visibly described. Infer your data in the conversation in suitable depth. This means that when you clarify an observable fact you must explain mechanisms that may account for the observation. If your results vary from your prospect, make clear why that may have happened. If your results agree, then explain the theory that the proof supported. It is never suitable to just state that the data approved with prospect, and let it drop at that.

- Make a decision if each premise is supported, discarded, or if you cannot make a conclusion with assurance. Do not just dismiss a study or part of a study as "uncertain."
- Research papers are not acknowledged if the work is imperfect. Draw what conclusions you can based upon the results that you have, and take care of the study as a finished work
- You may propose future guidelines, such as how the experiment might be personalized to accomplish a new idea.
- Give details all of your remarks as much as possible, focus on mechanisms.
- Make a decision if the tentative design sufficiently addressed the theory, and whether or not it was correctly restricted.
- Try to present substitute explanations if sensible alternatives be present.
- One research will not counter an overall question, so maintain the large picture in mind, where do you go next? The best studies unlock new avenues of study. What questions remain?
- Recommendations for detailed papers will offer supplementary suggestions.

Approach:

- When you refer to information, differentiate data generated by your own studies from available information
- Submit to work done by specific persons (including you) in past tense.
- Submit to generally acknowledged facts and main beliefs in present tense.

Please carefully note down following rules and regulation before submitting your Research Paper to Global Journals Inc. (US):

Segment Draft and Final Research Paper: You have to strictly follow the template of research paper. If it is not done your paper may get rejected.

- The **major constraint** is that you must independently make all content, tables, graphs, and facts that are offered in the paper. You must write each part of the paper wholly on your own. The Peer-reviewers need to identify your own perceptive of the concepts in your own terms. NEVER extract straight from any foundation, and never rephrase someone else's analysis.

- Do not give permission to anyone else to "PROOFREAD" your manuscript.

- Methods to avoid Plagiarism is applied by us on every paper, if found guilty, you will be blacklisted by all of our collaborated research groups, your institution will be informed for this and strict legal actions will be taken immediately.)
- To guard yourself and others from possible illegal use please do not permit anyone right to use to your paper and files.

Criterion for Grading a Research Paper (Compilation) by Global Journals Inc. (US)

Please note that following table is only a Grading of "Paper Compilation" and not on "Performed/Stated Research" whose grading solely depends on Individual Assigned Peer Reviewer and Editorial Board Member. These can be available only on request and after decision of Paper. This report will be the property of Global Journals Inc. (US).

Topics	Grades		
	A-B	**C-D**	**E-F**
Abstract	Clear and concise with appropriate content, Correct format. 200 words or below	Unclear summary and no specific data, Incorrect form Above 200 words	No specific data with ambiguous information Above 250 words
Introduction	Containing all background details with clear goal and appropriate details, flow specification, no grammar and spelling mistake, well organized sentence and paragraph, reference cited	Unclear and confusing data, appropriate format, grammar and spelling errors with unorganized matter	Out of place depth and content, hazy format
Methods and Procedures	Clear and to the point with well arranged paragraph, precision and accuracy of facts and figures, well organized subheads	Difficult to comprehend with embarrassed text, too much explanation but completed	Incorrect and unorganized structure with hazy meaning
Result	Well organized, Clear and specific, Correct units with precision, correct data, well structuring of paragraph, no grammar and spelling mistake	Complete and embarrassed text, difficult to comprehend	Irregular format with wrong facts and figures
Discussion	Well organized, meaningful specification, sound conclusion, logical and concise explanation, highly structured paragraph reference cited	Wordy, unclear conclusion, spurious	Conclusion is not cited, unorganized, difficult to comprehend
References	Complete and correct format, well organized	Beside the point, Incomplete	Wrong format and structuring

Index

Global Journal of Management and Business Research

Visit us on the Web at www.GlobalJournals.org | www.JournalofBusiness.Org
or email us at helpdesk@globaljournals.org

ISSN 9755853