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About ACR

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Editorial

Editorial

This first issue of 13th volume consists of seven research papers. As a continuous practice, we strictly adhere to double blind peer review before we finalise papers for publication.

Janis VIESTURS, and Tatjana TAMBOVCEVA in their paper titled, **Characteristics of Environmental Due Diligence Process in Latvia**, tried to identify the characteristics of the environmental *due diligence* process in Latvia in the case of alienation of real estate and determine the mandatory and voluntary procedures in this regard. They mainly concluded that that alienation of real estate in Latvia shall be carried out as a limited scope *due diligence* process or as part of the entire real estate *due diligence* process.

Eldho Roshan Rajan and Dr. V A Santhosh in the paper titled, **A Study on the Stress Levels of Software Professionals based on Project Management Methodology**, conducted a study on stressful environment of software professionals through project management methodology. Their study revealed that project management methodologies and education qualification do not have significant influence on the stress levels of software professionals.

The paper, **the Circular Economy as a Philosophy of the Green Economy as a Strategy for Social Responsibility**, by Dr. José G. Vargas-Hernández and Mtro. Gilberto Israel González Ordaz, aimed at understanding how Circular Economy operates as an emerging model of Green Economy to contribute to the care of the environment. The authors felt that this model helps in increasing the durability of the products, repair them in case of failure to be reused and/or recycling of the raw materials of unusable products for the manufacture of new products.

Dr. Vijay Bhasker V, in his paper, **Implementation of GST and its impact on Automobile Dealers**, studied the automotive industry in Indian economy and the post GST effect on this industry. Through his exhaustive study he concluded that new indirect tax regime, i.e. GST will have impact on automotive industry like any other industry. There would be positive impact for those who are vigilant and tax compliant. He made some suggestions to reduce the adverse impact of GST.

Anuja Sawant Sarangdhar, in her paper, **Sustainable consumption and lifestyle in modern times**, identified the influences and consequences thereof to the finite and non-renewable material resources on the earth. The author felt that India being an exporter and importer, it is the collective responsibility of the country people to care for the environment, resources and people.

Dr. Jayanthi . R, through her paper, **Assessment of Service Quality of Select Hospitals in Bengaluru - with reference to Outpatient Services**, measured service quality of select private hospitals with reference to outpatient services in Bengaluru. The result of the study reveals that the service quality level of the outpatients in the hospitals is moderate. Further, there is big positive gap between patient's perception and expectation in terms of tangibility and responsiveness. The negative gap identified is empathy and assurance.

Indumathi . R, in her paper, **Supporting evidence for Product Life Cycle Extension on Used Cars**, made an attempt to understand the product life cycle (PLC) of used cars. The study results supported the product life extension among the used car category.

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Characteristics of Environmental *Due Diligence* Process in Latvia

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Key Words:

Environmental due diligence;
vendor due diligence;
real estate investigation;
real estate transactions.

Abstract:

The present research aims at identifying the characteristics of the environmental due diligence process in Latvia in the case of alienation of real estate, as well as at determining the mandatory and voluntary procedures of real estate investigation to be conducted in the event of alienation of real estate - determination of the liability of the alienor or the acquirer of land-based property rights, possible compulsory acquisition of real estate for public purposes, transactions in specially protected areas, existing or potential environmental pollution level, reliable land and cadastre register operation, as well as spatial planning, energy performance certification, flood, noise, air pollution, and other risks.

Introduction

The goal of the research is to investigate the characteristics of the environmental *due diligence* process or the environmental aspects of real estate in Latvia as a component of the entire real estate *due diligence* process carried out in the case of alienation of real estate. In the present paper, the term *due diligence* is used to denote an “in-depth investigation” regardless of the fact that the Terminology Commission of the Latvian Academy of Sciences has proposed the following translation variants of *due diligence* “proper carefulness” or “reliability check”. However, it should be noted that by using different definitions most contemporary authors mean “a reasonable investigation in the event of alienation of property” (Reis, 2005; Hellerforth, 2008; Lars, 2011; Guidelines for Due Diligence on Real Estate in the UK, 2013; Teufelsdorfer and Fischer, 2013). The paper is organised as follows: the introduction provides an overview of the concept environmental *due diligence*, as well as examines the main components of such a real estate investigation in the world; the remaining sections provide a detailed study of the necessary investigation of certain environmental factors in Latvia, based on several examples. Conclusions are drawn at the end of the paper. To conduct the present research, statistical and data

comparison methods, historical and empirical methods, survey of scientific literature have been used, as well as the analysis of Latvian, foreign and international rules and regulations have been performed.

Every real estate is unique and real estate transactions are also different in terms of content, time, economic and civil relations between the parties, but all the transactions are united by the fact that a real estate investigation is conducted before the transaction, mainly to reduce risk (Hellerforth, 2008), which is related to incomplete information on real estate. It may be a compulsory and minimum study of legal aspects that is performed by a notary in countries of the Romano-Germanic legal system, and it may be full-scope *due diligence* or limited-scope *due diligence* [Lars, 2011], typical example of which is environmental *due diligence* or a study that may be carried out by the seller before the transaction (*vendor due diligence*, *advance due diligence*, or *sell side due diligence*) or by the buyer (*due diligence*, *acquiror due diligence* or *buy-side due diligence*). In most cases, the real estate *due diligence* process should be carried out as an interdisciplinary project (Wunschel, 2009), which involves professionals representing particular sectors of the industry.

In countries where there is a compulsory investigation of real estate related to environmental factors, it usually involves.

Assessment of the pollution level:

Before the transaction, the buyer should be aware of the consequences of a real estate transaction that later turns out to be contaminated. For example, in 2002 the United States adopted and in 2006 substantially amended the Comprehensive Environmental Response, Compensation, and Liability Act, which states that the buyer undertakes responsibility to clean up the contaminated property in the event of failure to carry out a proper investigation of real estate before the transaction, i.e., the buyer cannot state after the purchase of real estate that he or she did not know or had no suspicion that the property was contaminated. In the case of the purchase of commercial properties, it is mandatory to carry out an environmental pollution investigation. Some authors associate a real estate investigation exactly with the environmental *due diligence* process (Woroniecki and Woroniecki, 2008), which may lead to an erroneous conclusion if an author does not explain that such environmental *due diligence* is a limited-scope property investigation (similarly, a legal investigation is sometimes defined as a *due diligence* process regardless of the fact that it is only part of the entire real estate investigation) or limited-scope *due diligence*. Determination of the pollution level is, in turn, only part of the environmental investigation, which, for example, is most commonly associated with a real estate investigation in the United States in compliance with the Comprehensive Environmental Response, Compensation, and Liability Act; however, determination of the pollution level is only part of the investigation of environmental factors in the event of alienation of property (Connolly and Morton, 2012).

Report on the technical condition of the building:

In some countries, in the event of alienation of real estate, it may be obligatory to draw up reports on the technical condition of the building, which is at least partly related to compliance with environmental requirements, for example, in France, in the real estate secondary market, the seller should draw up reports on - the absence of asbestos, lead and thermite in real estate; natural and technical risks; **energy performance test (from A to G)**; gas pipeline and electrical wiring diagnostics; the condition of the sewage system and drinking water.

Energy Performance Certification:

In the case of alienation of real estate, the most common statutory requirement is the energy performance certificate. For example, in the United Kingdom, there is a need for energy performance certificates for buildings, but in Scotland, apartment transactions require a Home Report, which consists of - a house condition survey and valuation; a property questionnaire; and an energy efficiency report.

The role of energy performance certificates in real estate transactions that consists of buildings is growing rapidly in Europe and worldwide, mainly due to the provision of reliable and comprehensive information on the cost of energy consumption of the building, and can be a reason for an increase in the transaction prices or rents (Energy performance certificates in buildings and their impact on transaction prices and rents in selected EU countries, 2013). In fact, in some countries there are exceptions to the need for an energy performance certificate and its indication in public real estate advertising, for example, for historical buildings (e.g., in Germany), cult buildings, warehouses, floating buildings (houseboats [in the Netherlands], etc.).

Consequently, under certain circumstances, at least the limited-scope *due diligence* process can be a legally binding part of real estate transactions, but it is usually understood as a voluntary investigation conducted by anyone who intends to make a transaction with a commercial property, real estate or other assets (Connolly and Morton, 2015). Moreover, the investigation may substantially vary in each country and even its region, as well as it may also depend on the type of real estate. Environmental *due diligence* can also be classified as part of the so-called technical *due diligence*, for example, in the book published in Austria “Handbuch. Immobilien transactionen” (Teufelsdorfer and Fisher, 2013).

The investigation of environmental factors as a compulsory part of the transaction process can be initiated by lenders before a credit decision is made (Matter, 2010; Connolly and Morton, 2012) to protect against environmental risks, especially if real estate is located near contaminated sites (Olson and Bergamini, 2004).

In 2016, Latvia ranked 22nd in the world (analysing a total of 180 countries), assessed by the Environmental Performance Index, which is part of the Infrastructure subdivision of the Global

Innovation Index that is determined according to 8 criteria and 20 indicators by Yale Centre for Environmental Law & Policy and Yale Data-Driven Environmental Solutions Group from Yale University together with the Centre for International Earth Science Information Network from the University of Columbia in collaboration with Samuel Family Foundation, McCall MacBain Foundation and the World Economic Forum. According to this index, Latvia as an eco-friendly country compared to other countries; however, in the case of real estate transactions the overall national Environmental Performance Index provides a general overview, which can be explained by the fact that each unit of real estate is unique and it is necessary to carry out the *due diligence* process of a particular property, whose essential part is environmental *due diligence* with such important components — determination of the liability of the alienor or the acquirer of property rights, possible compulsory acquisition of property for public purposes, transactions in specially protected areas, existing or potential environmental pollution level, reliable land and cadastre register operation, as well as spatial planning, energy performance certification, flood, noise, air pollution, and other risks.

1. The Owner's Liability and the Principle of Caveat Emptor

In Latvia, in accordance with the provisions of Section 1612 of the Civil Law of the Republic of Latvia, the alienor shall be liable not only for the faults and defects of the alienated property of which he or she had knowledge but did not declare, but also for hidden defects of which he or she did not have knowledge. Hence, it is in the best interests of the alienator (for example, seller) to conduct a thorough investigation of the property (*sell side due diligence*), thus absolving himself of any liability for the defects of the alienated property. The defects of the alienated property can not include generally known burdens, for example, real estate tax or real estate encumbrances entered in the public register (cadastre, land register) as well as public information on the planning of the municipal territory, etc. On the other hand, if the alienor asserted that there were no defects of the alienated property, but later it turned out that there had been certain defects, the alienor shall accept liability for the defects (see Section 1620 of the Civil Law of the Republic of Latvia: “The alienor who has failed to disclose or concealed, in bad faith, certain defects of the property he or she was aware of, or has expressly declared that it has certain characteristics, shall compensate the acquirer

for all losses. In all other cases the acquirer shall only have the right to request pursuant to his or her own choice either the setting aside of the contract, or a reduction in the price of the property”). Thus, the main criterion is the alienor's knowledge of the property and whether the alienor, with *due diligence*, is self-aware of the property he or she owns and does not hide the information. This principle is also enshrined in the case law of Latvia — in the Judgement of the Department of Civil Cases of the Senate of the Republic of Latvia, dated 17 January 2007, Case No. SKC-15 that stipulates that the liability of the alienor for defects of the alienated property is differentiated depending on the subjective attitude of the alienor towards the occurrence and in accordance with Section 1620 of the Civil Law of the Republic of Latvia, the losses to the acquirer shall be compensated only if the alienor has failed to disclose or concealed, in bad faith, certain defects of the property he or she was aware of, or has expressly declared that it has certain characteristics.

The principle of caveat emptor known since ancient Rome, which, in comparison with the countries of the Romano-Germanic legal system, is more suitable in countries of the Anglo-American legal system, for example, in England (Real Property Law and Procedure in the European Union. General Report, 2014), states that the buyer should be wary of the transaction; however, the importance of this principle has been significantly reduced nowadays. In order to reconcile “asymmetry of awareness”, assuming that the seller is generally more aware of the alienated property, nowadays, for the sake of consumer protection, the acquirer is increasingly protected disregarding the classical principle of caveat emptor, in particular if the alienor is an industry specialist but the acquirer — a household whose level of real estate awareness is relatively low.

2. Compulsory Acquisition of Real Estate for Public Purposes

Ownership of real estate, like in foreign countries, is not absolute in Latvia; it is balanced with the interests of other persons and the interests of the public as a whole. With all the limitations of the law (it can be stated that today the extent and importance of property restrictions have increased to such an extent that they have become even more significant in certain areas [in real estate matters in particular] than the powers imposed on the owner), which pose a significant impact on the use of the real estate, the private owner shall assume that the society reserves the right to alienate the real estate. In Latvia, this is

stipulated in Section 105 of the Constitution of the Republic of Latvia: “Everyone has the right to own property. Property shall not be used contrary to the interests of the public. Property rights may be restricted only in accordance with law. Compulsory acquisition of property for public purposes shall be allowed only in exceptional cases on the basis of a specific law and in return for fair compensation”. Section 105 of the Constitution of the Republic of Latvia envisages both the unhindered implementation of property rights and the right of the state to restrict property rights in the public interest. Ownership rights may be restricted if the restrictions are justified, i.e., if they are determined by law, they have a legitimate aim and are proportionate (Judgement of 20 May 2002 by the Constitutional Court of the Republic of Latvia in Case No. 2002-01-03). The article, on the one hand, stipulates the obligation of the state to promote and support property rights — to adopt laws ensuring the protection of these rights; on the other hand, the state has also the right to intervene in the use of property rights to a certain extent and manner (Judgement of 16 December 2005 by the Constitutional Court in Case No. 2005-12-0103), by compulsory acquisition of real estate and following four main principles on the basis of which the expropriation shall take place:

- 1) in the public interest;
- 2) in exceptional cases;
- 3) for fair compensation;
- 4) on the basis of a separate law.

Until 23 July 2009, the compulsory acquisition of land was foreseen for the public purposes in Latvia, if there was a violation of the rules for the protection and use of the protected area, as well as in case of non-observance of the nature protection plan (at present, the expropriation of the property in such a case is no longer envisaged in the legislation).

The compulsory acquisition of real estate for public purposes, like in all democratic states, is divided into:

- 1) direct or de jure — when the state or an authorised third party acquires ownership of real estate;
- 2) indirect or de facto — when property rights are not formally infringed, but compulsory acquisition is manifested as a significant restriction of ownership or a reduction in the value of real estate. If the purpose of the use of real estate is changed (restricting the rights of the land owner in the use of the property), the property, for example, is included in the specially protected area or other public interests are satisfied in the sphere of environmental protection, and if it is

carried out in the public interest and in compliance with the principles of international law, then in Latvia too it should be recognised as a classic case of the compulsory acquisition of property in the public interest.

3. Real Estate Transactions in Specially Protected Areas

Making a real estate purchase, it is important to find out whether the property is not located in specially protected nature territories, which have geographically defined areas in Latvia that are under special state protection in order to protect and preserve the diversity of nature — rare and typical natural ecosystems, living environment of protected species, original and beautiful landscapes typical of Latvia, geological and geomorphologic formations, dendrological plantations and giant trees, as well as important sites for recreation, education and instruction of the society. In Latvia, there are 682 specially protected nature territories approved by law or regulations of the Cabinet of Ministers. Protected nature territories in Latvia are divided into the following categories: strict nature reserves, national parks, biosphere reserves, nature parks, natural monuments, nature reserves, protected sea areas, and protected landscape areas.

Real estate alienation in these territories are possible (their economic use before and after the alienation is limited according to the spatial planning), i.e., they are not removed from civil circulation in the country (the only exception is the protected sea areas (Nida-Pērkone, Akmensrags, Irbe Strait, the western coast of the Gulf of Riga, Selga to the west of Tūja, Vitrupe-Tūja, Ainaži-Salacgrīva) — areas that do not have registered real estate; however, transactions, in the case of political will, would in theory be allowed [if not real estate alienation, then the superficies could be determined]). It is argued that, for example, the territorial sea, the public rivers and lakes listed in Annex 1 to the Civil Law of the Republic of Latvia are removed from civil circulation; however, in accordance with Section 1104 of the Civil Law of the Republic of Latvia they are state owned, but in terms of circulation, the legal status of the owner does not matter.

Restrictions on the rights of owners of specially protected nature territories shall be recorded in the land register without the consent of the owner. This is one of the exceptions when the marking of restrictions on rights can be consolidated in the land register, except certain cases stated in Section 45 of the Land Register Law on the basis of a decision of a

public authority, disregarding the principle of consent to the consolidation of land registers characteristic of the German legal family countries. Section 34 of the Law “On Specially Protected Nature Territories” of the Republic of Latvia “Rights of a Person to Acquire in Ownership the Land which is Located in the Protected Territory or its Functional Zone” states that restrictions on the ownership rights in the protected areas laid down in laws and regulations shall be marked in land border plans and recorded in the land register without the consent of the owner on the basis of a recording request of the Nature Conservation Agency.

3.1. Pre-emption Rights in Specially Protected Nature Territories

Making real estate purchase transactions in Latvia, unlike countries that do not have a pre-emption right obligation (for example, in Italy, the Netherlands) or there are pre-emption rights only on a few occasions (for example, in Scotland, Spain, Sweden), it should be noted that Latvia has a rather complicated pre-emption rights system, which is regulated by 18 laws (their number tends to increase), and the procedure of its implementation is regulated by five regulations of the Cabinet of Ministers of the Republic of Latvia, including Section 35 of the Law “On Specially Protected Nature Territories” of the Republic of Latvia (in this case, special pre-emption rights provision and use procedure), which stipulates that the state has pre-emption rights to the land located in:

- 1) strict nature reserves;
- 2) nature reserves if they have not been divided into functional zones;
- 3) natural monuments [except for protected trees and protected stones (secular stones)] if the functional zones have not been separated in such natural monuments; and
- 4) zones of nature reserves, national parks, biosphere reserves, nature parks, natural monuments and protected landscape area nature reserves, zones of strict regime, nature reserves and regulated regime.

3.2. Nature Protection Management Functions and Data Management System “Ozols”

On 1 June 2009, after the administrative territorial reform in Latvia, the Nature Conservation Agency was established. It is responsible for the implementation of the unified nature conservation policy in Latvia, the administration of specially protected nature territories of Latvia, including NATURA 2000. The institution consists of Kurzeme Regional Administration (including the former administration of Slītere National Park), Latgale

Regional Administration (including the former administrations of Rāzna National Park and Teiči Nature Reserve), Pierīga Regional Administration (including the former administration of Ķemeri National Park) and Vidzeme Regional Administration (including the former administrations of Gauja National Park and North Vidzeme Biosphere Reserve).

Public data are available at the Nature Data Management System “Ozols” (Oak), which provides information on—

- 1) specially protected nature territories;
- 2) micro-reserves;
- 3) specially protected species;
- 4) specially protected habitats;
- 5) management activities; and
- 6) tourism infrastructure in specially protected nature territories.

Economic activity is limited in these territories that imposes restrictions, but also provides the opportunity to receive compensation for restrictions on economic activity. Compensation for restrictions on economic activity in specially protected nature territories and micro-reserves is stipulated in the Law of the Republic of Latvia “On Compensation for Restrictions on Economic Activities in Protected Territories” (effective from 1 June 2013). Compensation is envisaged as annual support payments or land purchase by the state. Until 23 July 2009, the compulsory acquisition of real estate for public purposes was foreseen for the public purposes in Latvia, if there was a violation of the rules for the protection and use of the protected area, as well as in the case of non-observance of the nature protection plan the state had the right, in accordance with the procedure prescribed by laws and regulations, to expropriate land from its owner. At present, this provision has been abolished and the expropriation of property in the protected nature areas is possible by purchasing it by the state on the basis of a land owner's claim for land sell to the state. It is regulated that the price of land shall be determined in accordance with the procedure stipulated by the Law of the Republic of Latvia “Compulsory Acquisition of Real Estate for Public Purposes”.

In all protected nature territories, the rules on the protection and use of specially protected areas are established, for violation of which persons are subject to administrative liability, other liability, and even criminal liability, which is stipulated in Section 109 of the Criminal Law of the Republic of Latvia on the arbitrary cutting and damaging of trees, Section

110 on arbitrary fishing and acquisition of aquatic animals, and Section 112 on illegal hunting.

3.3. Natura 2000 in Latvia

A special status for protected nature areas in Latvia is established in the protected nature areas of European significance (Natura 2000), which is a unified network of protected nature territories of European significance, whose area in Latvia is small compared to other EU countries (see Fig. 1).

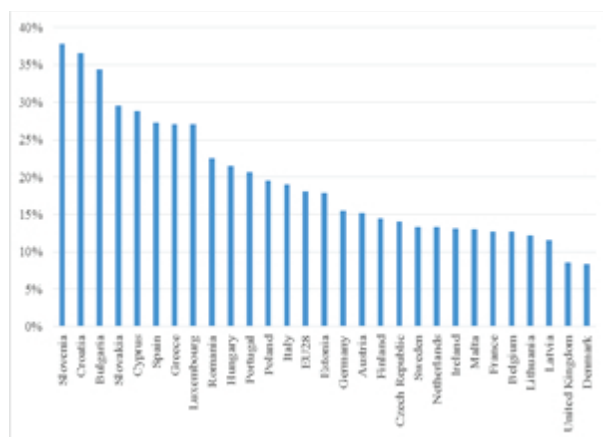


Fig. 1. Total land area of Natura 2000, % to the national territory in the EU countries in 2016.

Source: Natura 2000 Barometer: http://ec.europa.eu/environment/nature/natura2000/barometer/index_en.htm

The area of Natura 2000 as defined in the Law of the Republic of Latvia “On Specially Protected Nature Territories” includes specially protected nature territories, which are important in the European Union and significantly contribute to the conservation or restoration of a protected conservation status of specially protected habitat types or specially protected species in the relevant biogeographical region or regions, and can significantly contribute to the unity of the Natura 2000 network and the conservation of biodiversity in the relevant bio-geographical region or regions.

The territories of Natura 2000 are subject to the necessary conservation measures to maintain or restore a favourable conservation status for those habitats and species populations for which a particular area has been created. Protection of animal species with a wide area of population is ensured in Natura 2000 areas that have physical and biological factors, which are important for the species to survive and multiply.

4. Information Acquisition Opportunities –



Operation of Land, Cadastre and Other Registers, as well as Spatial Plans of Local Governments

One of the important constituents of the investigation of environmental factors is the availability of public and reliable information, as well as the transparency of the real estate sector, the essential part of which is the efficient operation of land (real estate) registers, which in Latvia include

- 1) a land register, in which the ownership of real estate as well as the encumbrances of a land (real estate) are recorded; however, this information is not exhaustive, and it is necessary to study the data of other registers;
- 2) the state real estate cadastre;
- 3) spatial plans of local governments;
- 4) detailed plans; and
- 5) public registers related to the investigation of environmental factors managed by the State Ltd. Latvian Environment, Geology and Meteorology Centre — Flood Risk Information System, information on air quality, as well as the Register of Contaminated and Potentially Contaminated Sites summarising information on more than 3,500 sites, which are also displayed on the map of contaminated and potentially contaminated sites; however, it should be noted that the information in this register is incomplete and the investigation of each land unit should be carried out on the site.

State Ltd. Latvian Environment, Geology and Meteorology Centre performs a preliminary flood risk assessment and, on the basis of its results, identifies those areas where there is or is likely to occur the risk of flooding, as well as draws up possible flood hazard maps and flood risk maps for these territories. The Centre develops and reviews the above-mentioned maps according to the procedure determined by laws and regulations, ensuring that the data correspond to the information provided in the river basin characterisation, assessment of the impact of human activity, economic analysis and management plans. Flood zones are included in the spatial plans of local governments, as well as in compliance with the Protection Zone Law of the Republic of Latvia it is prohibited in flood zones to perform backfilling works, construct buildings and structures, including dams, with the exception of: the construction of short-term use structures and minor buildings, renovation of existing buildings, restoration of cultural monuments, construction of transport and electronic communications networks, water supply

and sewage networks, building of water installations and main pipelines, power transmission and distribution structures, construction of places for swimming, slipways, piers for boats and motor water vehicles, construction of a yacht harbour, which shall contain not less than 25 recreation boat parking lots in the water, construction of structures and infrastructure objects necessary for ensuring their operation, construction of state meteorological and hydrological observation stations and posts and other official state fixed monitoring points and posts, construction of short-term use structures necessary for the management of habitats and viewing towers, foot-bridges and other structures necessary for nature tourism, construction of engineering protection and hydro-technical structures for the protection of existing buildings against high water or floods and construction of fixed protection structures for pollution containment and collection.

Such restrictions in flood risk areas are relatively strict every 10 years and suitable for the global flood hysteria, limiting, for example, the construction of floating structures, which is one of the development areas of modern construction in the world, which should be even promoted, considering that there is —

- 1) the legal solution;
- 2) urban planning that promotes the development of particular areas, for example, former mines, redeveloped industrial zones and military ports, floodplains (e.g., in Germany, the Netherlands);
- 3) development of technological possibilities and implementation of architects' ideas; and
- 4) shortage of land suitable for building.

It should be noted that there is separate legal ownership of land and buildings in Latvia - a legally constituted separate property (if the property objects are entered in the land register as a separate property - land and buildings are entered in different land registers) and actually separate property (if the property objects are not entered in the land register). In the case of actually separate property, this implies an additional investigation on the ownership of structures, such as railway track, taking into account that in accordance with Section 1477 of the Civil Law of the Republic of Latvia property rights, which exist on the basis of law, are also valid without entry into the Land Register. Consequently, besides the ownership of land to which the Land Register does not have any encumbrances or restrictions, there are also “non-constituted” (i.e., not entered into the Land Register, but legally valid) rights of other persons to various objects.

If the purpose of the real estate transaction is to

develop a property that is often related to a change in the land use category, in particular, if it is intended to change the land use category from agricultural land to land for construction, a special investigation is required as, in accordance with the Law of the Republic of Latvia “On Specially Protected Nature Territories”, in protected territories, in which land transformation is prohibited according to the general or individual provisions for the protection and use of protected territories without a written permit of the administration of the protected territory or the regional environmental board, the land use category may be changed for utilised agricultural area, if technical provisions of the regional environmental board have been issued or the initial environmental impact assessment of the intended activity has been performed in accordance with the requirements of the Law “On Environmental Impact Assessment”. Section 1 of the Spatial Planning Law of the Republic of Latvia states that a spatial plan is a long-term spatial planning document or a set of planning documents, which has been developed and has come into effect in accordance with procedures set out in regulatory enactments and which in conformity with the planning level and the type of plan reflects the present and planned (permitted) utilisation of the territory and the restrictions on the utilisation of such territory both in writing and graphically. In its turn, Clause 1 of Section 14 of Chapter 2 of the Law “On Local Governments” states that in carrying out their functions, local governments, in accordance with procedures laid down by law, shall develop a spatial plan. In accordance with Clause 2 of Section 7 of the Spatial Planning Law, the local government shall approve the spatial plan, detailed plan and its amendments as binding regulations of the local government.

The risks of contaminated and potentially contaminated sites and environmental risks are assessed by conducting an investigation of a particular real estate in Latvia, based on the type of real estate and attracting competent experts in the relevant field. The most important spheres, in relation to which environmental factors should be assessed, are the following:

- 1) noise protection;
- 2) protective zone;
- 3) waste management;
- 4) soil quality;
- 5) air pollution and protection;
- 6) sustainable development;
- 7) marine environment protection;
- 8) pollution;
- 9) water protection.

5. The Need for Energy Performance Certificate and Green Building Assessment Systems

In the countries of the European Union, building energy efficiency guidelines are defined by the Energy Performance of Buildings Directive [Directive 2002/91/EC] of the European Parliament and of the Council of 19 May 2010. The Directive states that buildings in the European Union as a whole consume 40 % of the Union's total energy consumption. It is planned to reduce it by 46 % in the period from 2021 to 2030. The reduction in energy consumption and the use of renewable energy sources in the building sector are essential measures to be taken in order to reduce the Union's energy dependency and greenhouse gas emissions. By the increasing use of renewable energy sources and at the same time taking measures to reduce energy consumption in the Union, the Union could meet the Kyoto Protocol requirements linked to the United Nations Framework Convention on Climate Change (UNFCCC) and respect both its long-term commitment to prevent global temperature from rising by more than 2 °C and commitment to reduce greenhouse gas emissions by at least 20 % by 2020 compared to 1990 levels and by 30 % in the event of an international agreement concluded.

Energy Performance Certificates are measures that are most commonly required in the event of real estate transaction (including rent or lease) of buildings (for example, in the United Kingdom and for certain buildings in the Netherlands, etc.) whose main task is to provide reliable information on the building energy consumption. According to the Directive, they are implemented in all EU countries.

In Latvia, the energy performance certification of a building (by registering an energy performance certificate in the register maintained by the State Construction Control Office) should be carried out in the following cases (Law “On the Energy Performance of Buildings”, 2012):

- 1) for a building to be designed, reconstructed or renovated in order to accept it for service or sell it;
- 2) for a building unit in a building to be designed, reconstructed or renovated in order to sell this building unit, if an individual accounting of energy carrier or thermal energy is anticipated for it;
- 3) for an existing building, in order to sell, rent or lease it, if the certification of the energy performance is requested by the purchaser, tenant or lessee;
- 4) for an existing building unit, the heating area of

which exceeds 50 square metres in order to sell, rent or lease it, if the certification of the energy performance is requested by the purchaser, tenant or lessee and this building unit has an individual accounting of energy carrier or thermal energy;

- 5) for an existing public building in the state or local government ownership, the heating area of which exceeds 250 square metres; and
- 6) in cases where a building owner has taken a decision on the energy performance certification of a building.

If real estate consists of buildings and in the case of alienation of the real estate, the object of the investigation is the conformity of the building to the long-term building criteria, then to “measure” the durability of the building in the world, as well as in Latvia, well-known green building assessment systems are used:

LEED (Leadership in Energy and Environmental Design) certificate, which is obtained by assessing the compliance of the building and its administration with sustainability criteria according to an internationally recognised methodology. The certificate can also be obtained in Latvia (for example, the building administered by Ltd. Vastint Latvia on 1 Zaļā Str., Riga, in cooperation with WSP Sverige AB received the LEED Gold Certificate;

BREEAM (British Research Establishment Environmental Assessment Method) has been the most widely used building assessment methodology in Europe since 1990, which is based on various sustainability criteria. In Latvia, likewise in the Netherlands, Norway, Spain and Sweden, its own version of criteria (Latvia Appendix) has been developed for the assessment of commercial real estate, which has a consultative character and should be read in conjunction with the full BREEAM version (BREEAM Europe Commercial Assessor Manual).

DGNB (Deutsche Gesellschaft für Nachhaltiges Bauen e.V.), founded in Germany in 2008, was originally created as a system for assessing the durability of German structures. However, at present the international version of the DGNB System (for example, the DGNB analogue in Austria is ÖGNI [Österreichische Gesellschaft für Nachhaltige Immobilienwirtschaft]) has been created. It is seldom used in Latvia (except for companies of German “origin”), and is mostly mentioned in various surveys as one of the methods for assessing the durability of buildings. Other systems that are not

used in Latvia are - CASBEE (Comprehensive Assessment System for Building Environmental Efficiency) in Japan and GREEN STAR in Australia.

In Latvia, investigation of the technical condition and materials of a building in accordance with environmental factors (for example, in Scotland (Home Report) or in France (*Dossier de Diagnostic Technique*)) is a voluntary and unreasonably rare practice. In Latvia, it is possible to make a real estate alienation without conducting any technical examination of the building.

Conclusions

- 1) The environmental *due diligence* process or the investigation of the environmental aspects of real estate in the event of the alienation of real estate shall be carried out as a limited-scope *due diligence* process or as part of the entire real estate *due diligence* process.
- 2) The compulsory acquisition of real estate for public purposes may also be indirect or de facto - when property rights are not formally infringed, but expropriation takes the form of significant restriction of property rights or a reduction in the value of real estate. If the purpose of real estate use is changed (restricting the rights of the land owner to the use of the real estate), the real estate, for example, is included in the specially protected area or other public interests are satisfied in the sphere of environmental protection, if it is carried out in the public interest and in compliance with the principles of international law, then in Latvia it should be recognised as a classic case of the compulsory acquisition of real estate in the public interest.
- 3) One of the important constituents of the investigation of environmental factors is the availability of public and reliable information, as well as the transparency of the real estate sector, the essential part of which is the efficient operation of land (real estate) registers, which is complicated in Latvia by the fact that there is separate legal ownership of land and buildings in Latvia - a legally constituted separate property (if the property objects are entered in the Land Register as a separate property - land and buildings are entered in different land registers) and actually separate property (if the property objects are not entered in the Land Register). In the case of actually separate property, it should be taken into account that property rights, which exist on the basis of law, are also valid without entry into the Land Register.
- 4) The risks of contaminated and potentially contaminated sites and environmental risks are assessed by conducting an investigation of a particular real estate in Latvia, based on the type of real estate and attracting competent experts in the relevant field.
- 5) Investigation of the technical condition and materials of a building in accordance with environmental factors in the event of alienation of the real estate (for example, as in Scotland (Home Report) or in France (*Dossier de Diagnostic Technique*)) is a recommended but not obligatory practice in Latvia.
- 6) In the case of real estate transactions involving buildings, the energy performance certification of buildings is mandatory only for certain types of buildings in Latvia.

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A Study on the Stress Levels of Software Professionals based on Project Management Methodology

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Project Management
Methodology;
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Software
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Stress.

Abstract :

Everyone goes through stressful moments at some point in life. Stress is generally related to an individual's work life or personal life. India is one of the fastest growing nations across the globe with lots of development taking place in all industrial sectors. This study conducted to analyze which project management methodology is a stressful environment for software professionals. It is coupled with numerous factors like technological change, work overload, work culture etc. which contribute to stress development. There are various project management methodologies used in this industry which bring more efficiency and maturity in project management profession. From the study, it has inferred that the traditional waterfall models like PMP and Prince 2 are used for software development process but the market is shifting to adopt Agile models like Scrum and Kanban for faster delivery and improves customer satisfaction. Furthermore, big organizations like Siemens, HP etc. are following their In-house project methodology to bring more efficiency in the process and value. The literature elaborates the stress experience from typical project management methodology generally adopted by software organization. The analysis gives

an insight about different matters such as stress experience, usual challenges that generate stress and methods to reduce stress at work. The methodology for data collection is based on developed questionnaire and connect to software professionals, especially those who are working in South India. Finally, the survey resulted-in qualitative information from software professionals who are working in different roles and project management methodology. From the analysis, it is concluded that project management methodologies and educational qualification are not having significant influence on stress levels of software professionals. Even though statistically the difference is not significant, it is worth noting that PRINCE2 methodology (Projects in Controlled Environments) creates more stress for software professionals while comparing with other models.

Introduction

Stress is the force in nature which affect individuals internally or externally, either by one's emotional or physical well-being or both. The study shows various causes for stress in life. Generally, external factors like relationship differences or financial problems and internal factors like inability to accept uncertainty, negative self-talk etc. create stress.

Today, IT professionals are facing tough situation to complete the project on time and within target budget. Most organizations adopted the Agile methodology to deliver the project as per customer requirement. The requirements are changing with market demand and frequency of change (presently) is higher than ever before. Moreover, the billing rate is reduced and as competition increases... indirectly builds more pressure on the project delivery team.

The literature aims to observe the stress level of software professionals at work while practicing different project management methodologies. It is noted that (as high as) 46% of the workforce in organizations in India are under stress according to the study of Optum, a top provider of employee assistance programs to corporate. Optum's study had a sample size of 200,000 employees (covering over 30 large employers) and it was online Health Risk Assessment during the first quarter of 2016. In addition, factors like Role Ambiguity, Work Overload, Organizational climate etc. generate stress among employees by making them questioning their capabilities and creating uncertainty. Moreover, the study concluded with the factors and challenges that individuals are encountering as a part of their profession.

Most of the software companies are following the traditional Waterfall models as PMI PMBOK's for project management activities. From history, the project management activities started across construction, defense and aerospace industries in 1960. By 1984, the project management institute (PMI) launched its first credential as PMP certification which covers the maturity in Project Management standards and procedures. PMI recommend PMBOK (Project Management Book of Knowledge) framework for project management functionality which is very useful for young and inexperienced people to understand the importance of process and documentation. Later, PRINCE2 released in 1996 which is a UK based certification. It is not following a tradition waterfall model but have a principle driven methodology. Essentially, it is a structured project management method and practitioner certification programme. Therefore, the resource professional who is practicing in European project should follow PRINCE2 methodology for effective collaboration with client. One of the key advantage is the elasticity to switch with any stages which is suitable for the project. Finally, the senior management accolades this model as “management by exception”. Those models should have long waiting period for delivery and make comments or suggestion only after the period. Also, the re-work cost is higher in-associated changes and with that being the reason, the business is shifting to Agile methodology which reduces the delivery time and improves customer satisfaction. 'Scrum' is one of the Agile methodologies used for software development and a paper presented about 'Scrum' methodology jointly by Sutherland and Schwaber in 1995. The main advantage of 'Scrum' is... the team is empowered to take a decision for the work and customer can view the result or output in short span than Waterfall models. Moreover, the application of 'Scrum' can lead to reduction in the production cost. Similarly, the big organization like Siemens, HP etc. are using their own defined PM methodology to meet the business requirement. They are applying the in-house PM applications and specific training programs for employees to follow those project management practices. It is used to meet the organizational goals and to provide flexibility to accommodate the core values.

Recently a survey conducted by Regus to evaluate the stress level of IT workers. The figures were shocking to know... it states that 49% of resources were more stressful than five years ago. The main source of stress that are being faced by individuals as part of project implementation, essentially comes

from senior management, budget constraints, tight deadline, resource constraints and stakeholders. Generally, it has categorized as time, situational, encounter and anticipatory stress for project. The application of PM methodology also creates stress among professionals. It happened due to the inefficiency of project manager while following the practice and immaturity of resources to adapt with process.

The analysis shows that the best employee-friendly company in India for the year 2017 is Intuit India Software Solutions Pvt. Limited; a fully owned subsidiary of Intuit Inc. USA. The results indicate that such organizations have empowered their employees to utilize their skill level in proper manner and perform with defined project management methodology required for the business. In other words, reducing the stress level in employees will directly improve the productivity and quality of the output.

Objectives

As per PMI, project is temporary in nature which has a defined beginning and ending. Furthermore, there must be a defined scope and resources too. Currently, the different project management methodologies like PMI PMBOK, PRINCE2, Scrum, In House Model and others are in-use by various software organizations to meet the business requirements and add more value for work. Primarily, the study was conducted with the following objectives.

- To explore the various project management methodologies adopted by software professionals
- To measure the level of stress of software professionals working on various project management methodologies
- To understand the relationship between number of projects and project management methodologies on level of stress of software professionals
- To explore the influence of various work-related factors on level of stress of software professionals

Hypotheses

H₁: There is a significant relationship between number of projects and level of stress among software professionals.

H₂: There is a significant relationship between Project management methodologies and level of stress among software professionals.

H₃: There is a significant relationship

between Educational qualification and level of stress among software professionals.

Background of the Study

The study reveals that there are around 3.9 million jobs created in the IT sector as of today. Moreover, the IT-BPM industry (IT services, BPM, ER&D, Software Products and e-Commerce) generates revenue of USD 154 billion for India as of FY 2017. However, the competition among the companies is increasing in project cost and quality of work. Therefore, clients are more conscious about the operational cost in the project as against strategic development. Furthermore, the resource demand is reduced due to the mass automation of work. At the same time, the project requirements are vague for most of the clients which inherently build more ambiguity among working professionals. Altogether, all these factors build more stress among software professionals in both work and life.

According to Cleveland Clinic, stress is the body's response to physical, mental and emotional challenges in life. Presently, Indian IT organizations are facing new challenges like the US President's Immigration rule which reduces the opportunity of work flowing into India. So, the companies are trying to cope by adding more work to the existing work force to maintain profitability. Consequently, a majority of workforce has to do work overtime and take more accountability to stabilize in the job market. Meanwhile, the job security factor is reduced in IT field and they may be required to quit their job as business demands. These factors create stress and fear among IT professionals which affect productivity. The report shows that the suicide attempt rate is increasing among software professionals due to stress and the National Institute of Mental Health and Neuroscience from Bangalore reported that most of the software professionals who suffer from stress are in the age group of 24 to 30 years. There are several reasons like modern technology adoption, performance evaluation, user demands etc. could be the common reason for stress development. The research paper elaborates on the influence of project management methodology among software professional to deal with stress.

Presently, India is a developing nation and soon may be branded globally as “the land of opportunity”. The Information Technology sector is one of the shining fields in the economy and provides employment to a majority of the population, especially the young generation. Most of the IT organizations in India follow the Waterfall and Agile Methodology for

Project Management. The waterfall model is generally followed for long term projects with clear requirements. However, the cost is higher if the plan changes as per market demands. Therefore, Agile models are applied across many organizations and are capable of making deliverables in short span of time. The challenge associated with software professionals is that they are required to work efficiently to deliver the scope as per timeline. This might indirectly create stress among work force as employees may have to spare more time for project work than family.

The stress scale used for the survey is Perceived Stress Scale (PSS), a qualitative approach based on Likert scale, which is designed on 'last month experience' by the respondents. The questions are designed to assess the feelings and thoughts of Individuals with the options as never (0), almost never (1), sometimes (2), fairly often (3), very often (4) and every question begins with “In the last month,”. It is having 10 direct questions about the experience of stress and for questions numbers 4, 5, 7, and 8 (by design) it is reverse scoring, that is, for never (0) option, the value is taken as '4' and for very often (4) option, the value is taken as '0', likewise, for other options. The total PSS score value categorized as follows: Low Stress (0-13), Moderate Stress (14-26) and High Perceived Stress (27-40). The scale was published in 1983 by Sheldon Cohen and widely used as a psychological instrument for measuring the perceived stress. A general study conducted for software professionals earlier shows that professionals in middle level posts are more stressed-out as compared to others.

The authors disclaimed by stating that “it is indicated that the scores on the self-assessment (PSS) do not reflect any particular diagnosis or course of treatment. They are meant as a tool to help assess your level of stress”.

Methodology Adopted

The research design to examine the stress level of software professionals in South India who are practicing with different project management methodology is descriptive in nature. Questionnaire were used to collect data from professionals who are working in different roles like Project Management, technical field etc. for sharing the input values. The direct follow-ups through email and telephonic conversation helped to complete the survey on time. The response was received from software professionals who are currently working in Bangalore, Chennai, Hyderabad and Cochin. 120

Professionals who are working in different project management methodology and project roles in career have responded to the survey.

Analysis And Findings

1. Demographic Analysis

The survey is conducted among the software professionals in South India. They work in different roles but the analysis focused to identify which project management methodology is stressful for them. The sample collected are from Bangalore,

Chennai, Hyderabad and Cochin and the following Table 1 exhibits the demographic profile of survey. From the study, it indicates that most of the participants are handling middle level role in the organization. Moreover, the survey revealed that the adoption of Agile methodology in project management is mostly in all the four locations considered for sample collection. It also concludes that most of software projects are running in Agile methodology in India which reduces the delivery time and improves customer satisfaction too.

Table 1: Demographic Profile

Sl No	Particulars		Bangalore	Chennai	Hyderabad	Cochin
1	Gender	Male	23	20	23	19
		Female	7	10	9	11
2	Age	25-29	22	13	8	15
		30-34	2	9	7	4
		35-39	6	6	9	6
		40-44		1	5	4
		45-49		1	1	1
3	Work Experience	1-5	21	10	9	15
		6-10	2	9	9	5
		11-15	7	9	7	6
		16-20		2	5	4
4	Project Role	Low	15	7	9	12
		Middle	9	17	16	12
		High	6	6	5	6
5	PM Methodology	Prince 2	1	1		2
		PMI PMBOK	1	6	6	2
		Scrum	15	11	15	16
		In House	11	9	4	9
		Other	2	3	5	1
6	Marital Status	Single	17	12	9	14
		Married	13	18	21	16
7	Education Level	Graduates	18	10	12	15
		PG	12	20	18	15
8	Working Shift	Day	28	26	26	28
		Alternative	2	4	4	2
9	Family Type	Joint	4	9	8	5
		Nuclear	26	21	22	25

In addition to the above table, the following figures 1 & 2 provide the statistics of people who were handling the number of projects simultaneously and daily working hours.

Figure 1 No of Projects handling simultaneously

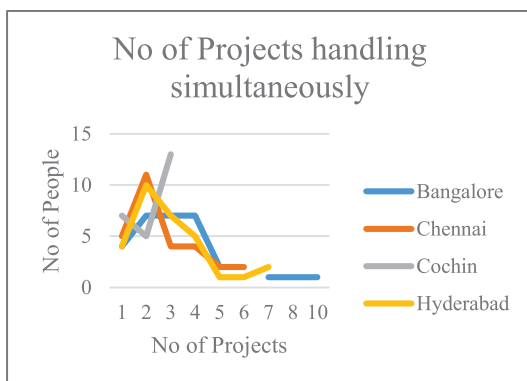
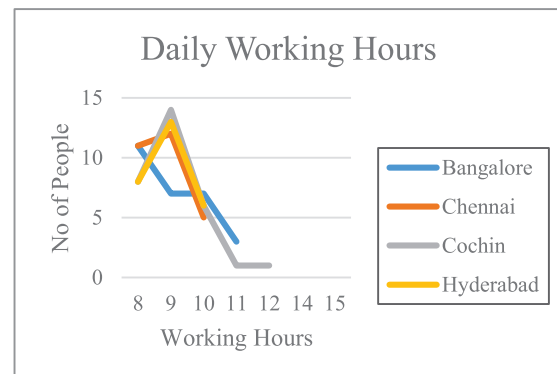


Figure 2 Daily Working Hours



2. Stress Level Analysis

Table 2: Stress Level

Stress Level		
Level	Frequency	Percent
Low Stress	22	18.3
Moderate Stress	83	69.2
High Perceived Stress	15	12.5
Total	120	100.0

Table 2 displays the stress level of the employees who participated in the survey. Most of them were under moderate stress category which is around 69.2% of total participation-120 as of current project environment. The main reason for the category is that business demands more quality on work with least cost. Furthermore, the people who are directly involved in driving the business opportunity have high perceived stress and the result shows around 12.5% of population comes under this category. People who can handle more stress or risk in career will get more growth opportunity as an influencing factor. At the same time, the low stress profile comes around 18.3% of survey, in which, people may have relaxed environment in work culture and be in lower profile. Nowadays, some big organizations follow the management principle of empowerment which develops employee's decision-making skills and productivity too.

1. Projects and Stress

Table 3: Descriptive Statistics- Project and Stress

Descriptive Statistics		
	Mean	Std. Deviation
Total Stress	19.3583	6.89147
No of Projects	3.13	1.964

Table 4: Correlation-No of Projects and Stress Level

Correlations			
		Total Stress	No of Projects
Total Stress	Pearson Correlation (r)	1	-.179
	Sig. (2-tailed)		.050
	N	120	120
No of Projects	Pearson Correlation (r)	-.179	1
	Sig. (2-tailed)	.050	
	N	120	120

A Pearson correlation coefficient was computed in Table 3 & 4 to analyze the relationship between Total Stress experienced by software professionals and opportunity to associate with more projects. There was a negative correlation between two variables considered, $r = -.179$, $N = 120$, $p = .05$. To summarize, there is no statistically significant correlation between Total stress and No of projects. However, the stress will reduce once the resource has more allocation to various projects at a time and happened due to three (3) reasons. First, the experience level of resource has proven to accommodate more project work at a time. Second, the allocation of more projects helps to distribute the risk of individual performance which eventually reduce the stress. Finally, if the resource has more allocation to various projects then it can bring more visibility and value for profession too. Hence, the hypothesis (H_1) for the study 'there is significant relationship between number of projects and level of stress among software professionals' stands rejected.

4. PM Methodology and Stress

Table 5: Descriptive- PM Methodology and Stress

Descriptive			
Stress level	N	Mean	Std. Deviation
Methodology			
PRINCE2	4	23.7500	3.20156
PMI PMBOK's	15	18.0667	5.09154
Scrum	57	18.6140	8.24351
In House PM Methodology	33	19.9697	5.28846
Others	11	21.5455	5.98938
Total	120	19.3583	6.89147

Table 6: ANOVA Test-PM Methodology Vs. Stress

ANOVA					
Stress Total					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	198.703	4	49.676	1.048	.386
Within Groups	5452.889	115	47.416		
Total	5651.592	119			

A One-way ANOVA test was conducted to evaluate the effect of different project management methodologies like PRINCE2, PMI PMBOK, Scrum, In House Model and Others on the stress level of software professionals. From analysis (Table 5 & 6), there was not a significant effect of PM methodologies on stress level at the $p < .05$ level for the three conditions [$F(4,115) = 1.048$, $p = 0.386$]. In conclusion, there is no dependency on project

management methodologies to create the stress in software profession. Hence, the hypothesis (H₂) for the study, 'there is significant relationship between

Project management methodologies and level of stress among software professionals' is rejected.

5. Education and Stress

Table 7: Group Statistics

Group Statistics					
	Education Level	N	Mean	Std. Deviation	Std. Error Mean
Stress Total	Graduates	55	20.6909	7.07597	.95412
	PG	65	18.2308	6.57592	.81564

Table 8: Independent Samples Test

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Stress Total	Equal variances assumed	.711	.401	1.972	118	.051	2.46014	1.24755	-.01034	4.93062
	Equal variances not assumed			1.960	111.515	.053	2.46014	1.25524	-.02707	4.94735

Table 7 & 8 shows the single-sample t-test conducted to compare the stress level of software professionals based on education qualification level- Graduates and PG. There was no significant difference in the scores for Graduates (M= 20.69, SD= 7.08) and PG (M= 18.23, SD= 6.56) education: $t(118) = 1.97, p = .05$. The Group statistics data reveals that mean

value of stress for Graduates is higher than Post graduates and they experience more stress in software job even though statistically insignificant. Therefore, the hypothesis (H₃) set for the study 'there is significant relationship between Educational qualification and level of stress among software professionals' is rejected.

6. Factors of Stress

Table 9: Factors of stress

Sl. No	Stress Factors	Mean	Std. Deviation
1	Career Expectations	3.48	1.328
2	Unrealistic Deadlines	3.4	1.423
3	Work culture	3.11	1.289
4	Role overload	2.98	1.27
5	Family support towards career	2.93	1.482
6	Technical constraints	2.86	1.11
7	Competition	2.73	1.255
8	Fear of obsolescence	2.51	1.174

Table 9 reveals the factors considered for generating stress among employees as part of project involvement. From analysis, Career Expectation is coming at the top position (M=3.48) for employees

to generate stress in profession. Most of them are very keen on the career development side so they are continuously looking for more opportunities to handle higher roles and earn good salary. Similarly

fear of obsolescence comes under lower rank (M= 2.51) while adopting different project management methodology. The fear of obsolescence is low as people is working on latest technology available in market. As a result, it builds the competency in nature among Indian software professional globally.

7. De-Stress Methodology

Table 10: De-Stress Methodology

De-Stress Methodology			
Sl No	Particulars	Mean	Std. Deviation
1	Take a vacation	3.33	1.642
2	Take a walk	3.31	1.592
3	Take a nap	2.62	1.484
4	Meditate	2.15	1.418
5	Yoga	2	1.347

The survey provided with 5 de-stress techniques from which the participant opined the best method for stress relief. The study reveals (Table 10) that “Take a vacation” is the best option to reduce the stress which can really bring rejuvenation of mind and build energy simultaneously. They prefer Yoga the least as part of daily exercise as a method for reducing stress.

Conclusion

It has been found that 81.7% professionals are under stress from the study. Also, people suffer more stress from Prince 2 methodology while comparing the mean value of other pm models. This can be due to lack of training or experience in the field. This is one of best methodologies used across European nations to bring the quality of work within budget and time. Presently, professionals who would like to develop a career in this filed need to take more risk and accountability, which indirectly builds a stressful life. Similarly, people who are having graduate level education... experiences more stress from job when compared with Post graduates. However, maintaining a good work life balance and spending more time with family will help them to become more productive individuals. Finally, people should have more awareness about health which can be reinforced with regular exercise and from other methods of rejuvenation.

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The Circular Economy as a Philosophy of the Green Economy as a Strategy for Social Responsibility

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social responsibility;
product;
JEL Q56; Q57.

Abstract :

This paper shows the importance that has been acquiring the care to the environment by industrial organizations, given that the resources of nature are increasingly scarce when they are extracted, processed, used and refused. Therefore, it has emerged a philosophy called Green Economy, which is the combination of economic activities but without damaging the environment. It is here that the Circular Economy model emerges as a system that seeks the manufacture of more resistant products or the collection of raw materials through recycling for its reutilization, which represents a way of sustainable development that maintains the Social Responsibility from companies.

Introduction

The current paper is done with the purpose of understanding how the Circular Economy operates as an emerging model of the Green Economy to contribute to the care of the environment. Since in the last 150 years of industrial evolution, facilities are still dominated by the production model and linear consumption, extracting natural resources from the environment for the manufacture of products that meet the needs of consumers, and that at the end of their life cycle. These products become in waste, which in many cases cannot be reused, due to the volatility in the global economy and the evidence of increasing scarcity, which means a deterioration and overexploitation of resources that nature does not offer (MacArthur, 2013).

To explain the benefits of the application of a Circular Economy model, a review of the documentary information on this topic was carried out.

In order to make the information presented more comprehensible, the following structure is established: first, the problem and the research question that emerges from it (1) are first addressed, after establishing the relationship between the Green Economy with the Circular Economy (2), the models

and precursory philosophies of the Circular Economy (3), the definition of the concept of the Circular Economy (4) (5), the existing relationship In the Circular Economy and Social Responsibility (6), and finally in the conclusions reached through the study of the Circular Economy.

Problem and research question

At current, one of the most discussed topics in international forums as well as in academic and political circles have to do with the problems that are emerging in the environment. These problems have led to public debates that have been limited to pollution, thus having a limited vision of environmental issues, leading to discussions prior to the Stockholm Conference on the Human Environment in 1972, such as the Founex meeting in Geneva (1971). It was at that point that a link between environment and development was established (Bifani, 1999).

Also, in the year 1972 the Club of Rome warned about the limits of continued economic growth, because it is not feasible on a limited planet, and even if this report has been updated 20 and 30 years later, trends only have been confirmed over time, showing that the ecological situation is really delicate. However, in 1987 in the Brundtland report and later in the Rio Summit in 1992, the term sustainable

development emerged as a solution to these problems, which could be further advanced while respecting the limits of the environment (Aguilar, 2007).

To understand the severity of the environmental crisis, it should be noted that since 1990 human beings have been living above the carrying capacity of the planet. As an example of this, in 2003 was exceeded by 25% its capacity for regeneration. The depletion of resources is evident, as at the current consumption rate there are only 40 years before the oil reserves are finished, and 70 years for the uranium reserves, and the effects at a global level are increasingly alarming (Aguilar, 2007). It is a very real fact that the poorest countries have the most to bear the consequences of the environmental crisis, although the developed nations are the main cause of this crisis, but this situation affects all countries without exception. That is something that competes to all the nations of the planet to give solution (Herrán, 2012).

For this reason, the following question arises: How does the Circular Economy model, as part of the Green Economy, contribute to business development by increasing its Social Responsibility?

The Green Economy and its relation with the Circular Economy

For some years the United Nations (UN), through its Pnuma program, has been concerned with proposing a new economic paradigm that was defined as Green Economy or Green Economy. This new economic paradigm, which emerged as a counterpart of what was defined as a brown economy that is the model that did not pay attention to problems such as social marginalization or resource depletion (Herran, 2012), has the following objectives:

- 1) To contribute to the revival of the global economy, to the conservation and creation of jobs and to the protection of vulnerable groups;
- 2) To promote sustainable and inclusive growth, and to achieve the Millennium Development Goals (MDGs); and
- 3) Contribute to reducing carbon dependence and ecosystem degradation, through fiscal incentives or political reforms (Roa and Rodríguez, 2012).

In a general sense, the green economy includes all institutions, entities and productive organizations that are concerned about the environment. However,

the term is broader because it is used to refer to all activities that are related to the environment and sustainability, encompassing economic activities such as the development of renewable energies, recycling and waste treatment, natural resources management, water treatment, among others. The green economy also includes companies and organizations, both public and private, whose management practices are environmentally friendly (Monzón-Campos, 2010).

The concept of green economy has acquired relevance largely because it provides a response to the multiple crises that the world has been facing in recent years - climate, food and economic crisis - through an alternative paradigm that promotes growth while protecting the planet's ecosystems and, in turn, alleviating poverty. For this reason, one cannot speak of a single definition of the green economy, but the term itself underscores the economic dimensions of sustainability (Ocampo, 2011).

In this sense, sustainability is the key point that unites the two concepts of Green Economy with the Circular Economy.

Models and philosophies precursors of the Circular Economy

In 1992, within the Rio summit (Brazil), it was an unprecedented moment in the study of the environment in the economic-business sphere, since it was there that defined the concept of "sustainable development", which was ratified by 180 countries (Balboa and Somonte, 2014). However, other models or philosophies in favor of the environment, which were precursors of the Circular Economy (Table 1), were considered before:

Table 1. Precursors of the Circular Economy

Model of philosophy	Author(s) and years	Characteristics
Permaculture	Mollison and Holmgren, late 70s	Conscious design and maintainer of productive agricultural ecosystems. They applied and integrated ideas and concepts of modern innovations in conservation agriculture, organic agriculture and traditional agriculture, improving soil yield and quality, reducing the consumption of external elements and protecting biodiversity.
Industrial ecology	Frosch, R. A. y Gallopoulos, N. E. 1989	It contributed to the achievement of sustainable development. It is known as the science of sustainability, because of its interdisciplinary nature and because its principles can also be applied to services.
The Natural Step	Robèrt, K. 1989	Organization implemented in a dozen countries that brought together: scientists, experts and companies committed to research, education and advice for sustainable development. The use of resources must be effective and consistent with respect to human needs.
From cradle to cradle (C2C)	McDonough y Braungart, 90s	The classified the materials in technical and biological. It was inspired by the transformation of the biosphere as a model for the development of the transformation of the flow of industrial processes, in the technosphere.
Regenerative Design	Lyle, J. T. 1994	They determined that any system, based on agriculture, can be organized in a regenerative way, emulating the functioning of ecosystems, where products are created and interact without producing waste.
Natural Capitalism	Lovins, L. H., Lovins, A., & Hawken, P. 2007	They recognized natural capital and human capital, moving from a consumer economy to a service economy and reinvested the benefits obtained in guaranteeing the conservation of natural resources.
The Performance Economy	Stahel, W. 2010	He posed the vision of an economy in loops and the consequent impact on the creation of employment, economic competitiveness, saving of resources and prevention of residues.
Blue Economy	Pauli, G. 2011	He was inspired by the Earth, with points in common with the C2C and Biomimesis models. He rejected the elitist attitude of the green economy that offered ecological products that presented the environment but were only accessible to an elite with high purchasing power and not sustainable.
Biomimesis	Benyus, J. 2012	He took as a basis the artificial mechanisms, synthesized the natural processes thus solving human problems. It was based on three principles: 1. nature as a model, 2. nature as a measure, and 3. nature as mentor.

Source: Own elaboration based on information from Balboa and Somonte, 2014.

In the previous table the chronological models and philosophies that precede the Circular Economy model, the authors of these models and their main characteristics are shown chronologically.

The Circular Economy

The concept of Circular Economy arises as a systems organization philosophy that is based mainly on living beings (Balboa and Somonte, 2014), which designs product without generating waste, creating products that are easy to disassemble and reuse. In addition, to establishing business models so that manufacturers have economic incentives to collect, re-manufacture and distribute their products (Caicedo, 2017). It is a restorative and regenerative model divided into two cycles:

1) biological cycles and
2) technical cycles; (Tena and Khalilova, 2016, and Caicedo, 2017), and is considered a continuous positive development cycle, based on three principles:

- 1) Preservation and improvement of natural capital: through the control of finite stocks and balancing the flow of renewable resources.
- 2) B. Optimization in the use of resources: circulating products, components and materials at the highest level of utility in both the technical and biological cycles.
- 3) Fostering the effectiveness of the system: through obtaining patents and eliminating negative externalities.

However, it must be understood that the human economy is part of a larger system, as resources are received and waste is produced. For this reason, there is no closed Circular Economy, and unfortunately it is poor people who are seen, but on other occasions those affected are future generations (Alier, 2013). In this way, the Circular Economy can contribute to environmental sustainability through the redesign of industrial organizations and domestic life as a whole, since this is based mainly on the ecology school making a more profound and lasting transformation, with the aim of to reduce the impact of human activities on the environment, since it is based on the intelligent reuse of waste (Lett, 2014).

Because the Circular Economy is a model that protects the environment. It is considered an emerging body of the Green Economy, forming part of one of the specific forms that the Green Economy has: circular economy, hydrogen economy, and the low-carbon economy, which according to Yuan et al. (2006), the Circular Economy was a term coined by scholars in China, a country that at the end of the 70's has had rapid economic growth, but in turn has reached a serious shortage of natural resources,

depletion, environmental pollution and degradation due to rapid development (Heshmati, 2014).

According to Olórtogui (S.F.), some of the benefits of using a Circular Economy model are:

- 1) Capturing and reusing large volumes of finite resources (minerals)
- 2) Manufacture of products with herbal materials that are biodegradable and can be used as fertilizers at the end of their life cycle.
- 3) Provision of energy through renewable resources.
- 4) Redesign of efficient systems to save energy in the process.

The Circular Economy model contrasts with the so-called Linear Economy, which is the economic model used today and which is based on the production of goods and services through the extract-use-discard model, without taking into account the sustainability of future generations (Caicedo, 2017). In this linear model, the process is very simple. Companies extract the necessary raw materials from the environment to make products that can be inserted in some market. After the raw materials have been transformed into some product, it is expected that a consumer will acquire and use it until the product deteriorates, decomposes or simply becomes obsolete; And finally, once the product is no longer useful to the consumer, it is discarded to acquire a new one.

A linear economy is responsible for turning natural resources into waste, this through the production processes, which leads to a deterioration of the environment in two ways:

- 1) Eliminating natural capital of the environment (through extraction or unsustainable harvest), and
- 2) Reducing the value of natural capital caused by pollution from waste.

This model is a unidirectional system, which has been referred to by Boulding (1966) as a cowboy economy (Murray et al., 2015).

The most notable difference between the two models is that in the Linear Economy model the scheme is repeated: extraction - production - consumption - waste, characterized as a system where the life cycle of a product concludes at the same time as it is consumed, (Cradle to grave), whereas in the Circular Economy model, activities, from extraction and production, are organized so that someone's waste

becomes the resource for someone else (cradle to cradle) (Cutaiia Et al., 2014). It is therefore considered as an economy of recovery and reuse, since it transforms production chains as well as consumption habits, and dissociates GDP growth from extractions to nature (Frérot, 2014).

Within a perfect Circular Economy system, the value of products and materials must be kept as long as possible, reducing waste to a minimum and conserving resources within the economy even if a product has reached the end of its useful life for constant reuse and thus continue to generate value (PRIMAS, CDREM, 2016).

The design of products within the Circular Economy

The manufacture of products within the Circular Economy should be based on what is known as Ecodesign, which has been defined as the set of actions aimed at environmental improvement of products from the initial stage of design, improvement, selection of materials, alternative production processes, transportation, use and reduction of impact in its final stage of treatment. For this reason, eco-design has a dual function:

- 1) To reduce the negative environmental impact of products during their life cycle, and
- 2) To provide benefits to both the actors involved in producing the products and to the end user (Chacin et al.

In addition, the strategies that have been developed in product engineering have favored the fundamental principles of the circular economy. These strategies are shown below, of which the first four are closely related to Ecodesign (Fernández-Alcalá, 2015):

- 1) To increase the life cycle of the products
- 2) Promote the reuse of products
- 3) Ensure the recovery of products and their new market introduction
- 4) Encouraging the partial recovery of products
- 5) To take care of the recycling of the raw materials of the products

The Ecodesign focuses on two priority areas of action. The first is in charge of design with the aim of prolonging the useful life of the product, while the second is based on the design for the purpose of an adequate end of life. For this reason, the fifth strategy is focused on those companies that are dedicated to the recovery of secondary raw materials, end-of-life managers of products, recyclers and processors of raw materials that have already been recycled (Fernández-Alcalá, 2015). The following diagram shows the five Ecodesign strategies for the manufacture of durable products that can be used in a Circular Economy system, as well as the actions to be taken to realize this strategy.

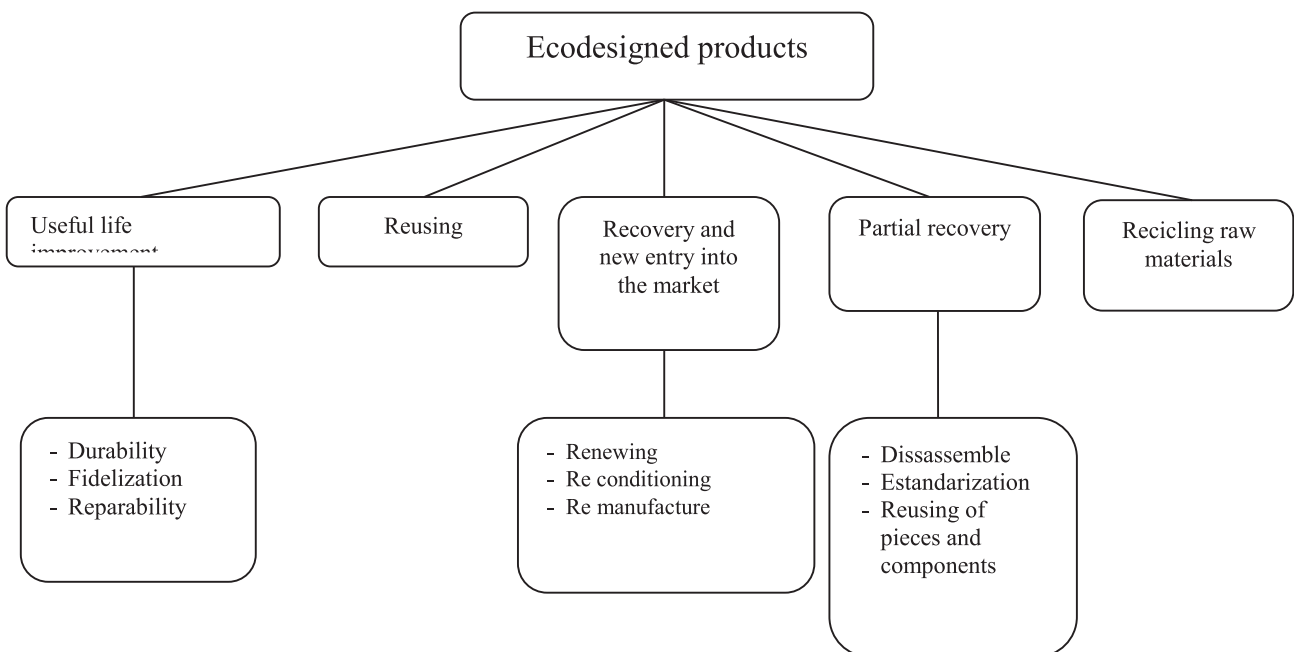


Figure 1: Strategies that are sought through Ecodesign

Source: Own elaboration based on information from Fernández-Alcalá (2015)

As can be seen in the model above, the products created through Ecodesign try to follow the five strategies of the Circular Economy:

- 1) Increasing the useful life of the product: this through increasing its durability, creating customer loyalty and its ease to be repairable.
- 2) Re-use: this is to ensure that products with factory failures are not destroyed, but are rather repaired and put on sale in second-hand markets.
- 3) Recovery and reinsertion in the market: this is through the search for those devices that have been discarded and that can be renewed, reconditioned or rebuilt and then reintroduced into the market.
- 4) Partial recovery: that is, the manufacture and sale of parts that can increase the life cycle of products, easy-to-dismantle and disassemble, standardized parts and reuse of components.
- 5) Recycling of materials: once the product does not have the possibility of being repaired, raw materials can be harvested that are still used to be used in the manufacture of new products.

The Circular Economy and its relationship with Social Responsibility

"Responsibility" means responding to your actions before others, as well as the future in general, that is, having the power to make promises and fulfill them, but this promise is never solitary nor unilateral, since the promise is done to others, and in front of others, so something will be expected and judged according to what has been promised to fulfill (Vallaey, 2012). However, when you have global power, you must have global responsibility, and it must be democratically instituted as a promise of shared responsibility between all parties. For this reason, the idea of a "Social Responsibility" is born, as a necessity to institute a responsible society in which, each person participates according to its own power under a mutual promise (Vallaey, 2012).

It should be noted that the concept of "Social Responsibility" is confusing for companies as well as for the academic field in general, since even if it seems easy, its difficulty lies in the fact that everyone believes that it understands it, although the ISO social responsibility guide 26000 makes the effort to clarify this concept, has not managed to eliminate certain doubts, since each person takes from its

definition, only that which is of his interest (Vallaey, 2016):

"Responsibility of an organization for the impacts of its decisions and activities on society and the environment, through an ethical and transparent behavior that: be consistent with sustainable development and the well-being of society; take into account the expectations of the stakeholders; is in conformity with current legislation and consistent with international standards of conduct; and be integrated throughout the organization and practiced in all its relations. "

It is for all of the aforementioned, that according to the corporate image of an industrial organization, companies should promote Corporate Social Responsibility, and one way to carry out this responsibility is through the manufacture of more durable products and make known the environmental consequences which have products at the end of their life cycle (Ruiz-Malvarez and González, 2011, cited by Yang 2016).

However, it is completely contradictory to mention the environment and corporate social responsibility, before a consumer society that only seeks to satisfy their needs, creating new needs through advertising, granting credit facilities and using programmed obsolescence in their products (Malvarez, 2011), which is the business practice of planned consumption products that will become obsolete in the short term, either due to a programmed failure or a deficiency incorporated by the manufacturer (Rey, 2014).

It should be noted that in addition to programmed obsolescence, there is also what is known as perceived obsolescence, which unlike the first that is a marketing strategy, it only arises when the consumer feels the need to change a product that he had already acquired for a newer one, before it really needs it. This obsolescence can be mainly caused by advertising, since it seduces consumers to buy more in less time (Rey, 2014).

It is at this point that the Circular Economy can be established as a system that positively contributes to Corporate Social Responsibility, since this model preserves the added value of products throughout its life cycle and excludes waste. So that the Circular Economy would reinforce, in addition to protecting the environment, the generation of jobs, innovation and its adoption would provide a competitive advantage in the global market (PRIMAS, CDREM 2016)

Conclusion

The Circular Economy model is an emerging form of the so-called Green Economy, which is in charge of combating the problems generated by the current model of Linear Economy. Since this model seeks to preserve the products of companies in a way which do not have to be consumed frequently, and consequently the quantity of waste decreases or to recycle materials from the waste that can be used again to manufacture new products. This is because the planet has finite resources, that is to say, that at some point they are going to end, and that when they are extracted to become new products that will be used and later discarded, they will become waste that will contaminate the planet causing damages in the environment.

The linear economy model currently used by companies only seeks to satisfy the desires and needs of consumers, and therefore is based on the process: Extract - produce - use - discard. In order to sell, there are used strategies such as the use of advertising, facilities for payment on credit and scheduled obsolescence, to achieve their business goals.

However, the concern that has arisen on the part of governments, companies and society for taking care of the environment, have favoured the appearance of economic models that are opposed to the linear model, in order to continue producing economic development but at the same time protecting the environment. It is here that the Circular Economy model emerges as a possible solution, since through this system it is a question of increasing the durability of the products, repairing them in case of failure to be reused and / or recycling of the raw materials of unusable products for the manufacture of new products.

In order for the product to comply with the requirements of the Circular Economy, these must be designed through Ecodesign, which are the actions for the environmental improvement of the products, which is opposed to the scheduled obsolescence.

The application of this model by the organizations is with the purpose of contributing to Social Responsibility, which was determined as the commitment on the part of the companies with the society and with the care of the environment. From what can be concluded that the Circular Economy contributes positively in the economic development business while generating social responsibility.

Therefore, it is important to continue studying the

benefits of the Circular Economy model, in order to be able to effectively apply it within organizations that are concerned about their environment and are socially responsible.

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Implementation of GST and its impact on Automobile Dealers*

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Key Words:

Indirect Tax;
VAT;
GST; Automobile
Dealers;
Working Capital.

Abstract :

GST is one of the most important tax reforms in India, better late than never, which has been long pending for various reasons. In fact, this is one of the important factor in developing Indian Economy and to improve ranking in 'Ease of Doing Business' leading to attracting FDI and increase in employment; Make in India. Two years from now, GST is likely to change the whole scenario of indirect tax collection system; essential reason being by that time it will be a well-established with unified tax system and rates are same across India; all States & UT's. It is considered as biggest tax reform since 1947. It was supposed to be implemented from April 2010, but due to political issues and conflicting interests of various stakeholders it is finally implemented effective from 1st July 2017 across India. It is a comprehensive tax system that will subsume all indirect taxes of states and central

governments under one umbrella called "Goods and Services Tax – GST". It is expected to clear all the anomalies in the earlier indirect tax system (VAT being different from State to State) and signifies a vital role in the growth of Indian Economy. This paper is essentially related to Automotive sector of India, which is industries of industries in Indian Economy, influence of GST, with an example of Automobile Dealer 'M/S Trident Hyundai' to validate by comparing before and after GST implementation. The paper is also focused on the other side of the coin, which is. disadvantages causing to Automobile dealers with regards to increase in Working Capital in their operations.

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GST - Introduction

Goods and Services Tax (GST) is an indirect tax which will subsume almost all the indirect taxes of Central government and State governments into a unified tax. As the name suggests it will be levied on both goods and services at all the stages of value addition. It has dual model including central goods and service tax (CGST) and states goods and service tax (SGST). CGST will subsume central indirect taxes like central excise duty, central sales tax, service tax, special additional duty on customs, counter veiling duties whereas indirect taxes of state governments like state VAT, purchase tax, luxury tax, octroi, tax on lottery and gambling will be replaced by SGST. Integrated goods and services tax (IGST) also called interstate goods and service tax is also a component of GST. It is not an additional tax but it is a system to examine the inter-state transactions of goods and services and to further assure that the tax should be received by the importer state as GST is a destination-based tax.

India implemented this new indirect tax regime, namely Goods and Services Tax ('GST'), which

came into effect from 1st July 2017; every month GST council meets to review and suggest measures to improve the system in tax collection along with change in rate, if required. GST is a new chapter in Indian economy, one of the biggest and most significant tax reforms India has ever witnessed since post-independence; One Nation One Tax (ONOT). The entire structure of taxation on goods as well as services is realigned into a single destination-based value added tax as against the earlier based set-up of multiple taxes (17 types) with limited credit for the tax suffered on earlier transactions in the chain. The following have been subsumed in GST:

Taxes levied and collected by the Centre

- Central Excise duty (with some exceptions)
- Duties of Excise (Medicinal and Toilet Preparations)
- Additional Duties of Excise (Goods of special importance)
- Additional Duties of Excise (Textile and Textile Products)
- Additional Duties of Customs (Commonly known as CVD)
- Special Additional Duty of Customs (SAD)

- g. Service Tax
- h. Central Surcharges and Cesses so far as they relate to goods and services

Taxes levied and collected by the States

- a. State VAT
- b. Central Sales Tax
- c. Luxury Tax
- d. Entry Tax (all forms)
- e. Entertainment and Amusement Tax (except when levied by local bodies)
- f. Taxes on advertisements
- g. Purchase Tax
- h. Taxes on lotteries, betting and gambling
- i. State Surcharges and Cesses so far as they relate to goods and services

Therefore, GST will impact everyone in the economy - each sector across the business world - manufacturing, trading, construction, exports, banking & finance, insurance, professionals, all sorts of services etc., the governments at all levels, even the judiciary and hence ultimately the Common Man, who pays for the goods and services. The impact would depend on effect of changes on one's business as also on one's ability to analyze the impact of changes not only on own business, but also that in procurement and distribution chain to optimize the benefit under the new regime. The changes may have positive or negative implications (initial hitches) for a given business entity or segment of an industry or given industry as a whole... influencing indirect tax collection significantly... in the years to come.

Literature Review

Neha Joshi (September 2017) in her paper titled **"Impact of GST on Automobile Industry"** stated that the 14-year-long journey of Goods and Service tax (GST) finally culminated on July 1, 2017 with the implementation of the biggest tax reform of India in 70 years of independence. The government of India under the leadership of Prime Minister Narendra Modi hailed the moment of 'Good and Simple Taxation System' for the benefit of common people, small traders and industry as a whole; the opposition parties have slammed the establishment for forcing a half-baked GST regime over the taxpayers. The whole issue about the impact of GST on the auto industry hovers around the compliance of the new taxation system by the sector as a whole. The outlined benefits of GST on auto industry are primarily simplifying logistics and constraining the operational and manufacturing costs, the compliance is something industry is vary about.

Poonam (January 2017) expressed her views in the paper titled **"Goods and Survives Tax in India - An introductory study"** that the introduction of Goods and Services Tax (GST) would be a very significant step in the field of indirect tax. This tax would instantly encourage economic growth and GST with transparent feature will prove easier to administer. She also said that lots of speculations are going regarding GST will actually be applicable in India. Looking into the political environment of India, it seems that a little more time will be required to ensure that everybody is satisfied. The states are confused as to whether the GST will hamper their revenues. Although the Central Government has assured the states about compensation in case the revenue falls down, still a little mistrust can be a severe draw back. The GST is a high-quality type of tax. However, for the successful implementation of the same, there are few challenges which have to face to implement GST in India.

Seema Devi (Dec.2016) a research scholar opined her views in **"Goods and Services Tax: A SWOT Analysis"**. It is aspiring to resolve the current indirect taxes and has a far-reaching impact on GDP. India is a centralized constitutional economy. GST is applicable on all States and Union territories, known as CGST (Central Goods & Services Tax) and SGST (State Goods & Services Tax). Her observation is the ill effects are cascading which can be mitigated after tie up with the central and states taxes in solitary tax. The economy is expected to pave the way of common national market as it will provide benefits to consumer by reducing overall tax burden of goods. Strength indicated as it will be dropping out the cascading effects of tax on production and distribution of goods and services which will improve competitiveness and consequently, GDP will increase. Weakness aspect stated as GST system is very high technology driven, but India is a developing country where people are not habitual of technology, so might lead to initial hiccups. The opportunity is that the rates of tax are set at ground level which will help States and UT's to collect more revenue. The threat part is more focused driven in realty levels in India, that is, GST is not a guarantee in itself that it would not be influenced by political parties and politicians will not use it as a win-loss game.

Nitin Kumar (2014) had given his views in **"Goods and Service Tax- A Way Forward"** and concluded that implementation of GST in India will help in removing economic distortion by current indirect tax system and expected to encourage unbiased tax

structure which is indifferent to geographical locations.

Nishitha Guptha (2014) in her study “**Goods and Services tax: Its Impact on Indian Economy**” stated that implementation of GST in the Indian framework will lead to commercial benefits which were untouched by the VAT system and would essentially lead to economic development. Hence GST may usher in the possibility of a collective gain for industry, trade, agriculture and common consumers as well as for the Central Government and the State Government.

Objective of the Study

The objective of this paper is essentially to understand the importance of Automotive industry in Indian Economy, post GST effect on this sector essentially to have most reliable IT infrastructure and computerized accounting system across (ERP), well trained manpower and influencing the working capital for Automobile dealers in India in this new system of Indirect Taxation.

Automobile Sector of India

Indian Automobile industry is industry of industries; vertically backward is inter-related with many other sectors, namely, Iron & Steel, Plastics, Electrical & Electronics, Paint etc, The automobile industry accounts for 7.1 per cent of the country's Gross Domestic Product (GDP). Indian automobile sector

has seen huge investments from both domestic and foreign manufacturers. FDI inflows to the sector were US\$ 16.67 billion between April 2000 and March 2017. Automobile industry is one of the largest in the world, growing and dynamic sectors in the Indian economy, having complex operations from tax angle and subjected to fairly high rates of taxation under the earlier tax provisions (before July 2017) and would obviously have wide implications, both positive and negative, on changing over to GST. The table 1 depicts the performance of this sector during VAT regime, that is, before the implementation of GST, which authenticates the growth in this sector... increasing year-on-year with a CAGR of 5.57% from FY 12 to FY 17; maximum leap is in the FY 15 over FY 14 by 18,57,882 on grand total, before the implementation of GST. The benefits reaped, if any, in this sector will be reflecting in the Financial Year 2017-18 with the introduction of uniform taxation, Goods and Services Tax - GST. The maximum share in production for these financial years is with regards to Two-wheelers, ranging between 75% to 79%. The noteworthy aspect is... there is a consistent growth in Two-wheeler and Passenger Vehicle (PV) category, which is predominantly dominated by passenger cars category, others being, Utility Vehicles and Vans. For instance, in the FY 16 and FY 17, the Passenger car production were **25,65,970** and **27,04, 600**, which constitutes 74% and 71% respectively of the total PV category.

Table 1 – Production of Automobile (OEMs) in India from FY12 to FY 17

Category	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
Passenger Vehicles	31, 46, 069	32,31,058	30,87,973	32,21,419	34,65,045	37,91,540
Commercial Vehicles	9,29,136	8,32,649	6,99,035	6,98,298	7,86,692	8,10,286
Three Wheelers	8,79,289	8,39,748	8,30,108	9,49,019	9,34,104	7,83,149
Two Wheelers	1,54,27,532 (75.7%)	1,57,44,156 (76.25%)	1,68,83,049 (78.525%)	1,84,89,311 (79.16%)	1,88,30,227 (78.4%)	1,99,29,485 (78.73%)
Grand Total	2,03,82,026	2,06,47,611	2,15,00,165	2,33,58,047	2,40,16,068	2,53,14,460
Gross turnover in billion USD	66 (46.88)	68 (54.31)	55 (60.28)	59 (61.06)	64 (65.46)	69 – E (67.09)

Source: Society of Automobile Industry

The automobile industry broadly comprises of the following

- Automobile Manufacturers (OEMs), who manufacture Motor Vehicles – broadly divided into four segments viz. passenger cars including utility-vehicles, commercial vehicles – for goods & passenger application, two wheelers and three wheelers, each having different business processes, tax structure and therefore issues related to taxation.
- Auto Ancillaries supplying components (Auto Component Manufacturers Association – over 750 members) has significant influence in the growth of this sector to the OEM's
- Dealers of OEM's

GST would impact each of the above constituents of the auto industry. As stated above, OEM constituent has segments and each segment – notably passenger cars, has further sub-segments, each having different features and hence different tax implications. This paper has concentrated mainly on Motor Vehicles and not so much on spare parts and service activities of OEMs; covered in ACMA (Auto Components Manufacturers Association) and annual report as on 31st March 2017, indicates that there are about 750 members and turnover is Rs.2,92,184 Cr... contributing 2.3% to GDP with domestic after-market Rs.56, 096 Cr. They are coming in tier 1 and 2 in this sector and has major influence (in Indian economy development) in Export and OEMs growth. This paper is pertaining to the effect on Automobile dealers with the implementation of GST.

Indirect Taxation (GST) – Effect on Automobile Dealers (Before & After)

During VAT tax regime, almost 13% of the revenue from central excise is from this sector and claims a size of 4.3% of total exports from India. Despite its contribution to the economy and growth potential, this sector has been combating the hardship of high tax rates for substantially a long period of time now with central excise duty ranging between 12.5% to 30% coupled with introduction of multiple cesses at revenues whims and fancies, most recent being infrastructure cess.

Apart from the high tax rates, this industry has seen extensive litigations on VAT v/s Service Tax tussle, valuation issues in case of PDI (Pre-

Delivery Inspection) charges, warranties, taxation on handling charges and many more. Thus, introduction of GST is a breather for this sector where-in taxes on vehicle are 28% in GST regime along with the cess of 1% and 15%; depending on the price of the vehicle. However, this rate of taxation will be beneficial for this industry as full set-off of credits will be made available in this GST regime. Further, as per the Goods and Services (Compensation to States) Act, 2017, the compensation cess can be availed as credit and the same can be utilized against the payment of cess in the same manner as per the rules applicable in ITC (Input Tax Credit). This paper focuses on the supply chain part of this industry i.e. the dealers network who play a very crucial role in the growth and prosperity of this industry and any adverse impact on dealerships shall have direct effect on the entire industry. Therefore, this article examines the intricacies of GST on Automobile Dealers.

In the earlier VAT tax regime, dealers were paying the following indirect taxes:

- Service tax (ST) on services both as provider and also as receiver under reverse / joint charge
- Value added tax (VAT) / Central sales tax (CST) on Sale of Vehicle/ Spares/ Accessories

In the present GST regime, Automobile Dealers will be collecting and paying CGST and SGST (i.e. Central GST and State GST) on intra-state sale of vehicles. Further, in case of inter-state sale of the vehicles, they will be collecting and paying IGST (i.e. Integrated GST), which is the summation of CGST and SGST). The following gives the comparative analysis under VAT regime and after implementing GST:

A) Impact on Credits – VAT Regime

In VAT regime, automobile dealers were not able to avail CENVAT credit on the following indirect taxes paid by them:

- CST Paid on purchase of vehicle, spares, consumables, accessories and assets;
- Excise Duty paid on purchase of vehicles, spares, consumables and accessories;
- NCCD, Auto Cess and Infrastructure Cess paid on purchase of vehicles;
- CVD paid on any imported Spares, accessories and consumables;
- SBC paid on input services;

- Reversal of proportionate CENVAT credit of service tax due to trading activity - Showroom Rent, Advertisement expenses etc.

In GST Regime, all the above duties/ taxes are getting subsumed, therefore dealers should be able to avail the input tax credit (ITC) of all its procurements of goods and services except for few restrictions laid in the CGST Act.

CST – Central Sales Tax, **NCCD** – National Calamity Contingent Duty, **CVD** – Countervailing Duty, **SBC** - Swachh Bharat Cess and **CENVAT** – Central Value Added Tax

B) Impact on the Sale Price – Comparing VAT and GST regime

Since, the procurement cost reduces in GST and if the benefit of the same is fully passed on to the consumer, then it leads to reduction in sale price of the vehicles as indicated in Table 2 & 3, which are based on actual data of 'Hyundai' branded

vehicles; courtesy '**Trident Hyundai**' Automobile dealers of **Hyundai India Ltd.** The Table 2 indicates the '**Ex showroom**' and '**on Road**' prices of different variants of '**Hyundai**' during the VAT regime as on **20th April 2017** and Table 3 depicts the prices of the same variants '**Ex showroom**' and '**on Road**' prices as on **22nd August 2017** after implementation of GST.

There is a considerable difference in '**Ex showroom**' and '**on Road**' prices in all the variants of '**Hyundai**' branded vehicles comparing before and after GST; minimum of `7,806 in MAGNA MET variant and maximum being `15,890 in ASTA MET model.

The benefit of such reduced sale price of vehicles to the end consumers in the GST regime and if this reflects in actual sale of vehicles...will boost this sectors growth and must have largely positive impact due to introduction of GST.

Table 2 – Price list of various models of 'Hyundai' 4 wheelers as on 20th April 2017 (Pre GST)

Variant Name	Hyundai' -- Petrol (Price list as on 20.04.2017) during VAT						
	Basic Price (₹)	VAT @ 14.5% (₹)	Ex Showroom Price (₹)	Road Tax (₹)	Insurance (₹)	Registration & HP charges (₹)	On Road Price (₹)
ERA – MET	4,10,863	59, 575	4,70,438	67,886	20,338	2,237	5,60,899
MAGNA – MET	4,68,278	67,900	5,36,179	83,324	22,696	2,237	6,44,436
SPORTZ – MET	5,06,501	73,443	5,79,944	90,125	24,266	2,237	6,96,572
SPORTZ - (O) – MET	5,33,878	77,412	6,11,290	94,997	25,390	2,237	7,33,914
ASTA - MET	5,72,190	82,968	6,55,158	1,01,814	26,963	2,237	7,86,172
MAGNA - AT - MET -	5,35,834	77,696	6,13,530	95,345	25,470	2,237	7,36,582
SPORTZ - (O) AT- MET	6,10,323	88,497	6,98,820	1,08,599	28,529	2,237	8,38,185

Hyundai' -- Diesel (Price list as on 20.04.2017) during VAT							
ERA – MET	5,08,688	73,760	5,82,447	90,514	24,355	2,237	6,99,553
MAGNA – MET	5,50,992	79,894	6,30,886	98,042	26,093	2,237	7,57,258
SPORTZ - (O) – MET	6,16,593	89,406	7,05,999	1,09,714	28,787	2,237	8,46,737
ASTA - MET	6,54,902	94,961	7,49,863	1,16,531	30,360	2,237	8,98,991

Table 3 – Price list of various models of 'Hyundai' 4 wheelers as on 22nd August 2017 (Post GST)

Hyundai' -- Diesel (Price list as on 22.08.2017) - After GST introduction									
Variant Name	Basic Price (₹)	CGST @ 14% (₹)	SGST @ 14% (₹)	GST COMP CESS (₹)	Ex Showroom Price (₹)	Road Tax (₹)	Insurance (₹)	Registration & HP charges (₹)	On Road Price (₹)
ERA - MET	3,57,297	50,022	50,022	3,573	4,60,913	66,512	20,518	2,237	5,50,180
MAGNA - MET	4,07,533	57,055	57,055	4,075	5,25,717	81,698	22,903	2,237	6,36,630
SPORTZ - MET	4,40,813	61,714	61,714	4,408	5,68,648	88,370	24,483	2,237	6,83,738
SPORTZ - (O) - MET	4,64,217	64,990	64,990	4,642	5,98,840	93,062	25,594	2,237	7,19,733
ASTA - MET	4,97,570	69,660	69,660	4,976	6,41,865	99,748	27,178	2,237	7,71,028
MAGNA - AT - MET -	4,65,818	65,215	65,215	4,658	6,00,905	93,383	25,670	2,237	7,22,195
SPORTZ - (O) AT - MET	5,30,777	74,309	74,309	5,308	6,84,702	1,06,405	28,754	2,237	8,22,098
Hyundai' -- Diesel (Price list as on 22.08.2017) - After GST introduction									
ERA - MET	4,35,633	60,989	60,989	13,069	5,70,679	88,685	24,558	2,237	6,86,159
MAGNA - MET	4,72,926	66,210	66,210	14,188	6,19,534	96,278	26,356	2,237	7,44,405
SPORTZ - (O) - MET	5,28,836	74,307	74,307	15,865	6,92,775	1,07,659	29,051	2,237	8,31,722
ASTA - MET	5,61,734	78,643	78,643	16,852	7,35,871	1,14,356	30,637	2,237	8,83,101

C) Impact on Working Capital

The following aspects will have the possible impact on the Working Capital of the automobile dealers in the GST regime. The main difference between the two is being on tax payment... under VAT regime it was based on delivery of products or services, whereas, in GST it is based on invoice generated, delivery may be immediately or at a later stage.

a) **Delivery by Manufacturer (OEMs) to Automobile Dealer:**

In GST system, vehicles can be supplied by OEMs to the Automobile dealers only after paying the base vehicle price (as agreed upon) and IGST (or CGST plus SGST) as per the invoice, which leads to funds getting blocked as the dealer initially pays to the manufacturer and the dealer can claim that back only from the customer after sale, which was not the case in the earlier system, where-in, all the payments are credited to the government only after sale proceedings. This is one of the major impact leading to increase in Working Capital; despite of having online credit transfer adjustments.

b) Vehicle Transfers: Transfer of vehicle / spares to other premises will be liable for GST if the transfer is in the course of inter-state trade. Further, if there are separate dealerships of a dealer and separate GST registration number is obtained for each such dealership, then transfer of any goods/ services between such dealerships will also be liable for GST. This shall block the working capital as the taxes needs to be paid from own funds and collection of taxes will be at a later date only when such goods/ services are eventually sold.

c) Free Service Coupon vouchers: These coupons will be issued at the time of sale of the vehicle. As per the time of supply rule, GST on such coupons needs to be paid immediately on the date of issue of such vouchers. As per the policy of some manufacturers, the amounts in respect of such coupons will be redeemed to the dealers only once the customer brings the vehicle for repair to the workshop. Therefore, dealers would have to pay tax on such coupons immediately on its issue but the said taxes can be collected from the automobile manufacturers (OEM's) only when the vehicle comes for the repair leading to unnecessary blocking of funds in taxes.

d) Vehicle Booking Advance: It is quite common in this sector that the vehicles will be booked in advance on payment of certain amount as token. Earlier, before GST introduction, VAT is not being paid on such advances as the same is payable at the time of sale of such vehicle. However, this luxury of holding advances without payment of taxes is clipped in the GST regime and taxes need to be paid on receipt of the booking advances also. Therefore, dealers either have to pay taxes on the advances out of its pocket or collect taxes extra even on the token advances.

e) Commission, warranties, incentives: Under VAT regime, it is very difficult for dealers to pay service tax on accrual basis on the following incomes and thereby as a system or practice many dealers are paying service tax on receipt basis:

- **Commission from Bankers/ Insurers:** As details of the commission will be provided by Bankers / insurers at a later date with constant changes involved. Therefore, generally dealers pay service tax on such receipts only upon receipt of commission;
- **Income from manufacturer:** Various commissions, incentives, reimbursements, warranty receipts etc. are received from manufacturer. Dealer doesn't pay taxes on these incomes on accrual basis as the same may or may not get approved by the manufacturer at a later date. Therefore, in VAT system, service tax is paid on receipt basis only when the amount is credited by the manufacturer and is reflected in the manufacturer's statement.

However, the luxury of paying taxes on receipt basis will not be accepted in the GST regime as everything will be system driven.

D) Impact on Valuation

i) Dealer of second hand vehicles

It has been explicitly stated in the valuation rules that where a taxable supply is provided by a person dealing in buying and selling of second hand goods then the value of supply shall be the difference between the selling price and the purchase price and if the value of such supply is negative, then there is no need to pay tax. This shall very positively impact this industry as GST needs to be paid only on the difference value.

Further, Government has issued notification 10/2017-Central Tax (Rate), Providing exemption from payment of GST when a person who is dealing in buying and selling of second hand goods and who pays GST on value of outward supply of such second-hand goods under margin scheme [**value as determined under rule 32(5)**], he need not pay GST on purchases of old vehicles from under reverse charge mechanism.

To amplify the above with an example for better understanding is as given below:

A company XYZ Pvt. Ltd deals in selling and buying of second-hand cars. The company purchases a second-hand car from an unregistered person worth ` 5 lakhs and the original price of the car was ₹ 7 lakhs. The same car is sold by the company for ₹ 8 lakhs after minor refurbishing. GST shall be levied on the supply of car by the company to its customer for ₹ 8 lakhs and Supply of the car to the company for ₹ 5 lakhs shall be exempted. The value for GST calculation purpose shall be ₹ 3 lakhs only; on the differential price.

If any kind of value added by the way of repair, refurbishing, reconditioning etc., the same shall also be added to the value of goods and be a part of the margin. The person selling the car to the company will not be required to charge tax or issue any tax invoice and the company purchasing the car cannot claim any ITC.

ii) Bundling of Car with accessories, warranty, handling charges: Automobile dealers charge amounts for Sale of vehicle and also for various ancillary services such as insurance, extended warranty, accessories, logistics and handling, registration etc. It shall be imperative for the industry to understand whether the entire transaction shall be classified as separate supplies or whether it has to be classified as a 'composite supply' or as a 'mixed supply'. Ideally it should amount to composite supply as the vehicle remains the principle supply and other being incidental/ ancillary. Further, the issue of composite supply v/s mixed supply also needs to be tested in case of warranties, AMC's, repair works, painting jobs, body-building works etc. The principle of dominant nature test as laid down by supreme court in *BSNL v/s UOI* 2006-TIOL-15-SC-CT-LB would come in to play and the said principle needs to be applied and tested with greater force in GST regime. For instance, in case of comprehensive AMC contracts, the purpose is to keep the machine in operating condition and not to merely supply the goods, therefore even though the supply of goods

may be of high value, they are still incidental to the principle requirement of maintenance and therefore it may be termed as a 'composite supply' of maintenance and GST would be levied accordingly. However, there are multiple other factors that also have to be looked into while deriving conclusion on these transactions involving supply of multiple goods and services in a single transaction and therefore facts of each case and the manner in which the transaction is undertaken remain crucial to draw an amicable conclusion. Therefore, if classification is not clearly carved out in the transaction / agreement, then consequences of valuation issues could hit this industry with large scale litigation in the GST regime.

iii) Insurance, Registration etc. as reimbursements: Automobile dealer collects various

amount from customers which are mere reimbursements and are paid back as it is to someone else. In other words, these amounts are collected merely as a pure agent such as:

- Insurance of the vehicle
- Temporary/Permanent Registration charges
- High Security Number Plate Charges
- Credit Card Swiping Charges etc.

In VAT, Service Tax is not paid on such values, if collected as a pure agent. However, at times dealer's charge ad hoc amount to customers keeping certain margin on them above the actual amount incurred towards the same. In such a scenario, the provisions relating to Pure agent cannot come to their rescue and GST would need to be paid on the entire value received.

iv) Discounts: Dealers would receive various discounts from its manufacturers based on targets, vehicles received from manufacturers, Special Customers, Year-End Discounts etc. It is appropriate to note that post supply discounts will not be allowed as deduction from the value if the same is not linked to any invoice in GST regime. Therefore, discounts policy needs to be revisited and the same must be brought in line with the tax scheme to avoid taxes on high values.

v) Valuation of commissions: Under VAT regime, in case of various commissions received from the manufacturers such as 'Extended warranty' or 'Road side assistance', Service Tax is being paid only on commission element. However, in GST regime, such tax treatment may not be acceptable and

dealers will have to pay GST initially on the entire value of the warranty receipts and the amounts charged by the manufacturer can later be taken as a credit. Adoption of this would require tremendous costs and efforts especially in a scenario where dealers face lot of difficulty in tracking them from various reports / automated databases of the manufacturers.

E) Reduced (earlier) litigations

Under VAT regime, this sector was facing disputes in the following areas:

- i) **Valuation in Servicing of vehicle:** Complexity in bifurcation of the material and labour component in the servicing of vehicle has led to multiple disputes as both the service tax and sale tax authorities demand taxes on a higher component.
- ii) **Handling Charges:** Whether it is liable for VAT or Service Tax has led to demand of taxes from both the authorities and there-by disputes.
- iii) **Registration charges:** Disputes were noted on applicability of service tax on various charges that are merely collected as pure agent such as temporary / permanent registration etc.
- iv) **Incentives:** It has been a matter of dispute at a various judicial forum as to whether the incentives received by the automobile dealers from the manufacturer, whether amounts to any 'Service' to be liable for service tax.

The encouraging and interesting aspect is such disputes would end in the GST regime as the tax base for both CGST and SGST shall be same.

F) Impact due to Anti-Profiteering Measures

Since, a dealer will be able to take the credit of goods lying in stock, the tax cost would decrease. This additional benefit accruing to a dealer is expected to be passed onto the end consumer by way of reduction in prices of goods and services. Further, a separate authority will be formed in the GST regime to monitor the non-compliance of the anti-profiteering matters. This measure will have an adverse impact on the entire industry especially when the pricing is pre-decided by the manufacturer and is a dynamic feature being guided by multiple other factors. It is also pertinent to note that presently dealers work on a very thin margin and their survival is purely on the volumes of business and in this scenario any further reduction in prices could have negative impact. However, if the benefit is passed on by the manufacturer to the dealers then this may not be

challenging as well. It is noticed that many large players in the industry have reduced prices of various models of their products in July 2017.

G) Other Procedural requirements and its effect

- i) **Registration:** Automobile Dealers need to obtain separate registration for each state even if it pertains to the same dealership and covered under the same PAN. However, dealer has an option for multiple registrations within the state for various dealerships.
- ii) **Returns:** Compliance burden will be high in the GST regime as one has to file 12 returns broken into 3 parts and 1 annual return apart from ISD returns, if any. Further, returns will be matched online with the support of IT infrastructure with the returns; vendors / customers. In case, taxes are not paid by the vendors or if the returns are not filed by the vendors, then the credit of such taxes is denied to the customers. Therefore, timely payment of taxes, filing of returns needs to be ensured in the GST regime.
ISD is an Input Service Distributor in a business which receives invoices for services used by companies (its) own branches spread across India. It distributes the tax paid to such branches on a proportional basis by issuing an ISD invoice. The purpose of registering as ISD is essentially (being) a facility made available to those having business with a large share of common expenditure and billing / payment is done from a centralized location. This mechanism is meant to simplify the credit taking process for entities and the facility is meant to strengthen the seamless flow of credit under GST.
- iii) **Accounting:** Coordination / Communication, flow of documents from various branches to accounts department should be before 10th of the subsequent month. Therefore, accounting function needs to be more robust, live and automatic. As far as possible, a dealer must map its accounting framework with the other processes in an ERP environment and therefore finance & accounts needs to be better structured to cope with the needs of the GST regime.
- iv) **IT Infrastructure:** In GSR regime, businesses have to move from the manual environment to computerized environment. Only an efficient IT infrastructure and its

best usage can help businesses meet the high compliance needs of the GST. If IT infrastructure is not established (as required) then it would be challenging for any business to function to its effectiveness in this GST regime; for instance, if Automobile dealers are spread across the state / India and there has to be a connectivity on real time basis. Further, in the computerized environment, physical interaction with the department officials would be reduced substantially. ERP must be customized to make it capable to meet the needs of the business as well as complying with GST requirement.

Conclusion

Moving to the new indirect tax regime (GST) will have substantial impact on every business houses as it is being totally different as compared to the earlier system. There would be a positive impact for those who are vigilant and tax compliant. The unorganized sector will have to adopt and adapt to continue in this new transparent regime; a necessity for tier 3 sector, who are not registered. The negative impact of the GST can largely be averted, if the systems and procedures are documented and implemented to its effectiveness. Businesses need to re-look and necessary actions must be taken to reduce the adverse impact of GST; following are some of them needs attention, which is not exhaustive but only illustrative:

- Understanding the impact on various business departments including procurement, sales & Marketing, finance & Accounts, IT, Admin & HR etc. and restructuring the same to suit the needs of the GST
- Assessing the capacity building to meet the needs of the GST
- Strategizing the right pricing to create right balance between margins and volumes
- Ensure original entries are verified, keep evidences of tax payments etc.
- Conducting in-house training programs for learning & development of staff to ensure smooth Implementation and effective functioning into the new Indirect Tax regime: GST.

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Sustainable Consumption and Lifestyle in Modern Times

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Key Words:

Consumer Behavior;
Green Living;
Sustainable
Consumption;
Green Marketing,
Value Based
Consumption.

Abstract :

This paper looks at the advances in sustainable consumption & lifestyles, and the current trends of material and energy consumption in our day to day lives globally. It showcases the ripple effect of consumption on our resources, people, industries, countries, our planet and outer space. The goal is to identify the influences and the consequences thereof on our finite and non-renewable material resources. Making linkages to the human psychology; mass media; politics and trade; living standards; education; culture; social groups; demography; urbanization and accessibility; health and wellbeing; technology; certifications and labels; and activism, provides insights into consumers' buying behavior. Balancing economic growth, environmental concerns, and improved quality of life for all remains to be the challenge. Global movements in the form of green lifestyles, boycott of Black Friday, and fair trade, show shifting patterns in the consumer culture towards a more conscious society. Value based businesses are developing relationships with the community for a positive impact through value based management strategies and consumers are

buying products that are aligning with certain values. Industries are integrating circular and sharing economy; and sustainable production and consumption (SCP) practices in their operations. The knowledge of consumption patterns and influencing factors can be an input to policy analysis and technological solutions to challenges to our sustenance.

Introduction

When did life of individuals become a checklist of things we want? When did we start paying for the things we want with not just money, but with time, health, and well-being? When did feelings become a commodity? What influenced us into such behaviors and habits? What were its consequences? Do we need to change and if we do, what is it that we need to do? What can we learn from our past? Consumers all over the world are certainly more aware now, owing to the various environmental disasters and social atrocities that came to light.

In 1899, in 'The Theory of the Leisure Class: An Economic Study of Institutions', economist Thorstein Veblen introduced the notion of 'conspicuous consumption', and argued that people acquire unnecessary material goods to claim higher status among the peers. After seven decades, in the 1970s, the world's first car sharing scheme using battery electric vehicles was introduced in Amsterdam. Green marketing was developed in the 1980s to address consumer desire for products that consume less energy or otherwise cause less environmental harm. European Union (EU)

introduced ecolabels in 1992. Five years later, in 1997, the term 'affluenza' was coined. 'Voluntary Simplicity' was first published in 1981, where Duane Elgin advocated sustainable ways of living. The year 1989 saw an advocacy group called Adbusters, founded by Kalle Lasn, after he was unsuccessful in purchasing television time to advertise 'Buy Nothing Day'. In 1998, United Nations (UN) issued a report investigating growth in consumption in the 20th century. (Mansvelt & Robbins, 2011).

The above timeline shows rising awareness and consumer activism towards sustainable consumption and lifestyles in the developed countries. The drivers for which were improvements in industrial processes; transportation and logistics; information and technology; politics; internet and social media; globalization; urbanization; commodification. This fed the consumer's appetite for self-fulfillment, self-expression, and for development.

In the years to follow, developing countries could catch up and walk the same path. Here, we begin to see new consumption patterns emerge where they didn't exist. Well-informed India introduced the

Ecomark for environment friendly household and other consumer products in as early as 1991.

World Bank's Global Consumption Database shows household consumption patterns in developing countries, and borrows from national household surveys. (The World Bank Group, 2010). Four levels of consumption are used to segment the market in each country based on global income distribution data, which rank the global population by income per capita:

1. Lowest - below \$2.97 per capita a day;
2. Low - between \$2.97 and \$8.44 per capita a day;
3. Middle - between \$8.44 and \$23.03 per capita a day;
4. Higher - above \$23.03 per capita a day.

The roughly 4.5 billion low-income people in developing countries collectively spend more than \$5 trillion a year, which means that the lower consumption segments are spending more than the middle and higher consumption segments combined. India has a total population of 1,324.2 million (2016) with an annual household consumption expenditure growing by the rate of 8.7% (2016). Figure 1 below shows household consumption patterns in 92 developing countries, whereas Figure 2 shows the same particularly for India. The lower segments are spending more on food and beverages, whereas the higher segments are spending more on transport, financial services, and information and communication technology. All segments spend roughly the same on clothing and footwear; housing; education; health; and water.

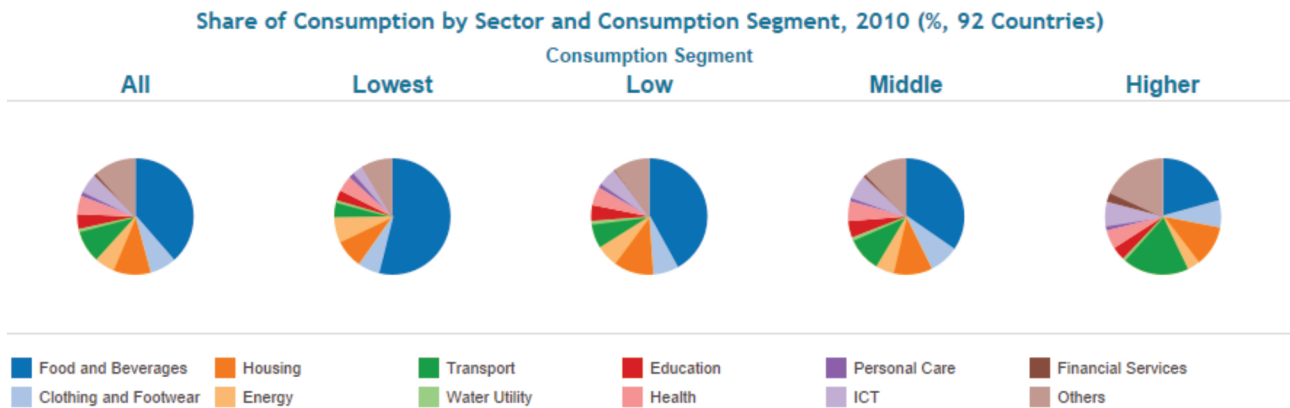


Figure 1: Household consumption patterns in developing countries by market segments and sectors

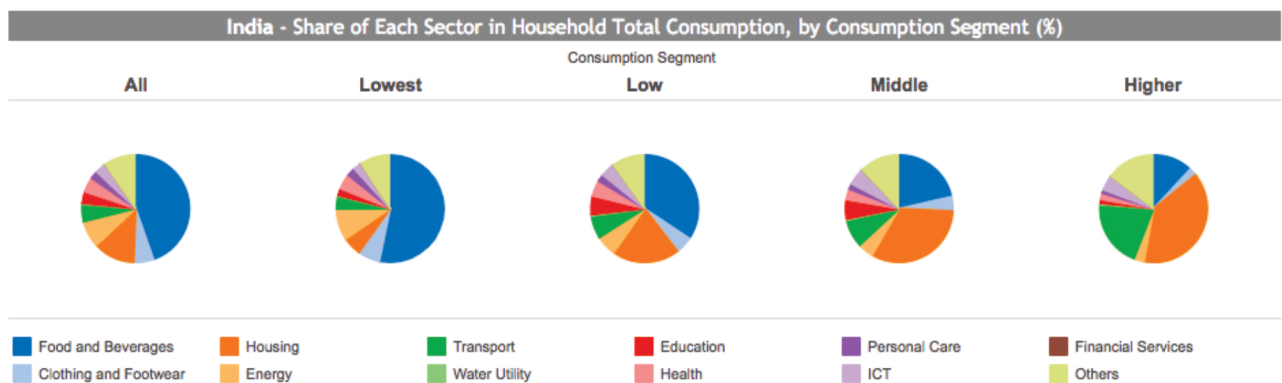


Figure 2: Share of each sector in household total consumption in India, by consumption segment (%)

The problem with depending solely on the above statistics for policy development is that it imagines the consumer to be an individual economic actor. Such analysis ignores both the larger issues of social consumption, and the complications of decision

making within households. (Goodwin, Nelson, Ackerman, & Weisskopf, 2008). This can be explained by comparing Hardin's theory to a latest research. "The Tragedy of Commons", theorized by ecologist Garrett Hardin in 1968, describes the

collective destruction of common resources motivated by self-interest. (Hardin, 1968). On the contrary, a recent research by Diekert (2012) upends this theory by saying that common property belongs to an often well-defined group of people and in many cases institutions and social norms exist that regulate the harvesting/extraction of the communally owned property, so that it is managed in a more or less sustainable way. In this case, it is important to consider the role of businesses, governments, and other organizations also.

Our collective consumption levels are causing waste generation, in turn giving rise to more environmental and social problems. The Great Pacific Garbage Patch and huge mountains of garbage on the land are proof of it. United Nations

Environmental Program's (UNEP) report, Global Waste Management Outlook (GWMO), encourages a move from waste management to resource management, reinforcing the importance of not only avoiding the ill effects of waste dumping but also realizing the consequences of resource depletion. (UNEP, 2015).

Resource depletion is straining the already strained stocks of finite and non-renewable resources. Figure 3 quantifies the limits on our resources and urges us to look into alternative solutions to our never ending needs. (Modak, 2015). If we were to run out of these resources, experts forecast a extra-terrestrial and space-based economy. (Jakhu, Pelton, & Nyampong, 2017).

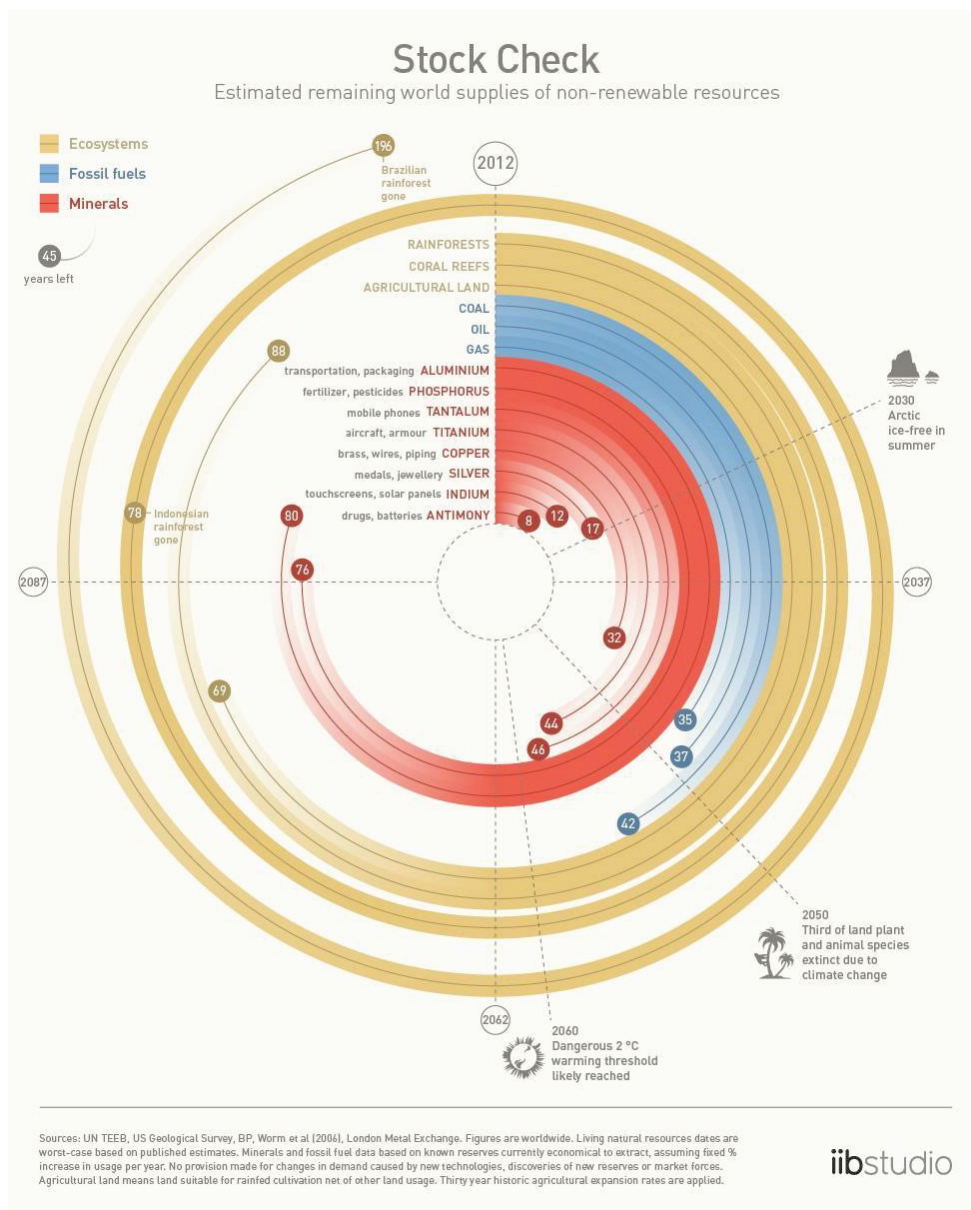


Figure 3: Global Stock Check

Consumption of material resources goes hand in hand with consumption of energy. Heating, cooling, or lighting our spaces; traveling to and fro to work; and cooking requires energy. Often overlooked by a consumer is the fact that using digital services such as Google, Facebook and Amazon requires a lot of energy too. Every time we see and engage on our digital devices, we are not just consuming energy whilst we power our devices, but we do so also, by taking these online services. To our rescue, newly installed renewable power capacity set new records in 2016, with 161 gigawatts added, increasing the global total by almost 9% relative to 2015. (REN21, 2017a). As of 2015, renewable energy provided an estimated 19.3% of global final energy consumption. (REN21, 2017b). Big corporations that offer online services are now powering their operations with renewable energy by setting goals reaching as high as 100%.

Mining for cryptocurrencies is an energy guzzler too, powered mostly by coal. To understand the scale, 100,000 VISA transactions require 169 kWh as compared to 593 kWh for 1 bitcoin transaction. (Bitcoin Energy Consumption Index, n.d.). Blockchain technology that makes bitcoin transactions possible is also helping out the energy sector. Decentrally generated energy can be sold directly between neighbors via a blockchain system, a fully decentralized energy system in which energy supply contracts are made directly between energy producers and energy consumers (without involving a third-party intermediary) and carried out automatically. (PwC, 2016).

Factors influencing consumption

Understanding what influences our consumption behaviors can lead us to technological solutions, economic planning and policy implementations. The use of data to learn consumer habits to gain more profits is a modern day fear, therefore, learning about these factors may have a positive or a negative influence. The answer to the question 'Why do we consume so much?' may well answer the question 'Why do we waste so much?.' Many factors that influence the way we consume and how much we consume, are described below.

1. Human psychology

Manipulation of human psychology for overconsumption has been a topic of interest for many years. Actual availability of resources is not the kind of information that is easily available to a consumer. Taking advantage of this, retailers elicit consumers' psychological responses to perceived

scarcity strategically to increase consumption. (Gupta, 2013). Advertising and marketing therefore, play a huge part on what an individual prefers, by creating a 'want' along the way where it doesn't exist, leading to unplanned buying decisions. This raises the question 'How many ideas are we consuming?'

Supply chain transparency affects consumers' decision making and the processes that lead the product to the consumer are often obscure. These processes, and therefore the social and environmental problems associated with them are out of sight and out of mind. The belief that one can express their feelings of responsibility towards society and their appreciation of ethical companies and products by consuming ethically is also, a determining factor. (De Pelsmacker, Janssens, & Mielants, 2005).

As an internal influence, Compulsive Buying Disorder is characterized by excessive shopping cognitions and buying behavior that leads to distress or impairment. (Black, 2007). This leads to hoarding, a condition characterized by excessive acquisition of and difficulty discarding possessions, resulting in severely cluttered living spaces. (Frost, Steketee, Tolin, 2011). Opposite to hoarding is compulsive decluttering. Cluttering and decluttering both cause scarcity of resources and space in their own way. Proof enough is the self-storage industry which is now a \$22 billion per year industry in the US. Rentable storage has increased by 740% in the past two decades. (Botsman & Rogers, 2010). 'Out of sight and out of mind' concept therefore, can not only be applied for things unseen, but also, a deliberate consequence of hoarding, for wanting for things to be unseen, to avoid being bothered by the things we hoard.

2. New and traditional mass media

Social media is motivating consumers in a new way, putting them at center stage, exposing them to new tools of engagement and marketing, such as artificial intelligence. Consumers are able to interact with each other and influence each other's decisions through various platforms available on the interweb.

Traditional mass media remains to be powerful where social media hasn't made home entirely, such as in rural areas. Government initiatives in India such as 'Jago Grahak Jago' are instrumental in affecting consumers' decision making process. Bollywood movies around social activism such as Padman, are also an influence.

A new kind of marketing called societal marketing advocates a balance between consumer wants and business objectives of firms on one hand and well-being of the society on the other hand, maximizing quality of life rather than maximizing consumption. (Panwar, 2004).

3. Politics and trade

The link between trade and environment was recognized as early as 1970. (World Trade Organization, n.d.) In the face of an impending crisis, a frightening insight into the future, it becomes imperative to propose phase-outs and complete bans on certain commodities, depending on the severity of the situation. Many treaties were therefore signed internationally concerning trade of endangered species; hazardous chemicals and pesticides; nuclear safety; and ozone depleting substances.

Some trade issues make it harder for us to reach our sustainability goals. For example, in India, several solar projects faced delays and inflated costs at the end of 2017 after customs officials blocked more than 900 containers of panel shipments for more than a month by demanding higher import duties. This could potentially cripple India's ambitious goal of installing 100 gigawatts of solar energy by 2022. (The Economic Times, 2017). This means that Indians have to consume more fossil fuels if this becomes a norm.

Politics affects how goods are traded. For example, it recently came to light that in Canada, the Government of British Columbia recently announced regulations that would block an increase in diluted bitumen shipments to the coast while a panel considers whether the oil sands product can be properly cleaned up if it spills in water. In response, Government of Alberta declared a trade war threatening to stop importing wine from the region. (Tait & Hunter, 2018).

4. Living standards

Income and consumption are considered proxy measures of living standards. (O'Donnell, van Doorslaer, Wagstaff, & Lindelow, 2008). Higher living standards have been associated with higher levels of consumption - direct (e.g., buying a tv) or indirect (e.g., better infrastructure). As seen in Figure 1, economic levels affect how we consume. In India, changing incomes and the growth in the middle class are showing a clear trend in consumption patterns away from basic goods such as food towards a higher

share of discretionary spending. (Knorringa & Guarin, 2014).

5. Education

According to Census of India, the improvement in literacy rate in rural area is two times that in urban areas. The rural urban literacy gap, which was 21.2 %age points in 2001, has come down to 16.1 %age points in 2011. (Chandramouli, 2011).

Education unfortunately is being commodified these days, following the concept of quantity over quality. We need innovation in education, not commodification. Online laboratories; virtual classrooms; virtual world simulation; collaborative online platforms; skill-based curriculums; self-directed learning; distance education; are the various modern innovations in education. (OECD, 2016). However, as United Nations Children's Fund (UNICEF) rightly says - innovation does not just mean new technology. Educational innovation can be found in processes, services, programmes, and partnerships (Fabian & Bourne, n.d.).

Sustainable development cannot be achieved alone through political agreements, financial incentives or technological solutions. (Hirche, 2013). It is education and awareness that can help us see through our priorities. Education, be it formal or informal, is a powerful tool for transforming consumer behavior. Education for Sustainable Development (ESD) has become an important issue in society and is now being implemented worldwide. (CoDeS, 2016).

6. Urbanization and accessibility

According to Census of India, level of urbanization increased from 27.81% in 2001 Census to 31.16% in 2011 Census. The proportion of rural population declined from 72.19% to 68.84%. (Chandramouli, 2011).

Urbanization; ease of accessibility; and digital development have made e-commerce a booming industry that the current market cannot ignore to adapt to. People in the cities want things delivered to their doorsteps. India; Indonesia; Mexico; and China are growing e-commerce markets. In 2016, e-retail sales accounted for 8.7% of all retail sales worldwide. This figure is expected to reach 15.5% in 2021. Online shopping is one of the most popular online activities worldwide with global e-retail sales reaching 1.55 trillion U.S. dollars in 2015. (Statista, n.d.a).

Around 17.6 million two-wheelers were sold in 2017, including scooters, motorcycles, and mopeds. (Statista, 2016a). Although people in India use public transport, individual cars remain a powerful aspiration. (UNEP, 2011). India is poised to become the world's third largest automotive market by 2019. (Statista, 2016b). On the other hand, India's ambition of selling only electric vehicles by 2030 can play an important role in cleaning the air, reducing congestion, saving lives, improving access, and strengthening India's economy today. (NITI Aayog & Rocky Mountain Institute, 2017).

7. Culture, Social Groups and Demography

Family, religion, social circle, occupation, race, population, and nationality affects consumer behavior. These may encourage or restrict certain kinds of consumption. For example, at one hand spiritual practices seems to cure our drive to consume more than we need by bringing more awareness to one's everyday consumption (Subrahmanyam & Gould, 2012-2013), on the other hand there is also a market for spiritual products. (Rinallo, Scott, & Maclaran, 2013). Spirituality, environmental concern and ecological knowledge significantly influenced consumers green purchase intention. (Joshi, 2016-2017).

Influence of globalization on India has always been there, especially when we are becoming more and more like a global consumer with a mix of westernization and Indian culture. Research says that in some cases rising incomes might actually enhance - rather than suppress - the expression of cultural differences (Knorringer & Guarin, 2014). This is a good news for the Indian consumer industry dependent on indigenous manufacturing.

8. Health and wellbeing

Awareness on health issues caused by environmental triggers is prompting consumers towards healthier lifestyles. India is embracing the Sustainable Development Goals (SDGs) and realizing them through a mass movement that seeks to create a Clean India, with a holistic vision that includes personal and environmental sanitation; safeguarding water, soil and air quality; disposal of human excreta; wastewater and garbage; health; food safety; and environmental security. (All India Institute of Hygiene & Public Health & UNICEF, n.d.).

Home cooked and home grown food is easing the pressure on centralized resources. We see people growing their own food indoors and shops

exclusively selling organic products. Worldwide net sales of organic food amounted to approximately 81.6 billion U.S. dollars in 2015, up from 80 billion U.S. dollars the previous year. (Statista, n.db)

9. Technology

Newer technologies mean new kinds of consumption but planned obsolescence has always been under scrutiny as it has carried over into these new technologies. Planned obsolescence is the production of goods and services with short economic lives and that stimulates consumers to repeat purchases in a shorter period. (Aladeojebi, 2013). Disposable or use-and-throw have been the model of 'sustaining' businesses.

Shopping is getting easier and easier these days. New technologies such as three dimensionals (3D) printing, advanced shopping technologies such as Amazon Go are making consumers self-reliant. The availability of technology for consumers to showcase their needs out in public in the form of wish lists and registries has also encouraged spending and consuming.

But at the same time, 3D printing is allowing the repurposing of recycled materials, helping us keep the materials in the loop as a part of a circular economy. The Protoprint initiative in partnership with SWaCH and the National Chemicals Labs in India is structured as a social enterprise aimed at empowering wastepicker communities by providing them with low-cost technology to produce 3D printer filament from the waste plastic they collect. (Protoprint, n.d.).

10. Certifications and labels

Accountability and transparency are values of modern consumers, giving rise to a 'Transparent Economy', driven also by government leadership and the dynamics of rating and ranking. (Global Reporting Initiative, 2010). Governments too rely on certifications to make buying decisions. (UN, 2017). Many such labels exist worldwide and following are some that were created or adopted in India:

- Ecomark for environment friendly household and other consumer products, introduced in 1991.
- Bharat Stage emission standards mark for vehicles, launched in 2006.
- Bureau of Energy Efficiency (BEE) star labeling for home appliances, industrial equipment, cooling systems and other electrical appliances. BEE introduced a new

star rating methodology called Indian Seasonal Energy Efficiency Ratio (ISEER) for air conditioners in 2016.

- Jaivik Bharat logo for organic food products, introduced by Food Safety and Standards Authority of India (FSSAI) in 2018.
- The Forest Stewardship Council (FSC) promotes environmentally appropriate, socially beneficial, and economically viable management of the world's forests.
- The Global Organic Textile Standard (GOTS) for eco textile processing.
- GoodWeave is working to end child labor in the carpet industry and to offer educational opportunities to children in South Asia.
- FAIRTRADE Mark for the producers and traders that have met Fairtrade Standards.

11. Activism

Purchasing 'green' products does not necessarily diminish over consumption and mass waste. (Budinsky, 2011). Marketing is constantly being challenged by activists on accounts of greenwashing; misuse of labels; misrepresentation of values; and promotion of elitism. Research by Fernando, Sivakumaran, & Suganthi (2014) indicates 51.7% of the claims were greenwashed and most of them were vague or ambiguous (37.7%). Most claims lacked specificity (67.0%) and image claims (60.0%) were widely used. Very few advertisements (3.3%) employed certifications to substantiate their claims. Half of the image-related claims (55.8%) were categorized as misleading and highly specific claims were considered acceptable. They called for a legal regulatory framework accommodating well-defined provisions for regulating green claims in

advertisements to curb green washing.

Current trends in sustainable consumption

Global movements led by individuals and not-for-profit organizations, pledges made by governments, value based businesses and evolving industrial practices show a shifting pattern in the consumer culture towards a more conscious society. It is collective responsibility in its true sense.

1. Circular and sharing economy

We live in a closed system with a finite amount of materials that cannot be replenished until they are brought back to be a part of a natural cycle. There have been attempts to have control over the water cycle for instance by creating rain clouds or by harvesting rainwater. We only recently have realized the importance of operating in a circular economy in spite of having knowledge of this cyclical nature for a long time.

Terracycle is a new business headquartered in Trenton, New Jersey, USA, that offers free recycling programs funded by brands, manufacturers, and retailers around the world to help consumers collect and recycle their hard-to-recycle waste. Recycling is however not the solution to our endless consumption.

For materials to stay in the loop, they need not always be recycled, but they can also be shared. Sharing isn't a new phenomenon, but it has gained new found affection and success in people's lives and across industries. The once shared resources such as water are no longer the only resources that are being shared. The system of shared resources has been expanding. Table 1 shows how collaborative consumption or sharing economy has found its foothold in India.

Table 1: Modern collaborative consumption in India

Sr. No.	Industry	Examples of modern collaborative consumption in India
1	Fashion	Designer clothes rental and online fashion rental services such as Flyrobe; Swishlist; Liberent; Stage Three; Wrapd; CandidKnots; Rent A Closet
2	Tourism	Airbnb, a community driven hospitality company
3	Transportation	Car sharing or carpooling, self-drive car rentals

4	Agriculture	Community Supported Agriculture (CSA), tiffin services, urban farming, and grahak panchayats
5	Energy	Smart grids and smart villages centralising solar power, farmers sharing solar energy
6	Infrastructure	Intentional communities, communes, shared housing, shared workspaces

2. Sustainable Production and Consumption (SCP)

How can industries check on resources at every step of the way, across supply chains, across whole life cycle of products? Industries are doing so by integrating circular and sharing economy; and SCP practices in their operations. SCP involves engaging consumers through awareness-raising and education on sustainable consumption and lifestyles, providing consumers with adequate information through standards and labels and engaging in sustainable public procurement, among others. (UN, n.d.).

It is important to select existing technologies wisely and to promote Environmentally Sound Technologies (ESTs). The International Environmental Technology Centre (IETC) of the UNEP accordingly initiated the development of a methodology for the Environmental Technology Assessment (EnTA) further transforming it into Sustainability Assessment of Technologies (SAT), with improvements including a focus on process and outcome and more attention to informed and participatory decision making. (UNEP, 2012a).

Green procurement in the government and private sector is an inspiration to consumers. Government of India's move to procure electric vehicles by 2030 for public transport is a great example.

3. Value based service

A consumer's lifestyle depends on principles, standards, ethics, and ideals they live by. Corporations are tapping into this understanding by providing values based products and services. At the same time this approach is addressing concerns and expectations of its other stakeholders. Value based businesses are developing relationships with the community for a positive impact through value based management strategies and consumers are buying products and services that are aligning with certain values. Edvardsson & Enquist (2008) have

identified five values-based service business:

1. Strong company values drive customer value;
2. Corporate Social Responsibility (CSR) as a strategy for sustainable service business;
3. Values-based service experience for co-creating value with customers;
4. Values-based service brand and communication for values resonance;
5. Values-based service leadership for living the values.

Corporations have the capital and access to technology, resources, and the global reach to drive change towards a more sustainable world. Although some companies have been motivated by expectations and concerns of its various stakeholders and risks involved, India has made it mandatory for companies to spend on CSR, such an effort being the first of its kind in the world. (Finance Department of Bihar, India, n.d.)

National CSR Data Portal & Corporate Data Portal was launched on January 19, 2018, which will capture information on CSR activities carried out by eligible companies. (Press Information Bureau, Government of India, Ministry of Corporate Affairs, 2018). Consumers in India can now have a bird's eye view of how their spending is affecting the world at large.

4. Sustainable lifestyles and social movements

Our lifestyles determine our consumption patterns and there is a worldwide movement to address the consequences of our consumption patterns. Plastic free; zero-waste or trash-free; veganism; minimalism; green living; and eco-friendly or sustainable lifestyles, are the various lifestyles that people have adopted in modern times to set limits on how they consume and what they consume to achieve certain environmental and social goals in their lives for the greater good. It is also a way to

deepen our connection with our environment and communities. It is how we all can develop, flourish, live in harmony, and lead a healthy life, focusing on things that need us the most right now - vulnerable communities and the environment.

Green Consumer Survey conducted in National Capital Region (NCR) region of Delhi by Emergent Ventures India found that although consumers in India are now more aware of the need to buy green products, it is not seen in their buying behaviour. There is a growing demand for environment-friendly products especially in the Fast Moving Consumer Goods (FMCG) sector. Indian consumers are willing to buy organic products, and they do check the list of ingredients used to find out the environmental friendliness of the product. (Kashyap, 2013).

The Task Force on Sustainable Lifestyles was set up in 2005 by the Swedish Ministry of the Environment. The objective was to explore ways to engage, exemplify, enable and encourage people, civil society organizations and governments to further sustainability in people's everyday lives. India was on the participating countries in the Global Survey for Sustainable Lifestyles (GSSL), one of the first global surveys on sustainable lifestyles, and one of the nine projects of the Task Force on Sustainable Lifestyles. (UNEP, 2011). The results provide insights into the way young people think about their daily lives and activities, their aspirations for the future, and their beliefs about the role they play in influencing change. According to the 8000 young adults from 20 countries involved in the GSSL conducted by the UNEP, young people want to be a force for change and create their vision of sustainable development.

Focusing on the two basic necessities, i.e., food and clothing, there is still disparity between how the poor and rich live and consume. Our fast paced economies and the effects of our consumption being out of sight have caused us to buy and forget. This in turn has caused marginalization of workers worldwide and created environmental issues. Information on what the actual worker gets and goes through for providing us these basic goods has recently surfaced.

According to Fairtrade India, the Fairtrade movement has a long history in India: (Fairtrade India, n.d.)

- 1,21,400 farmers and workers are a part of Fairtrade in India
- 72 Fairtrade certified producer organisations are active in India
- Rs. 19.40 crore/Euro 2.40 million reported Fairtrade Premium received by producer organisations in 2011/12

4.1. Food

Demands to feed elephantine and rising populations, mismanaged systems, climatic conditions, and lack of fairness, have left farmers in a conundrum. India has witnessed around 300,000 farmer-suicides over the past two decades. (Thomas & Tavernier, 2017). On top of that are issues such as food versus fuel, food and packaging waste, chemical use, lack of nutrition, health issues, and the supply chain's carbon and resource footprint at large. Exacerbating the situation is migration of population from rural to urban areas.

In response to these challenges, the concept of Urban Farming has gained the attention of urban planners, not-for-profit organizations and academic communities in India. We are seeing a lot of successes stories all over India. (Agarwal & Sinha, 2017). Reinforcing the shift, FSSAI launched organic food label 'Jaivik Bharat' in 2018 to help consumers identify organic products from non-organic ones. (FSSAI, 2018). Entrepreneurs in India are bringing new innovations to the table related to disposable items. Narayana Peesapati created the edible cutlery called Bakeys that is made from millet, rice and wheat, and is available in a variety of flavours. On the other hand, Ecoware is a manufacturer of compostable tableware.

Global trends related to sustainable food consumption:

- 3D food printing is converting ingredients such as proteins from algae, beet leaves, or insects into tasty products.
- Edible packaging made of natural ingredients are being manufactured.
- Students are being engaged into making connections between food and issues that they care about.
- There is awareness on 'sell by date' and 'best by date', allowing consumers to consume these foodstuffs by using their insights and natural senses instead of dates. Apps are fighting food waste, allowing local businesses to promote last-minute discounts on their products reaching their sell-by dates.

- Local fridges are supplying leftovers.
- Food waste supermarkets are selling surplus.
- Tiffin services are specializing in healthy and sustainable lunch tiffins.
- Consumers are shopping imperfect vegetables in bulk so that 'ugly' looking vegetables don't go to waste.
- Chefs are rescuing wasted food.
- Cooking is being done using solar cookers.
- Individuals are adopting zero-waste and plastic-free lifestyles.
- Individuals in cities are growing their own food in the limited spaces they have.
- Countries are banning food waste.
- Organic agriculture is on the rise.

4.2. Clothing

In the 2013 Rana Plaza disaster, workers were killed in a garment factory collapse in Bangladesh. This incident brought to light the lives of suppressed workers. A consumer movement was born investigating fast fashion - who makes clothes and how they are made.

India is world's second largest textile exporter and the third largest exporter to the US but at what cost? (Times of India, 2014). The Indian textile industry is facing water pollution caused due to dyes and microplastics. Water mining has led to water crisis. Waterless dyeing process, organic and natural colors, are some of the things the textile industry can use to adapt to the changing situation. The industry being the second largest employer after the agriculture industry, raises some deep concerns on unfair labor practices such as human trafficking.

On an individual level, Sarah L. (2013), an artist, puts Maslow's Hierarchy of Needs in the name of conscious consumerism in a creative sketch shown in Figure 4. Other methodology, more commonly known is Lansink's Ladder, is adopted by companies worldwide. It is a hierarchical ordered list of methods to manage waste from prevention to land filling: prevention, through reuse of products, recycling of materials, incineration with energy production, and land filling as the last option. (Herbert-Copley & Parto, 2007).

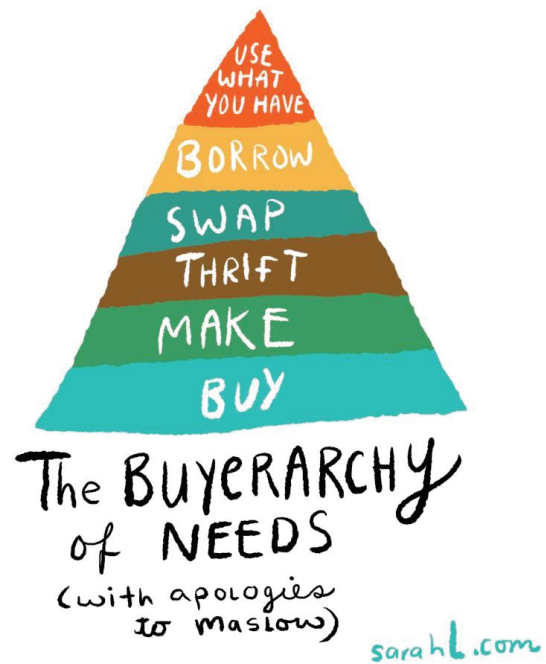


Figure 4: An artist's version of the buyerarchy of needs

Global trends related to sustainability in fashion:

1. Fashion Designers are focusing on sustainability in the fashion industry. Green Fashion Week (GFW) is a global event that provides platforms for such designers.
2. Investment companies, multinational accelerators, and laboratories are encouraging innovators. A perfect hybrid that provides all of this is Future Tech Lab (FTL).
3. Hubbub Foundation's survey shows most people don't even enjoy taking part in black fridays. There is a movement to boycott black fridays.
4. Second hand markets such as thrift stores, augmented marketplaces (thredUP 2017), off-price retailers, and rental/peer-to-peer marketplaces, have been on the rise. However, countries such as Rwanda; Kenya; Tanzania; Uganda; and Burundi have announced their intention to phase out imports of secondhand clothing and shoes from western countries by 2019 to encourage growth of local industries.
5. Companies are working with organizations like the Better Cotton Initiative that promote better standards in cotton farming.
6. Groups such as the Sustainable Apparel Coalition and Fashion Revolution are helping the industry to produce no unnecessary environmental harm and to have a positive impact on the people and communities associated with its activities. On 24th April each year, Fashion Revolution brings

everyone in the fashion value chain together to raise awareness of the true cost of fashion. Its Fashion Transparency Index looks at five key areas when ranking brands: policy and commitment; tracking and traceability; audits and remediation; engagement and collaboration; and governance. (Wallwork, 2014).

5. Government instruments

Government based subsidies, stakeholder engagement in policy-making, programs that encourage social innovation, responsible government, knowledge transfer, and mandatory government actions are some instruments to promote sustainable consumption. On the one hand, 'Make in India' initiative of Government of India promotes indigenous manufacturing, in turn uplifting vulnerable communities and lowering carbon footprint from imports, but encourages consumption on the other hand, where waste and resource management is still an issue.

Mandatory instruments include performance standards and labels. (OECD, 2008). Since 2010 Bureau of Energy Efficiency in India has mandated

air conditioners as a mandatory-labelled appliance under Energy Conservation Act and since then air conditioners cannot be sold without star label. Now as per latest notification, from January 2016, Star-2 is the least efficiency level to be sold in the market, hence variation in power consumption is compared between Star-5 (most efficient) and Star-2 (least efficient) air conditioners. (Press Information Bureau, Government of India, 2015). Since 1991, the Indian Ecomark Scheme has only being applied by 12 manufacturers of various products like paper, pulp, leather and wood particleboard. Furthermore, the licensee hardly uses the Ecomark symbol 'matka' on their package as it is found of no benefit by them. (Mehta, 2007).

Governments worldwide are opting for instruments such as fees, phase outs and bans to control the ill effects of our consumption. Table 2 shows countries and companies participating in such phase outs or bans of various consumer products. India is restricting imports of petroleum coke for users in Delhi region, pushing for phasing out of old trucks, buses, banning plastic bags in Goa, and phasing out hydrochlorofluorocarbons (HCFCs) in buildings.

Table 2: Ban or phase outs by Countries/Regions/Companies confirmed or in planning stage that will affect consumer products

Sl. No.	Commodity or source of commodity being banned/phased-out	Countries/Regions confirmed or in planning stage to ban or phase out the commodity	Companies confirmed or in planning stage to ban or phase out the commodity
1	Fossil fuels in the form of either coal, oil, natural gas, petroleum coke	India, Finland, United Kingdom (UK), Italy, Canada, Netherlands, Los Angeles and New York in United States of America (USA)	-
2	Old polluting vehicles in the form of either old trucks, buses, petrol cars, diesel cars, non-electric/combustion powered vehicles, diesel locomotives	India, Scotland, Paris, UK, China, California in USA	Toyota, Volkswagen, Porsche
3	Plastic products in the form of either foam, bottles, single use disposable products, bags, microbeads, cotton buds, straws	Goa in India, Vancouver in Canada, Ireland, UK, Sweden, France, Iceland, Luxembourg, Norway, USA, San Francisco in USA, Scotland	McDonalds, Coles and Woolworths, Weatherspoon, New World, Tesco, Pizza Express

4	Toxic substances in products such as thermal papers, amalgam fillings, pesticides, antibiotics use in livestock, asbestos, flame retardants, perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS) in firefighting foams, tetrachloroethylene (PERC) used in dry cleaning	New Zealand, China, Canada, San Francisco in USA, Queensland	McDonalds, Walmart
5	Nuclear power	Germany, South Korea, Switzerland	-
6	Biofuel	EU	-
7	Incandescent light bulbs	California in USA	-
8	Ozone depleting substances such as HCFCs and Freon	India, USA, Pakistan	-
9	Waste imports	China	-
10	Second hand clothes	Rwanda, Kenya, Tanzania, Uganda, Burundi	-
11	Ivory trade	Hong Kong, China, EU	-
12	Food waste	France	-
13	Deforestation	Norway	-

Conclusions

Although many of the influencing factors may not be currently applicable to India at this moment, it is hard to say that they won't catch up to us if we are not careful in how we develop our country, especially when we want 'Make in India' to be successful, a campaign by Government of India to boost indigenous manufacturing. India being an exporter as well as an importer, it is our collective responsibility to care for our environment, resources, and people.

We have only scratched the surface when it comes to policy, innovation, engagement, collaboration, and remediation. More work needs to be done, and it has to be done on several levels and is down to no single entity. It goes beyond individuals and spreads across supply chains. The Sustainable Development Goals (SDGs), otherwise known as the Global Goals, are a

universal call to address the consequences of the choices we make.

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Assessment of Service Quality of Select Hospitals in Bengaluru - with reference to Outpatient Services

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Key Words:

Hospitals;
Service quality;
SERVQUAL;
Healthcare.

Abstract :

The service industry plays an increasingly important role in the economy of many countries. In today's global competitive environment, delivering quality service is considered as an essential strategy for success and survival (Parasuraman et al. 1985; Reichheld and Sasser, 1990; Zeithaml et al. 1990). Health care managers are increasingly under pressure to have 'customer centric' practices that are directed towards providing best medical services to their clients for the hospital to be successful.

The purpose of this paper is to measure service quality of select private hospitals with reference to outpatient services. This paper assesses patient's expectation and satisfaction pertaining to hospital service quality with special reference to OPD. Data collected from

192 patients of 10 hospitals are analyzed using SERVQUAL model. The model compares patients perception and expectation of services received across five dimensions of service quality like tangibility, responsiveness, assurance, reliability and empathy. The result of this study reveals that overall service quality score is positive; however there were service quality gaps in all the dimensions of the scale. The service quality level of the out patients in the hospitals is moderate, in addition the largest positive gap between patient's perception and expectation is in terms of tangibility and responsiveness the largest negative gap is empathy and assurance. The findings help the hospital management team to understand areas of improvement towards better health care.

Introduction

In today's changing and developing global world, organizations are facing fundamental challenges of survival and success in the VUCA world. This competition focuses on before and after services of business to create a unique competitive edge.

Service industry contributes 57 percent to India's GDP and has emerged as the largest and fastest growing sector of the economy. Service sector has also substantially contributed to foreign investment flows, exports and employment. In 2016, the Indian healthcare market had a turnover of \$110 billion and is expected to touch \$280 billion by 2020. (Global exhibition on Services-CII Report, 2016).

Healthcare delivery constitutes 65% of the overall Indian healthcare market. Due to this phenomenal growth of service sector in modern India, the importance of service management and service quality is also expected to excel.

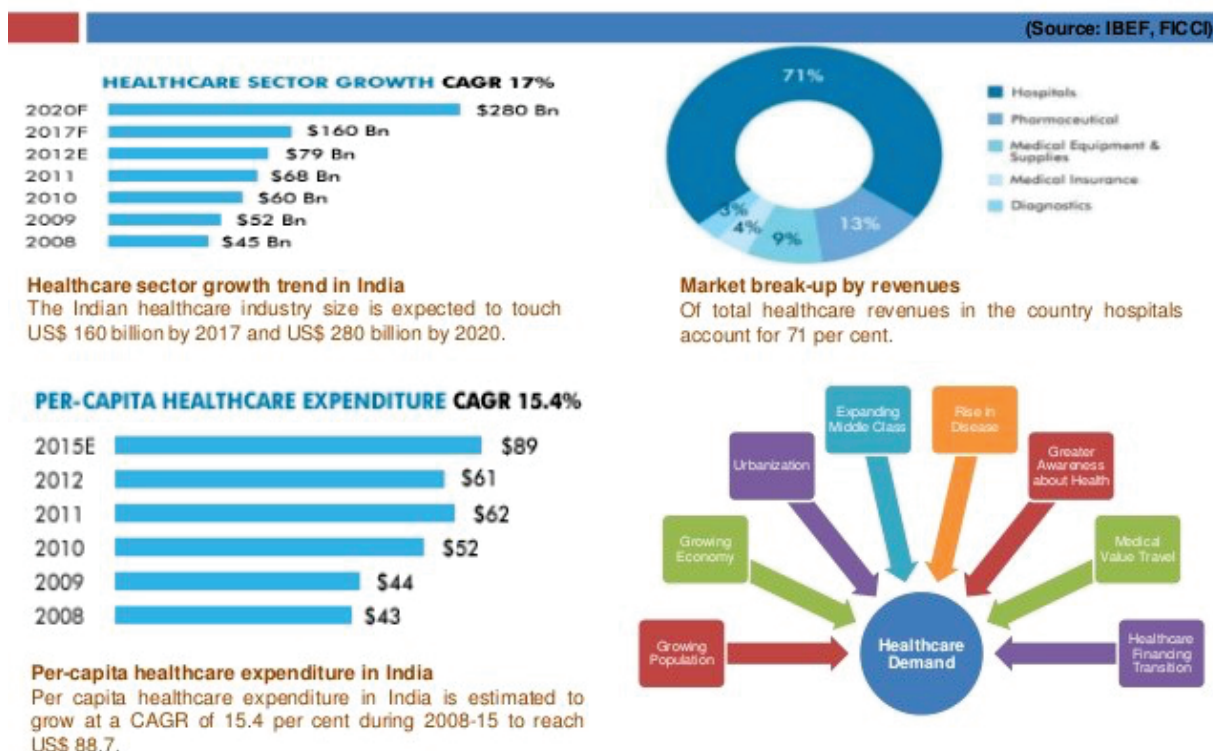
Indian health care delivery system is categorized into two major components- public and private sector, the

private sector provides majority of secondary and tertiary care institutes with major concentration in major metros, tier1 and tier2 cities.

According to estimates, the overall Indian health care market today is US\$ 65 billion, of which the hospital supplies and health care equipment segment is believed to be only around US\$ 4.5-5 million. Health care delivery, which includes hospitals, nursing homes and diagnostics centers, and pharmaceuticals, constitutes 65 per cent of the overall market.

Chart 1: Growth of health care Industry in India

Overview and Trends



Source: IBEF, FIC CI

The average investment size by private equity funds in healthcare chains has increased to US\$ 20-30 million which was around US\$ 5-15 million, said Mr. Abhishek P Singh, Associate Director for Healthcare, Price water house Coopers (PwC). There is a significant scope for enhancing healthcare services considering that healthcare spending as a percentage of GDP is rising.

Though the scope of health care market is promising, there are resource constraints under which services hospitals must function, it has become essential for hospital managers to understand and measure consumer perspectives, so that any perceived gaps in delivery of services is identified and suitably addressed.

Health care industry has two dimensions of quality - Technical quality and Functional quality. Technical quality refers to the accuracy of medical diagnoses and procedures and is generally related to professional quality. Functional quality is essentially how all the services are delivered to the patient.

Numerous studies have shown that provision of high quality services are directly related to increase in profits, market share and cost saving (Devlin &

Dong, 1994) with competitive pressure and the increasing necessity to deliver patient satisfaction, the element of quality control, quality of services and effectiveness of treatment have become virtually important. Service quality and management determines customer satisfaction, a popular definition of 'service quality' is conformance to consumer expectation.

This study was conducted at peripheral service hospitals for a period of 2 months to ascertain any perceived service gap between consumer expectation and perception about quality of the OPD services offered by 10 hospitals in urban Bengaluru.

Literature Review

According to Parasuraman et al.(1988), service quality can be defined as an overall judgment similar to attitude towards the service and generally accepted as an antecedent of overall customer satisfaction (Zeithaml and Bitner, 1996). Parasuram al.(1988) have defined service quality as the ability of the organization to meet or exceed customer expectations. It is the difference between customer expectations of service and perceived service (Zeithaml et al. 1990).

Perceived service quality results from comparisons by customers of expectations with their perceptions of service delivered by the suppliers (Zeithaml et al. 1990). If expectations are greater than performance, then perceived quality is less than satisfactory and hence customer dissatisfaction occurs (Parasuraman et al. 1985; Lewis and Mitchell, 1990). Services unlike tangible products are produced and consumed at the same time in the presence of the customer and the service provider.

The presence of the human element during the service delivery process greatly increases the probability of error on the part of employees and customers. This error is due to intangible behavioral processes that cannot be easily monitored or controlled (Bowen, 1986).

However, although a substantial amount of service quality research has focused on service customers' perceived service quality (Parasuraman et al. 1988; Carman, 1990; Parasuraman et al. 1991; Babakus and Boller, 1992; Cronin and Taylor, 1992; Babakus and Mangold, 1992), relatively little attention has been paid to exploring the factors that impact on service employees' behaviour with regard to delivering service quality. More than two decades ago, Surprenant and Solomon (1987) stated that service encounters are human interactions. They suggested that customers and service providers have roles to play during and possibly after service encounters and that these roles are based on "interpersonal interactions" between organizations and customers. Service quality in all service encounters is thus intrinsically affected by the perspectives of both the service provider and the service receiver. Similarly, Czepiel (1990) concluded that research on service quality must always include the perspectives of both the provider and the receiver. However, most research on the service quality construct has been restricted to one perspective: that of the service receiver (Parasuraman et al., 1988). A few have applied dual perspectives and considered interactive features of service quality in service encounters (Tam and Wong, 2001; Chow-Chua and Komaran, 2002; Dedeke, 2003; Svensson, 2004, 2006).

Because service delivery occurs during the interactions between contact employees and customers, attitudes and behaviours of the contact employees can influence customers' perceptions of service quality (Schneider and Bowen, 1985). Moreover, it is found that perceived employee satisfaction, perceived employee loyalty, and

perceived employee commitment had a sizable impact on perceived product quality and on perceived service quality (Jain & Gupta, 2004).

According to Zeithaml and Bitner (1996), contact employees represent the organization and can directly influence customer satisfaction, they perform the role of marketers. Whether acknowledged or not, service employees perform marketing functions. They can perform these functions well, to the organization's advantage, or poorly, to the organization's detriment. Service providers should encase on the opportunity to build effective services and also the way in which those services are delivered.

Customer actions, reactions and other characteristics can have a profound influence on the actions and mannerisms of front line service personnel (Solomon et al. 1985; Matzler et al. 2004). Customers largely establish their impressions of the organization's level of service provision based on their encounters with FLE (front line executives). Therefore employees involved in the delivery of front-line services can provide valuable information for improving service. FLE are knowledgeable about the strengths and weaknesses of the service through their contact with customers and this is an important form of feedback that can be used by organizations in decision-making to better serve customers.

In her study "Service quality perspectives and satisfaction in healthcare system - A study of select hospitals in Hyderabad" Priya Deshpande investigated in six hospitals. Of the hospitals selected for the study, three were government hospitals and three were private hospitals. The main aim of the study was to evaluate the service quality of select hospitals and to compare quality across hospitals especially those of government and private hospitals. In the study, 200 customers were selected to collect the primary data of research. The finding of the study is that the performance of private hospitals is better than those of government hospitals.

In their study on "Service quality in a cellular telecommunications company: a South African experience", R. W. E. van der Wal, A. Pampallis and C. Bond, studied the measurement of service quality cellular retail outlets in the South African environment. The focus is on perception and expectation of service quality from the customers perspective. The research reveals that delivering high quality service is closely linked to profits, cost

savings and market share in many industries. Several studies conducted in South African business environment have concluded that SERVQUAL is a reliable instrument for the measurement of service quality in South Africa. This is supported by the fact that the customer satisfaction of this study resulted in a total scale reliability of 0.95, which is a strong indicator of reliability compared to the Parasuraman, et. al. study (1984), which indicated a scale reliability of 0.92.

Methodology

The study was conducted at 5 private hospitals with peripheral services and basic specialist facilities by designing a cross sectional study of patients attending the OPD of the hospitals, using the SERVQUAL questionnaire. SERVQUAL is designed to measure quality expectations and perceptions about quality of services using 22 items representing five dimensions, using a seven-point Likert scale:

1. Tangibles – physical facilities, equipment and appearance of personnel.
2. Reliability – ability to perform the promised service dependably and accurately.
3. Responsiveness – willingness to help consumers and provide prompt service.
4. Assurance – competence, courtesy and security.
5. Empathy – caring and individualized attention.

SERVQUAL measure states that the customer's assessment of overall SERVQUAL is established by the degree and direction of the gap between their perception and expectation of actual performance levels.

Perceived SERVQUAL = Customer Perception – Customer Expectation.

This scale has been extensively used in India to measure the quality of services provided by retail stores (Kaul, 2005) Telecommunication companies (Mahadaviah, 2005), Hospitals (Despande, 2006) Hotels (Sivakumar and Srinivasan, 2003) Fast food restaurants (Jain and Gupta 2004).

Objectives of the Study

- To identify the dimension of SERVQUAL that ensures maximum satisfaction for customers in private hospitals using OPD services in Bangalore.
- To identify differences in service quality of private hospitals in Bengaluru

Accordingly, the **Hypothesis** of the study is

- H0- There is no relation between service

quality performance and customer satisfaction of OPD services.

Sampling

The study population was the patients who had finished their doctor consultation and were waiting for their medicine supply. The total respondents who were asked to fill up the questionnaire were 100 patients but 92 of them were usable, they were patients who had come to hospital for OPD services of 5 private hospitals in Bangalore.

Results and Discussions

Table No-1: Demographic Profile of respondents

Gender	Number of respondents	Percentages
Male	36	39%
Female	56	61%
Age groups		
20-29 years	19	20%
30 to 39 years	36	40%
40 to 49 years	23	25%
50 and above	14	15%
Occupation		
Student	10	11
Service-Govt and Private	41	44
Professionals	19	20
Business	16	18
Others/ specify	06	07

Table no1 depicts the demographic profile of the respondents, where there were 61% of female and 39% of male respondents, the age group of majority of respondents were from 30 to 49 years who comprised of 65%, and respondents occupation was either in services in Government or Private sector companies. More than 50% of the respondents had visited the hospital once before the current visit of the study.



Table 2: SERVQUAL dimension scores of Hospital outpatient department services

Dimension	Conbach's Alpha	Expectation (E)	Perception (P)	P-E Service gap	P value
Tangibles	0.78	6.61	6.06	- 0.55	0.001
Reliability	0.72	6.38	6.34	- 0.04	0.01
Responsiveness	0.68	6.53	5.88	- 0.65	0.1
Assurance	0.69	6.59	6.31	- 0.28	0.46
Empathy	0.81	6.39	6.28	- 0.11	0.15

Total un weight SERVQUAL score is -1.63 p value < value 0.05 is considered statistically significant

To confirm the reliability and internal consistency of the study instrument, Cronbachs co-efficient alpha was calculated for each dimension of the study (Table 1)

By using SERVQUAL instrument, expectation (e) and perception (p) of each respondent was assessed according to 18 items and the service quality gaps evaluated by measuring the gap score(p-e)The score on each dimension of the scale was the calculated as the means of the corresponding items scores and mean expectation and perception values of each dimension was tested for differences between mean scores of dependent samples at 0.05 level of significance by analyzing the data using SPSS.

Finally, the mean expectation (e)and perception (p) score as well as gap scores of each of 18 items was examined and similarly analyzed for testing differences between the mean value for statistically significance, so as to correctly identify the service quality gap in respect of OPD services being studied.

Table 3: Item score analysis of expectation and perception of service quality of OPD services

Dimensions	E	P	P-E	P value
Tangibles				
1.Modern equipment	5.24	6.74	1.50	<0.001
2.Physical facilities	6.04	6.50	0.46	<0.009
3.clean and hygiene	6.68	6.38	-0.30	<0.041
4. Smart staff	6.66	6.30	-0.36	<0.003
5. Reasonable wait time	6.50	6.53	-0.03	<.0001
Reliability				
6.sympathetic to patients	6.52	6.62	-0.10	
7.punctual OPD staff	6.24	6.24	0	
8.accurate OPD records	6.00	6.00	0	
Responsiveness				
9 easy appointment to specialists	6.64	6.34	-0.30	

10.prompt services	6.64	5.50	-1.14	<0.0001
11.staff willing to help	5.80	5.68	0.12	<0.001
Assurance				
12. Trust OPD staff	6.46	6.20	-0.26	
13. Feel safe	6.48	6.28	-0.20	
14.polite OPD staff	6.74	6.52	-0.22	
15. adequate support by hospital	6.58	6.24	-0.34	0.045
Empathy				
16. individual attention to patient	5.56	5.48	-0.12	
17.OPD staff aware of needs of patients	5.76	5.96	-0.20	
18. convenient working hours	6.72	6.62	-0.10	

*p value ,0.05 is considered statistically significant.

Discussion

In Health care sector, service delivery has to be qualitative, in accordance to the customer expectations. Specially functional quality is emerging as a critical issue , as this study throws light on hospitals not having good understanding of customer expectations. Service quality is being increasingly expressed as a function of consumer expectation of services to be provided compared with their perceptions of the actual service experience (14). Thanks to internet, customers have become more knowledgeable about medical and health care services increasing their expectations on hospitals services. The high expectations scores, where mean scores across majority of the items are above 5.5 on 7 point scale high quality service expectations of customers at the hospitals.

The results of service encounter is the satisfaction gaps of the customers against thier expectations and the actual service perceptions. Mean perception scores observed gives conflicting results, with scores among majority of survey items being less than the expectations expect against two items in '*tangibles'-physical facilities, and modern equipment*'. These findings demonstrate that the patient's perception of offered services was falling short of their expectations in all aspects of the SERVQUAL scale of the OPD services. The study findings is similar to the findings of a study conducted by Lam, (16) where gap scores were observed in the dimensions of reliability, responsiveness, assurance and empathy.

Service quality gaps across the dimensions of 'tangibles' was observed to be statistically significant at <0.001. The gap score of all items indicates appreciable deficiencies, which can be a areas of improvements of OPD services in the hospitals.

Consumer ratings for paired expectation and perception scores is observed to be similar in reliability items.

Statistically significant quality gaps are also identified in 'responsiveness' in prompt services and 'access to specialist'. This gaps can be referred to the requirement for additional resources and training of the OPD staff on customer service.

The dimension of 'Assurance' also indicates quality gaps , giving scope for improvements in those areas, however, statistically significant gap exists across the item 'adequate support by staff'. This perception needs further analysis and probing to understand the reason of this gap.

The dimensions of 'empathy' too have significant quality gaps, but there is reasonable convergence in the E/P scores.

The study had significant implications for the hospital management, as service quality gaps of five dimensions were identified thus directing focus on areas of improvements efforts to make OPD services more customers friendly.

Conclusion

This study is exploratory by nature, which holds light of quality gaps in our health care sector, which can be worked upon to make the patients more comfortable and happy. However, some criteria like severity of illness, doctor's characteristics and treatment were not taken into consideration which could have an impact on the responses given.

Scope for further studies

- This study can be undertaken on a larger scale to get stronger insights across different cultures and states.
- Comparison of public and private hospitals in India related to service quality gaps can be studied to improve the performance of health care sector.
- Service quality gaps of Health care sector of in-patients can be yet another study.

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Supporting evidence for Product Life Cycle Extension on Used Cars

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Key Words:

Product life cycle extension, used (pre-owned) cars, environment.

Abstract :

The ever-growing automobile industry has improved standard of living in India by providing us the means to commute, but nevertheless with problems affecting the environment and disposal of the vehicles after its useful life. The paper is an attempt to understand the product life cycle (PLC) of used cars. Used car category of vehicles passes through multiple owners, during the process the useable life of the vehicle gets extended benefitting all the associated stakeholders. Qualitative and Quantitative evidences gathered across various forums support the fact of product life extension among the used car category.

Introduction

The automotive industry is one of the largest industries worldwide and also in India. India's automobile industry is one of the fastest growing in the world and it is the sixth largest globally. According to a SIAM report, annual car sales could reach 5 million vehicles by 2015 and more than 9 million vehicles by 2020, but by FY 2017 the car production were 4.61 million, inclusive of Passenger and Commercial Vehicles; compared to production in FY 2001, which were (just) 7,95,899 vehicles in this category. The first automobile in India rolled in 1898 in Bombay then (renamed as Mumbai) and now there is a car for every 100 persons, while for China it is 82. The automotive sector drives upstream industries like steel, iron, aluminum, rubber, plastics, glass and electronics, and downstream industries like advertising & marketing, transport and insurance.

Indian auto industry, which is currently growing at the pace of around 18% per annum, has become a hot destination for global auto players like Volvo, General Motors etc. The regulatory environment has been liberalized by implementing Auto Policy in 2002 and demand has picked up phenomenally. The total turnover of the Indian automotive component industry (comprising of tier 1, 2 & 3) stood at USD 43.5 billion in 2016-17 and Automotive sector contributes 7.1% to GDP (manufacturing) of India.

Increase in disposable income was perceived as the key factor driving passenger car demand. But over time, other factors included the need for greater mobility, non-availability of public transport services, availability of cheap finance, development of the used-car market, introduction of new technologically superior models, increasing levels of urbanization, and changing consumer profiles were also the driving factors for passenger car market.

Current state of used car market in India

According to estimates in the US, for every new car sold, around three used cars are sold (1:3). In Europe, this ratio is 1:2, while currently in India it is 1: 1.1 and expected to increase. In Europe and other mature markets, the number of intended new car buyers is increasing, while the number of intended used car buyers is declining. In India, it's a reverse trend that can be attributed to the rising cost of fuel and increasing disposable income. Though the general economic slowdown has hit new car sales numbers, the used cars market has seen an uptrend, clearly indicating that used cars will continue to move forward.

There are several reasons for the evolution and subsequent shift and growth of the used car market in India. Among them the key attributed reasons are as follows:

- **Improved quality:** Used cars available now-a-days have improved and hence, longer life due to technological advancements.
- **Better maintenance:** Due to improved quality

and performance of mechanical parts, today's cars are easier and better to maintain. Even a used car with 40,000-50,000 km on the odometer will be much easier to maintain than a car with similar mileage 8-9 years ago.

- **Less usage:** Several urban families have more than one car. And the second or third car is relatively less driven and well kept. These are great used cars to be bought and offer excellent value for money to car buyers.
- **Internet access:** With easy availability to high speed internet, more and more people are able to buy or sell cars on the web. Search costs have also come down, thereby, reducing the dependency on word-of-mouth advertising.

Product Life Cycle

The fundamental approach of used cars is towards extending Product life cycle. Product life cycle indicates the different stages the product travels from when it changed into first idea until last is expelled from the marketplace. Not all gadgets reap this closing stage. Some proceed to develop and others rise and fall.

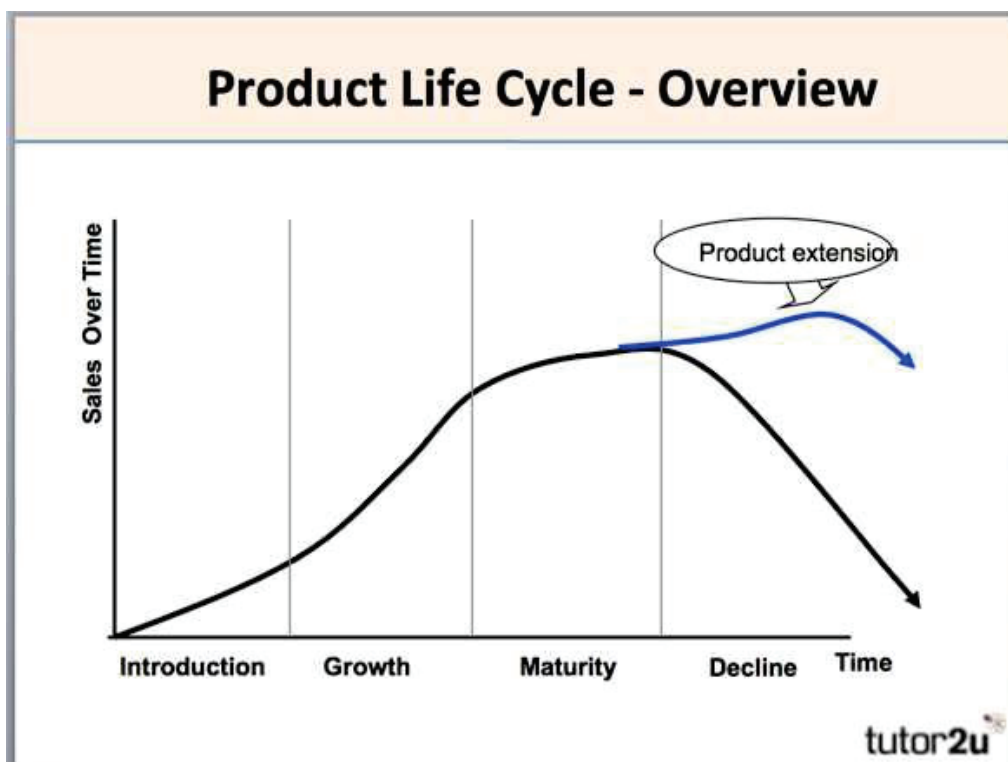
The fundamental phases in the life cycle are: Introduction, Growth, Maturity and Decline. The product existence cycle is a vital tool in understanding and developing marketing and production strategies. It depicts the stages an object reviews from while it was first idea and until it is

expelled from the marketplace. Not all products obtain this final level. Some continue to develop and others just fall.

Environmental concerns with respect to global warming, environmental issues raised across various forums cannot be overlooked. Other countries are monitoring the usage of resources and emission of exhaust gases in terms of carbon foot prints which is impacting the global environment which is a serious concern.

Product life cycle extension techniques develop the life of the item before it goes into decay. Product life cycle extension methodologies include corporate rebranding, innovation, value increasing and looking for new markets. More complex rebranding endeavors can include new promoting methodologies, huge advertising (PR) and on-line networking.

Companies and their promoting professionals watch out for the life cycle of an item. As such, when an organization discharges another item, they do as such understanding that the object will revel in a specific life cycle. As that existence cycle nears an end, the employer must pick out what to do: renounce the object internal and out or extend the existence push of the item via diverse methodologies.



CT Life Cycle Extension

Importance of product life cycle expansion

“Rich people buy new cars, intelligent people buy second-hand cars,” said Khattar, the founder of Carnation Auto, a service and used-cars company he started in 2008. The used car market, he said, is the future of automobiles.

The product life cycle expansion is an imperative idea in promoting. It depicts the stages an item experiences from when it was first idea till it at long last is expelled from the market. Not all items achieve this last stage. Some proceed to develop and continue.

The very necessary to study on product life cycle extension in the field of pre-owned car segment is to emphasize more on the life span of a particular model of a pre-owned car it is the indicator of the future need and progressive market in the upcoming days.

Understanding the life cycle of an item is imperative to a business for various reasons. One essential reason is that understanding the PLC will enable a business to deal with its money to be stream.

Maruti true value, Hyundai H Promise have a great reputation in the market, henceforth the trust gained by the company can be advantage of the study by pushing the pre-owned car segment little more further into deep understanding of how can a declining model can be extended for certain period of time from the study.

The product existence cycle essentially describes the evolution of a product, as measured through its sales through the years. Every product passes through a series of tiers inside the direction of its life, with the whole of the stages considered as the product life cycle. At any given time, consequently, every product is located within one or 4 existence-cycle stages--Introduction, Growth, Maturity, and Decline.

There has been emphasis in the literature, the product life cycle is studied as a qualitative concept. These writers recommend the use of the product life cycle as a framework for management analysis, however fail to keep in mind issues encountered within the measurement of product life cycles. In a multiproduct company, operating inside a selection of market structures, there may be a need to expand techniques for allocating the confined assets of the company in an optimum way.

In both structural and quantitative shape, a product lifecycle model emphasizes the examination of product evolution. Lack of knowledge by the customers about the life expectancy of the cars leads to the major problem for used cars segment. Customers may not be aware of the facts and with their less interest leads to the very low market share, there is a tremendous shift within the consumer buying cycle away from offline purchases at a dealer's showroom towards taking advantage of online sites such as OLX and CARWALE. Hence the need to retain customers through proper analysis of product life cycle for used cars is very important.

Evidence For Product Life Cycle Extension

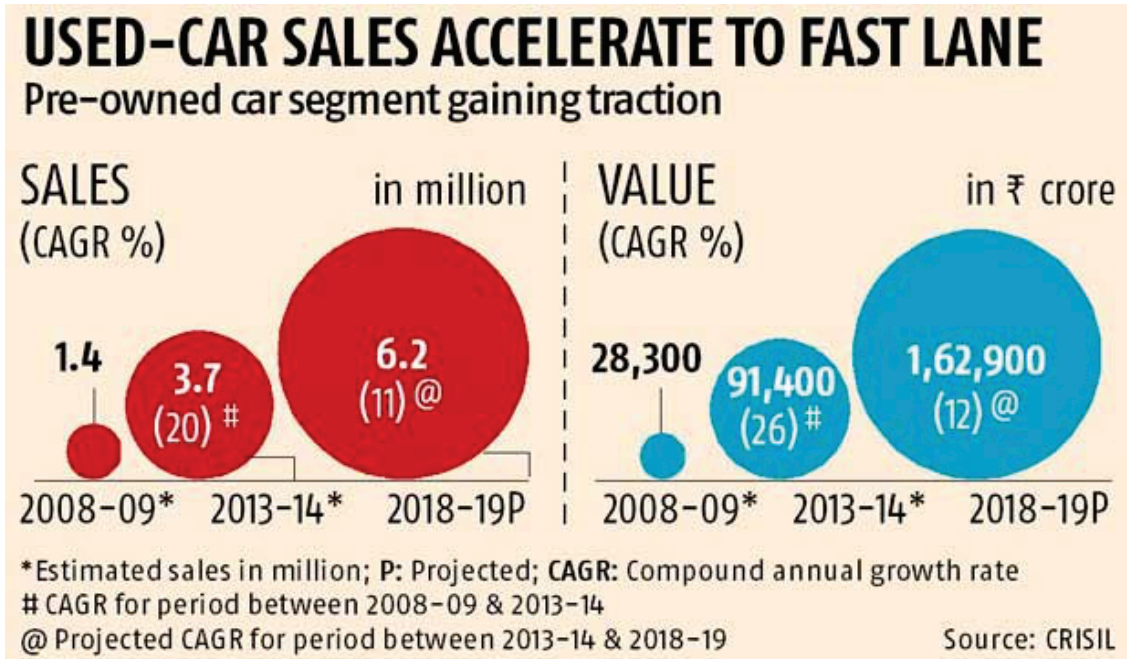
CRISIL's data for used car sales as inputs from various organized used car dealers are from Mahindra First Choice, Maruti True Value, Hyundai H Promise, Carnation Auto are some of the used car players in the organized segment.

The rise in demand for used cars has overtaken even organized players. "The average holding period has come down to three years, from about five to six years earlier. With increasing per capita incomes, more and more people will explore the proposition of buying a used car, whether it is their first car or not. Till now, it is believed that the used-car market was 1.2 times the new-car market, but latest statistics suggest this ratio might be much higher," says Rajeev Dubey, group president (human resources & corporate services) and chief executive officer (aftermarket sector) at Mahindra & Mahindra. "Used-car sales volumes have grown at a CAGR (compounded annual growth rate) of about 15 per cent over the past five years till 2014-15. Although the ratio of sales of used cars to new cars in India has risen over the years, it is still lower than the 3:1 norm that is typical of mature markets like the US and Europe, indicating potential for further growth," added CRISIL.

The projected sales (CAGR) for the year 2018-19 is 6.2 million and in value terms it is ₹1,62,900 crores. The pictorial representation indicates the growing trend and it is significant. The analysis clearly indicates that there is sufficient evidence for the used car market in terms of sales and market value.

Car Pooling

Car Pooling is sharing of car journeys, so that 4-5 members travel in the car. By doing so, it becomes environmental friendly by reducing air pollution, carbon emissions, traffic congestions and need for parking spaces. The Odd-Even formula in city of



Delhi is one such initiative aiming towards car pooling. It is also towards becoming environmental friendly and hence sustainable way to travel as sharing will have positive impact on the environment.

In 2016, Carpooling represented 43.5% of all trips in the United States and 10% of commute trips. The majority of carpool commutes (over 60%) are "fam-pool"; A carpool composed of members of the same family with family members.

Carpool commuting is more popular for people who work in places with more jobs nearby, and who live in places with higher residential density. Thus, the very concept of car pooling increases the vehicle usage for multiple passengers and thereby discouraging individual (personal) passenger vehicles. As the number of kilometers travelled increases, which has direct relation with the usage of the vehicle is also in a way supporting evidence for product life extension. Carpooling approach has to be similar to running a public transport that has to be well promoted and supported by the government in the form of separate lane, no toll on highways to pick up adequate response. It is a win-win situation for all the involved stakeholders.

Environmental Impact

Environmental concerns with respect to global warming, environmental issues arising from vehicular pollution effects, which have been raised across various forums cannot be overlooked. Globally countries are monitoring the usage of resources and emission of exhaust gases in terms of carbon foot prints which is impacting the global environment and a serious concern. The carbon foot print of making a new car is immensely complex and

more than the pollution it causes during its operations. (source: www.guardian.com). Associated health concerns because of pollution leading to respiratory diseases, cardiovascular problems, stress, tension leading to psychological disorders are major ones.

The life of the car begins and ends at the factory. The average life of the car on Indian roads is 10-12 years and for running about for 2,00,000 km. If the life of a car is extended by another user (used car market) the life can be further extended with proper service and maintenance.

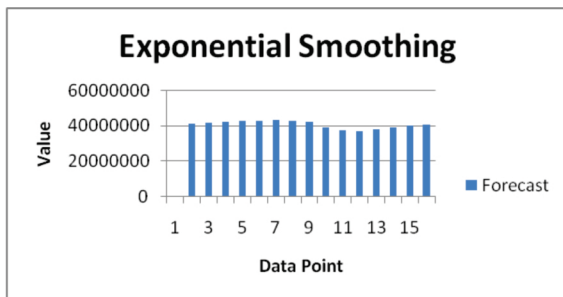
The approach of any kind of transport system should be towards sustainability. Specifically, if it is about how social, environmental and economic systems interact together to their mutual advantage or disadvantage at various space-based scale operations. (Transportation Research Board). Sustainability is “the capacity for continuance into long term future”. Anything that can be done indefinitely is sustainable which takes care of the environmental factors. The product life extension is in away taking care of environment and it has its own contribution.

Online sale data

Carwale, ebay, cardekho.com are some of the websites that deal with buying and selling used (or pre owned) cars. These websites collectively contribute to overall sales significantly. Data on online sales are analyzed to extract the findings and provide evidence on product life extension. The exponential smoothing values are valid evidence that used car sales are on the upward trend in the near future.

A Historical Perspective and a Future Prediction on Used Car Sales

YEAR	SALES	ESTIMATION
2000	41620429	#N/A
2001	42624116	41620429
2002	43025087	42122273
2003	4357165 2	42573680
2004	42706103	43072666
2005	44138263	42889384
2006	42565544	43513824
2007	41418561	43039684
2008	36530404	42229122
2009	35589149	39379763
2010	36883987	37484456
2011	38792169	37184222
2012	40500000	37988195
2013	41000000	39244098
2014	41250000	40122049
2015	38276140	40686024



Source: <https://www.thoughtco.com/used-car-sales-figures-308387>

Customers’ opinion of used cars

Till about a decade ago, in the absence of organized players, more than 60 percent of all used car sales were C2C (customer to customer) among friends and relatives, with a 'Circle of Trust'. The remaining sales were managed by local unorganized dealers. In 2001, Maruti became the first major organized player to enter the market with the launch of its used car brand – Maruti True Value. Other factors responsible for the increasing popularity of used cars are the multitude of quality choices available coupled with an increase in income. All this has created a situation where people want to upgrade their vehicles more frequently. The paradigm shift from buying new cars to used cars can be attributed to the increasing organization of the pre-owned car players. Apart from these obvious reasons, there are other benefits that make buying a pre-owned car a

popular practice, such as lower rate of depreciation, easy finance options, and hassle-free documentation along with clean history.

Expansion of organized used car players: With the organized players stepping in, the used cars market has benefited from fair deals, warranties, better retail network, credibility, transparency, easy availability of finances. Most of the used (pre-owned) car showrooms provides an assurance that all cars sold through their showrooms are bought by the right people. Hence, both the seller and buyer are assured of their investment. These have all made buying a used car easy. Organized used car showrooms also allow prospective customers to pick and choose cars from various brands and segments.

Primary data have been collected from about 100 customers about their opinion about used cars at a renowned showroom. The data collected and the analysis derived there-on will validate and substantiate the concept on product life extension.

The feedback of the customers of used (pre-owned) cars were good to the extent that 97% of the customers will recommend to other people in favor of the used car market. This indeed is a good promotional tool for product life extension. 70% of the respondents said the condition of the car at the time of purchase was good. 60% of the respondents said they intend to keep the vehicle for 2 to 5 years. The descriptive analysis on the demographics reveals that the economical prices of pre-owned cars help all types of buyers. Customers suggest that there should be focus on the price strategy for extending the Product life cycle because of re-launch of pre-owned car will be successful only when once it is clear and transparent with the value what customers can get from it, as many deals were not completed because of price issues.

Conclusion

Every product goes through various stages in its life. An extension of its life cycle to a few more years is seen as an added benefit to the customers, manufacturers and to the society. Product life cycle extension approach is an excellent opportunity to online platform and also used car showroom. This case as evidence have proved that there is enough scope for product life extension in this used (pre-owned) car category. Many of the used car showrooms accumulate lot of stock, which in turn blocks the capital, it has to be wisely balanced between holding stock and demanded stock.

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- <https://www.theguardian.com/environment/green-living-blog/2010/sep/23/carbon-footprint-new-car>
www.team-bhp.com
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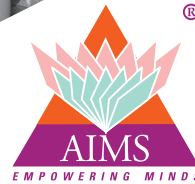
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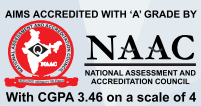
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