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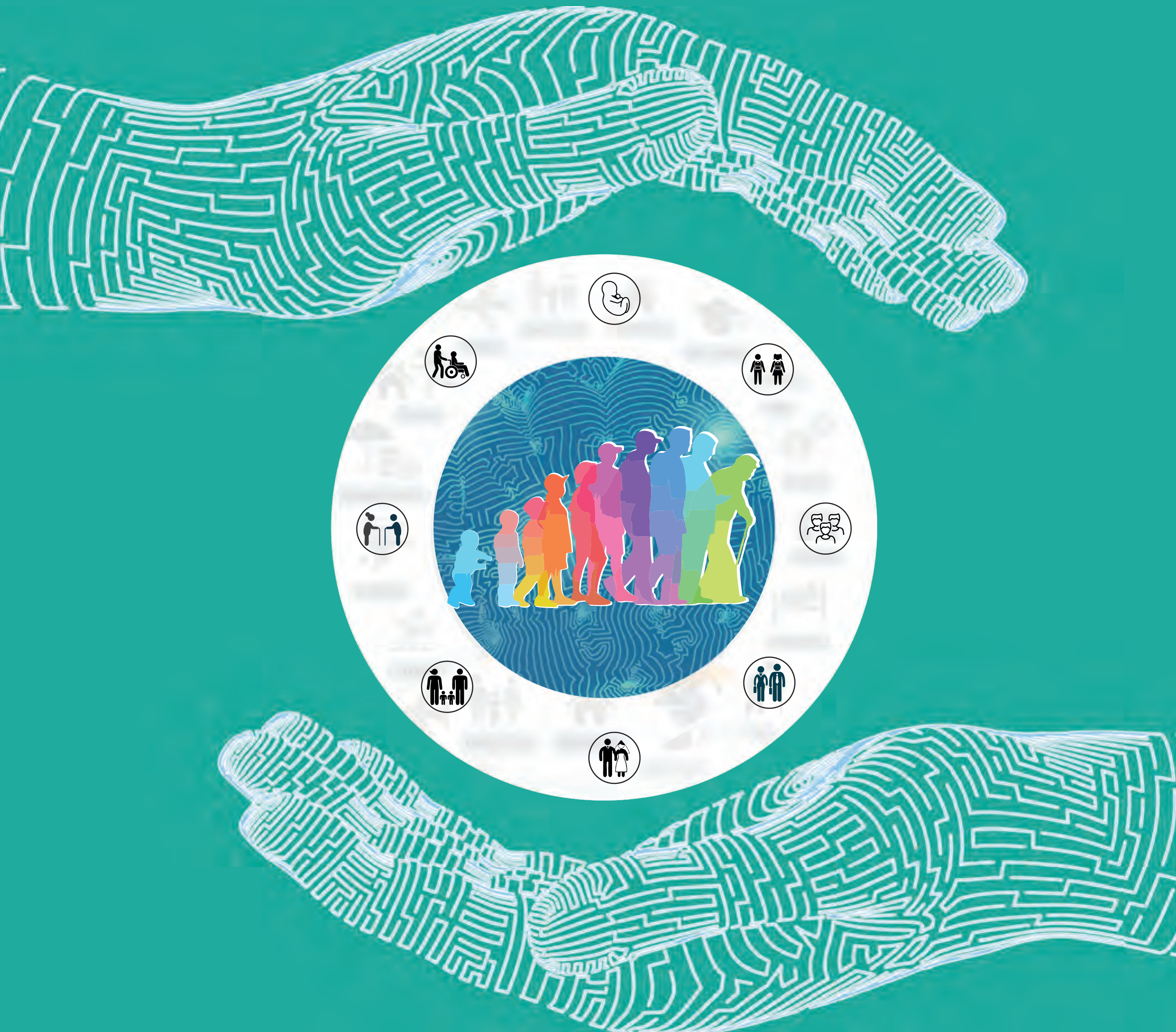
Vision Zero - Role of Insurance



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EDITORIAL

A few months back, a traffic policeman was transferred from his place of posting.

There is a practice in Tamil Nadu and some other places, of smashing a white pumpkin on to the ground to ward off Evil spirits. Shopkeepers and others found it convenient to smash the pumpkin on the road in front of their establishments. On certain days the roads used to turn slippery because of a large number of pumpkins being so smashed. Since it was causing accidents, an order was passed prohibiting the roads from being used for this purpose.

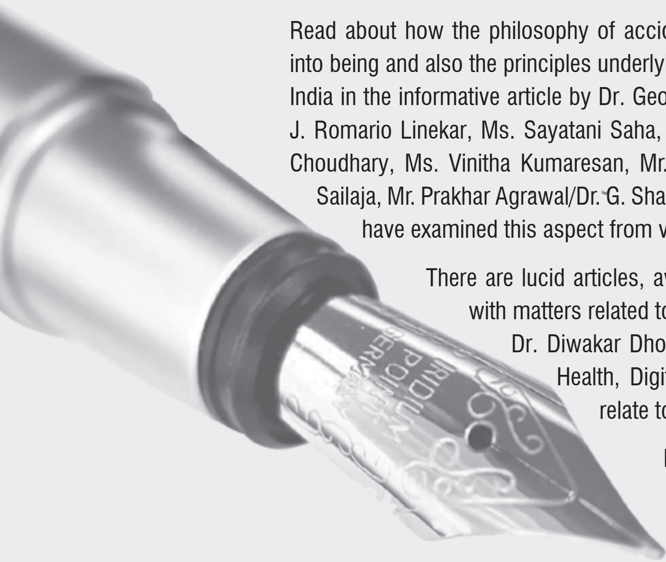
So how is the transfer of the policeman related to smashing off pumpkins on the road? Apparently they are two unconnected events.

According to news reports, the policeman had identified a few points on the road which came within his jurisdiction, of being highly accident prone. As a quick solution he resorted to the age old practice of smashing pumpkins after doing the necessary rituals at these locations. When news got around of this, there was a lot of criticism about the unscientific nature of his actions and therefore was immediately moved from his current posting.

This is the story of a concerned policeman who took recourse to a traditional practice to drive away, according to his beliefs, evil forces which were causing accidents at certain spots of the road.

Vision Zero Is a concept which gained traction when Sweden in 1997 decided to evolve a philosophy of zero tolerance for road accidents. It moved away from the cost benefit analysis of road projects and instead insisted on involving a way of thinking by which emphasis was on avoidance of accidents. All along we have thought of road accidents as something unavoidable. The result was an apathy towards accidents. Mounting accidents resulting in increased deaths and injuries were taken to be inevitable. The misery these happenings caused to individuals, their families, the society etc, were sort of ignored. The concept of Vision Zero sought to change this thinking.

Insurance is a field which necessarily deals with accidents. Anything that results in lower accidents would have a positive impact on the industry. The value of lives saved would be incalculable. At the same time lower accidents would mean fewer claims and lesser outgo, thereby reducing the premium rates for policy holders. Thus, “Vision Zero - Role of Insurance” was chosen as the theme for this issue.



Read about how the philosophy of accident prevention was formulated much before the term came into being and also the principles underlying with what could be done by insurance and the regulator in India in the informative article by Dr. George E. Thomas. Articles by, Mr. Surendra Jagga, Mr. Gadvala J. Romario Linekar, Ms. Sayatani Saha, Dr. Bhavin K. Rajput/ Prof. Ketan R. Upadhyay, Dr. Manisha Choudhary, Ms. Vinitha Kumaresan, Mr. Sunil Kumar Mishra/Ms. Pritama, Mr. Naresh Kumar/Dr. P. Sailaja, Mr. Prakhar Agrawal/Dr. G. Sharma/Dr. P. Saxena/Dr. A. Saxena, and Mr. Venkatesh Ganapathy have examined this aspect from various angles and make interesting reading.

There are lucid articles, away from the theme of this issue of the Journal, but dealing with matters related to the insurance industry by Dr. Vijaya Desai/ Dr. Medha Joshi, Dr. Diwakar Dhondu Kadam, Dr. Viney Kirpal, Mr. N. Majumdar. Agriculture, Health, Digitalisation, among others are some of the areas the articles relate to.

I am sure, this issue of the Journal would be found to be interesting and informative.

Editorial Team

Vision Zero in India: Risk-Mitigation by Insurers

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Abstract

Vision Zero is a global strategy aimed at cutting down the fatalities arising out of accidents on roads and at workplaces to a minimum. Through an analysis of existing literature, this study highlights the role of insurance companies in achieving Vision Zero. Insurers can share their data-driven knowledge with policy/law makers and engineers to design better policies and safer products respectively. With the aid of technology, insurers can adopt behaviour-based pricing, thus motivating buyers to adopt safe behaviour. Through an analysis of accident scenario in India, it is found that there is an urgent need to adopt Vision Zero, which is still at a nascent stage. Indian Insurers are contributing in the preventive efforts through their awareness initiatives but still lagging behind in terms of behaviour-based pricing. Thus, it is recommended that AI-enabled, behaviour-driven pricing be adopted by the insurers to achieve long-term and sustainable risk-reducing behaviour.

Keywords

Vision Zero, Insurance, Accidents, Prevention, Behaviour-based pricing, Mitigation.

1. Introduction

Du Pont is regarded as the father of the safety philosophy, Vision Zero, when after an explosion in his gunpowder factory in USA in 1818, he developed a philosophy of safety which became a corporate culture and led to the growing use of safer products and safe technology to protect human life (Ehnes, 2019).

Later, the growing incidence of accidents worldwide led to the development of Vision Zero strategy. Vision Zero is based on the supremacy of human life over anything else. It aims at bringing the fatalities arising out of accidents to zero level. Accidents can occur at various places- at home, at workplace, on roads etc. and Vision Zero thus can be adopted under various scenarios. But the idea of Vision Zero has caught maximum attention in the context of road safety and workplace safety. Therefore, in the modern context, Vision Zero reflects an idea that accidents (at work and on roads) can be prevented if the right measures are taken. Even then if accidents do occur, they should not cause serious injuries or loss of life. The four principles on which this vision is based are- life is not negotiable; people make mistakes; the ability to cope with physical and mental pressure is crucial; situational prevention comes first (Ehnes, 2019).

1.1 Vision Zero: Road Safety

In the context of road safety, 'Vision Zero is a philosophy of road safety that eventually no one will be killed or seriously injured within the road transport system.' (Tingwall and Haworth, 1999). Sweden was the first country to formally adopt Vision Zero. In 1997, the Road Traffic Safety Bill (based on Vision Zero) was passed by large majority in the Swedish Parliament. Vision Zero envisions sharing of responsibility to minimize the occurrence of severe accidents and the fatalities arising out of them. Unlike the traditional philosophy, it does not put the burden of road safety solely on the road users rather is based on the realistic assumption that road users tend to make mistakes. As shown in Figure 1, Vision Zero aims at ensuring collective efforts by System Planners, Policy makers and Road Users to make the road system safe.

Figure 1: Vision Zero on road safety- A collective responsibility

Source: https://visionzeronetwork.org/about/what-is-vision-zero/

1.1.1 Spread of Vision Zero in the context of road safety

Starting with Sweden, Vision Zero has spread across Europe and other parts of the developed world. These countries include Norway, Germany, The Netherlands, United Kingdom, New Zealand, Singapore, Korea, Australia, Canada and major cities of USA (New York, Washington DC, Seattle etc.). The middle and low-income countries, which experience high road fatalities are also gradually adopting the Vision Zero strategy.

1.2 Vision Zero: Workplace Safety

The International Social Security Association (ISSA), which was established in 1927 advises its 340 members in 157 countries on all matters regarding the sustainability of social security systems. ISSA's "Vision Zero" is a transformational approach to prevention that integrates the three dimensions of safety, health and well-being at all levels of work. As per this Vision, a strong prevention culture can be built to eliminate the causes of accidents at workplace and occupational diseases. By eliminating these causes, work related accidents, harm and occupational diseases can be prevented. ISSA hosts the World Congress on Safety and Health at Work, together with the International Labour Organization (ILO).

ISSA's Vision Zero provides seven golden rules to ensure workplace safety and well-being. These rules highlighted in Figure 2 act as guidelines for various types of organisations that adopt the Vision Zero philosophy.

Figure 2: Vision Zero- 7 golden rules

Source: https://visionzero.global/sites/default/files/2017-12/2-Vision%20Zero%20Guide-Web.pdf

In 2015, ILO launched the Vision Zero Fund (VZF) to prevent and reduce the unacceptable number of workplace-related deaths, injuries and diseases.

Thus, to conclude it can be said that Vision Zero aims at reducing the serious injuries or loss of life arising out of accidents on roads, at workplace and out of occupational diseases.

2. Rationale, Objectives and Methodology of the Study

Given the importance of Vision Zero, it is pertinent to understand the role of various entities sharing the responsibility of reducing/ mitigating the loss of life and health. With a passing reference to the other entities, this study aims at highlighting the role and importance of Insurance companies in attaining Vision Zero. The objectives of the study are given below:

1. To develop an understanding about the role of insurance in attaining Vision Zero- both on roads and at workplace.
2. To present an account of the accident scenario in India.
3. To present an account of the initiatives taken by insurance companies in India to reduce the occurrence of accidents- both on roads and at workplace.
4. To suggest further areas that require action by the insurance companies in order to attain Vision Zero.

This is a descriptive study and uses secondary data for statistical analysis. Index numbers are used to analyse the data on fatal accidents in India.

3. Literature Review

Kemper (1927) was quite early in recognising the role of insurance Companies in accident prevention through merit rating system which includes schedule rating and experience rating, on the basis of which premiums are adjusted.

Ben Shahar and D. Logue (2012) have given a detailed and extremely pertinent report on the role of insurance in prevention of accidents and reducing the 'moral hazard' problem. The key highlights of the report are as follows:

(a) insurers that can identify cheap risk-reduction measures can mandate adherence to those measures.

(b) Through informational and technological advantage, insurance companies set safety standards and provide incentives to the buyers who adopt those standards.

(c) Insurers use information to incentivize individuals and firms to reduce safety risks. As a result of experience rating in auto insurance and in workers' compensation insurance, there is a strong incentive to avoid accidents on roads and at workplace respectively.

(d) Insurers audit and inspect their clients, manage their prevention efforts, analyse their loss history, identify causes of accidents and how losses occur, and teach them how to avoid premium increases (or how to secure premium reductions)"

Thus, through all these measures insurance reduces 'moral hazard' i.e., insured indulging in risky behaviour and passing on the burden/cost of this behaviour onto the insurance companies. Rather, insurers promote risk-reduction.

Carvajal and Louat (2015) have highlighted the five areas where insurance firms can make a significant contribution:

(a) Risk-based pricing to bring behavior change.

(b) Promote new technologies to inform road users about driving behavior, through apps and other tools.

(c) Provide shared, data-driven knowledge and research

(d) Raising public awareness of risk factors for road users

(e) Help in developing and financing road safety policies and programs.

According to Kelly et al. (2018) "Insurance companies will apply AI to greatly enhance large data analytics, evolve algorithms with transactional data faster, and combine data in new ways to discover better underwriting risks and appropriately price the risk of the various insured based on the true value of their business risks."

According to Philipsen and Faure (2020), insurers do apply premium differentiation and deductibles so that the employers take adequate preventive measures to minimise the occurrence of industrial accidents.

Bloemers (2020) has stated that it is in everybody's interest that insurance companies take a more active role in controlling accident rates and reducing the frequency and impact of road accidents, with broad benefits to our society in terms of traffic safety while at the same time improving portfolio returns.

Balasubramanian et al. (2021) have predicted the future of insurance industry which will be based on highly dynamic, usage-based insurance (UBI), customised to the behavior of individual consumers. Facilitated by artificial intelligence (AI), pricing will be based on usage and a dynamic, data-rich assessment of risk, empowering consumers to make decisions about how their actions influence coverage, insurability, and pricing.

According to Krieger (2022), insurance companies have huge data regarding the occurrence of accidents. By making use of data analytics, they can identify the dangerous patterns and build risk models. This data can help in identifying the key indicators of the occurrence of safety issues.

BCF Group has highlighted that insurance companies fix premium on the basis of many factors like the type of industry, the countries or jurisdictions of operation, number of employees, the equipment used, existing levels of health and safety controls and staff training. This motivates employers to adopt safety measures to get premium discounts.

4. Role of Insurance in achieving Vision Zero

Vision Zero, which aims at reducing the fatalities arising out of accidents to zero has mainly been discussed in two contexts- on the roads and at the workplace. On the basis of literature review, the role of insurance in achieving Vision Zero in these two contexts is summarized as -

4.1.1 Insurance vis-à-vis Vision Zero: Road safety

In the context of road accidents, role of insurance has traditionally been recognized in the post- accident scenario. Insurance comes as an aid in meeting the economic loss-loss to vehicles, personal injury, death, disability, arising out of the accidents. By purchasing motor insurance, accident insurance and health insurance, insured can protect himself/herself from the loss arising out of the road accidents. But insurers have a very crucial role in risk-reduction/mitigation which is increasingly being recognized in the context of Vision Zero.

Vision Zero is a collective responsibility- of road designers/ engineers, policy-makers and road-users. Insurance companies can help all the three in improving their respective action/behaviour. Insurance companies have huge data related to the occurrence of accidents, which if they share with the road designers/engineers can help in making the roads and vehicles safer. Also, through this data, policy-makers can identify the areas which require more stringent policies. For example, if it is found that maximum fatalities in case of two-wheelers are arising out of head injuries, penalty for not wearing a helmet can be increased. In order to reduce the reckless behaviour of road users like over-speeding, breaking of signals, driving under the impact of alcohol etc., insurance companies can play a pro-active role. With the help of artificial intelligence like telematics, insurance companies can monitor the driving behaviour and adjust the premium for motor insurance accordingly, thus reducing 'moral hazard'.

4.1.2 Insurance vis-à-vis Vision Zero: Workplace safety

Vision Zero aims at reducing the fatalities arising out of workplace accidents to zero; bringing down the occupational diseases; and physical and mental well-being of the employees. To achieve this, all employers need to take the necessary steps for the safety and well-being of the employees. Governments also affect organizations/employers through appropriate legislation to ensure health and safety of employees.

In order to achieve Vision Zero in the context of workplace safety, insurance companies have a significant role to play. When employers purchase health insurance, fire insurance or liability insurance/ workmen's compensation insurance (to protect themselves from the risk of huge payouts to workers on account of compensation arising out of workplace accidents), insurance companies thoroughly inspect their premises and inspect the safety measures adopted by them. The organisations/employers who are pro-actively engaged in adopting health and safety programmes are charged lower premiums by insurance companies. This acts as a motivation for the employers to adopt safety measures to reduce their premium payments which in turn helps in reducing the number of accidents.

Along with this, insurance companies also spread awareness regarding the latest safety and health measures among the insured to reduce the occurrence of industrial accidents and occupational diseases. Thus, the insurance companies are saved from heavy claim-payouts. Therefore, it is a win-win situation for both, whereby employers gain in terms of lower premium payment by adopting safety measures and insurance companies gain in terms of lower claims payment by spreading awareness and premium-differentiation or behaviour-based pricing/underwriting.

In case the accidents do occur, insurance companies help in compensating the loss arising out of death or disability.

The two-fold role of insurance (pro-active and reactive) in Vision Zero, as explained so far in the context of road safety and workplace safety, is presented in Figure 3.

5. Indian Context

5.1 Existing state of Road and Industrial Accidents in India

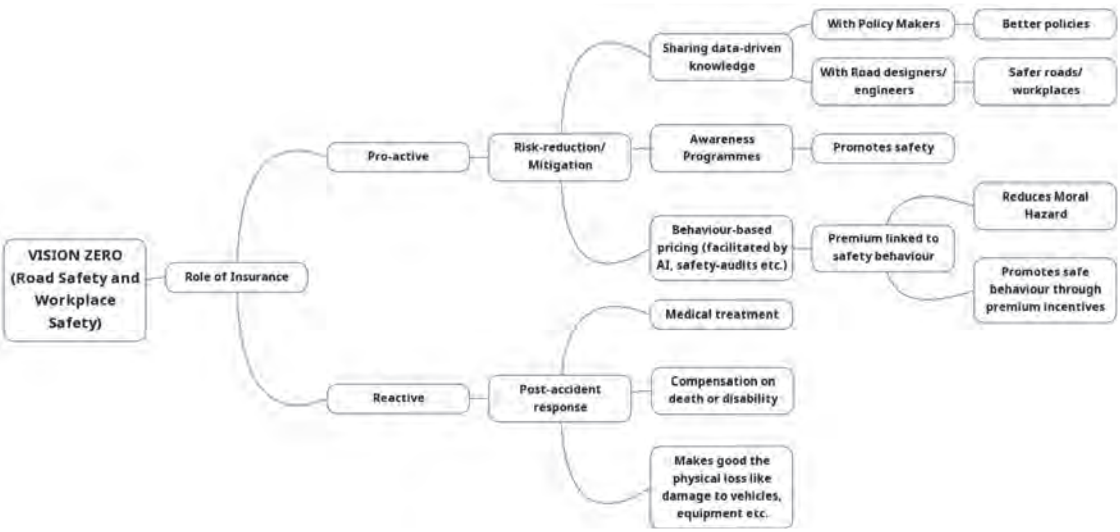
Table 1: Index of Road fatalities to total accidents in India (2005 to 2021)

Year	Accidents	Fatalities	Ratio of Fatalities to Accidents	Index of fatalities/ accidents Base: 2005
2005	439255	83491	0.19	100.00
2006	460920	93917	0.20	107.20
2007	479216	101161	0.21	111.06
2008	484704	106591	0.22	115.70
2009	486384	110993	0.23	120.06
2010	499628	119558	0.24	125.90
2011	497686	121618	0.24	128.56
2012	490383	123093	0.25	132.06
2013	486476	122589	0.25	132.58
2014	489400	125828	0.26	135.27
2015	501423	131726	0.26	138.21
2016	480652	136071	0.28	148.94
2017	464910	134796	0.29	152.54
2018	467044	137726	0.29	155.14
2019	449002	137689	0.31	161.33
2020	366138	120806	0.33	173.59
2021	412432	142163	0.34	181.35

Source: Self (based on data taken from https://morth.nic.in/sites/default/files/RA_2021_Compressed.pdf)

Figure 3: Role of Insurance in attaining Vision Zero

Source: Self (based on literature review)



The existing state of road fatalities in India is alarming. By taking data from the annual report of the Ministry of Road Traffic and Highways, the ratio of road fatalities to total number of accidents from 2005 to 2021 is calculated in Table 1. This shows a constant rise and has increased from 0.19 in 2005 to 0.34 in 2021. If we construct an index of this ratio, taking 2005 as the base, the index has risen from 100 in 2005 to 180.35 in 2021. This presents the troublesome picture of road fatalities in India and there is a need for serious and concerted approach to combat this situation.

The state of industrial accidents in India is equally disturbing. Industrial accidents kill hundreds of people and permanently disable thousands every year. According to data released by Directorate General Factory Advice Service and Labour Institute, between 2017 and 2020, three people died and 11 were injured each day, on average, due to accidents in India's registered factories (Paliath, 2023). A federal minister told parliament in 2021 that at least 6,500 workers had died while working in factories, ports, mines and construction sites in five years (Shukla, 2022).

Despite of high accident rates, the awareness about Vision Zero is still at a nascent stage in India. Haryana became the first state to adopt Vision Zero in 2017 (Nasscom Foundation).

5.2 Role of Insurance in achieving Vision Zero on roads: Indian Context

World Bank Group (2020), in its study on road safety in India, has considered the role of insurance under the post-crash response. The report has advocated increase in insured road users for the timely rehabilitation of road mishap victims and payment of compensation.

But, as highlighted in Figure 3, role of insurance is more pervasive and preventive in nature. Insurance can help policy makers in designing better policies, and road users by modifying their driving and road-usage into a more responsible one. India has started moving in this direction. Insurers are taking active part in spreading road-safety awareness and also collaborating with other stakeholders in promoting road safety. General Insurance Council (GIC) organised a Road Safety workshop titled 'Role of General Insurance Industry in Road Safety' from 9-10 February, 2019. The key highlight of the workshop was the emphasis on real time integration between Ministry of Road Transport and Highways (MoRTH), National informatics Centre, Insurance companies, Regional Transport Office (RTO) databases including Pollution under Control (PUC) data base for effective compliance of Road traffic rules and regulations (GIC, 2019).

Insurance companies alongwith their main role of post-accident response, are actively engaged in prevention/mitigation activities through awareness campaigns; and behaviour-based pricing (charging premiums on the basis of behaviour of insured) which also helps in curbing moral hazard.

The preventive measures taken by insurance companies in India in the form of awareness programmes and are given in Table 2.

Table 2: Road Safety Initiatives by Indian Insurance Companies (Prevention through awareness programmes)

Name of the Company	Initiative
ICICI Lombard (a)	Knowledge centre on motor and travel to offer information and advice.
Cholamandalam MS General Insurance (a)	Knowledge Centre- eg- how to handle a hit and run case
Cholamandalam MS General Insurance (b)	Life on wheels- car safety, motoring tips, vehicle protection, driving etiquette, traffic rules, motoring norms, road safety pledges
Reliance General Insurance	Digital campaign to raise awareness about the safety of pillion-riders on two-wheelers in 2018 (ET Brand Equity, 2018)
SBI General Insurance	Blogs on road safety like (Five tips for driving two-wheelers in Monsoons)

Table 2: Road Safety Initiatives by Indian Insurance Companies (Prevention through awareness programmes)	
Name of the Company	**Initiative**
SBI General Insurance	SBI General Insurance has launched an awareness campaign on road safety, aiming to bring in behavioural changes towards road safety (Livemint, 2022).
Kotak General Insurance	Blogs on Road safety awareness
ACKO, the digital insurance Company	Donated 3000 reflective jackets to Highway Traffic Police of Maharashtra during the Road Safety Awareness Month (India CSR, 2021)
Bajaj Allianz General Insurance Company	Blogs on road safety like "Stay safe on Indian Roads with these tips" and "Causes of Vehicle Accidents and how to avoid them"

Source: Self (based on company websites and newspaper articles)

Insurance Regulatory and Development Authority of India (IRDAI), the insurance regulator, has allowed the insurance companies to decide the insurance premium on the basis of driving behaviour (Dubey, 2020). The initiatives (current and prospective) in behaviour-based pricing (to promote safe behaviour and reduce the occurrence of accidents), enabled by technology, are given in Table 3.

Table 3: Prevention of Road accidents through Behaviour-based pricing facilitated by technology		
Current/Potential Initiatives	**Enabling Technology**	**Explanation**
Kotak General Insurance Co. Ltd has started using an AI-based vehicle pre-inspection tool in partnership with Inspektlabs (current initiative)	AI-powered image processing	Through images of vehicles sent by customers, AI-based inspection report will tell the defects and eligibility of vehicles for policy buying or renewals. (DQ India Online, 2022)
ICICI Lombard tied up with Microsoft to use AI in policy renewal and claim settlement (current initiative)	Azure platform, Computer Vision, Machine learning	Policy renewal and claim settlement by digitally analysing the condition of vehicles the loss arising out of accidents respectively, through images (Microsoft).
Hyper-personalisation of insurance products (potential initiative)	Telematics	Behaviour data obtained through Telematics will be used to sell usage-based insurance i.e., 'pay-as-you drive' where premium is based on miles driven and 'pay how- you drive' where premium is based on driving behaviour (Bhargava, 2022).

Source: Self

5.2 Role of Insurance in achieving Vision Zero at workplace: Indian Context

In India, there are various important laws that govern employee health and safety. National Safety Council is a tripartite autonomous body set up by the Government of India in 1966 to generate, develop and sustain a voluntary movement on Safety, Health and Environment (SHE) at the national level.

Other than legislation, trade unions also constantly strive to achieve safe and healthy working conditions. India, being a member nation, also receives assistance from ILO.

Since Vision Zero aims at achieving safety, health and well-being of employees, employers must make their workplaces safe by designing suitable safety programmes. Despite the safety measures, in case the accidents do occur, employers can protect themselves by purchasing appropriate insurance coverage to cover the losses arising at workplace due to the occurrence of accidents (fire insurance, workmen's compensation insurance, accident insurance) and to pay for health treatment of the employees/workers (health insurance).

While selling health insurance policies, insurance companies offer premium discounts to the insured who are themselves health-conscious and maintain a healthy lifestyle. Kulkarni (2019) reported that according to a survey conducted by a preventive healthcare company, GOQii, over 70% of the Indian population don't mind sharing their health data with insurance companies if it helps them fetch better discounts on health insurance premiums.

Other than premium differentiation/ behaviour-based pricing, insurance companies also keep organising awareness programmes to promote adoption of safety measures at workplace and also to promote physical and mental health of the employees.

Insurance companies find it economical to spend on prevention rather than bear the burden of heavy claim-payouts. Therefore, the preventive role of insurance is crucial in the achievement of Vision Zero. Some of the initiatives taken by Indian general insurance companies to promote health and safety through awareness programmes and behaviour-based premium-differentiation are listed in Table 4.

Table 4: Awareness and Behaviour-based premium differentiation initiatives

Name of the Co.	**Awareness Initiatives**
ICICI Lombard (b)	1. Under group health insurance, wellbeing programmes, AI-enabled mobile app for employees (health blogs, medical reminders), health assistance services, tele-consultations. 2. Safety at Workplace- A Case Study
HDFC Ergo (a)	Wellness Corner: health tips
HDFC Ergo (b)	Tips on workplace safety: 11 simple ways to improve workplace safety
Cholamandalam MS General Insurance (c)	Slice of health**-** educates and motivates on health-fitness, healthcare, nutrition and mental well-being.
Reliance General Insurance (a)	Wellness programmes, magazines; health metrics; online wellness solutions
Risk-reduction through Behaviour-based underwriting/pricing	
Name of the Co.	**Initiatives to promote safe behaviour through behaviour-based underwriting/ pricing**
Reliance General Insurance (b)	Health gain policy- 15% discount for taking good care of your health
ICICI Lombard (c)	Nature of work / Occupancy, No. of Employees, Monthly wages, Policy duration, Risk Location Address, Claim Experience of last 3 years with amount and count of claims, are considered during the underwriting of workmen's compensation insurance.

Source: Self

Even after selling insurance, insurers keep a check on the type of claims and accordingly try to minimise the claim-payouts through various types of audits, thus leading to mitigation of risk. Some examples are given in Table 5.

Table 5: Post-insurance risk-reduction/mitigation measures		
Source	**Issue/problem**	**Solution by Insurers**
Bagchi (2018)	Ratio of the net claims settled by insurers to the net premiums that they collected in any given year (Net Incurred Claims Ratio or Net ICR), increased from 94 per cent in 2012-13 to 106 per cent in 2016-17	Insurance companies have started conducting audits of workplace cafeterias and are proposing changes to reduce claims related to gastroenteritis, colitis and heart-related ailments under the group mediclaim policies.
Bagchi (2018)	Rising trend in claims for injuries and disorders associated with bad posture and spending long hours sitting in front of a computer	Increase in Ergonomics-related audits, which look into the positioning of computers, quality of chairs and their positions to ferret out musculoskeletal issues at the workplace.
Bagchi (2018)	Worker suffered heart-attack at Iron and Steel pipe products factory	ICICI Lombard conducted a wellness audit at an iron and steel pipe products companies and found that oxygen levels were low leading to respiratory and heart-related issues and suggested proper ventilation as the solution
HDFC Ergo (c)	Mitigation of health and safety risks	Health and Safety Audit- has a team of loss-control engineers who are experts at risk assessment and help customers in mitigating the chance and severity of accidents.

Source: Self, based on websites and articles

6. Suggestions for Insurers

Insurance companies can contribute further in the achievement of Vision Zero through following efforts:

a) Insurance companies should focus more on preventive measures to reduce the occurrence of accidents. Although there have been awareness initiatives, but it will be better if insurance companies could modify behaviour through product-design nudges and behaviour-based incentives as suggested by Damani (2017).

b) Insurance companies can tie up with AI service providers to monitor behaviour of insured and design behaviour-driven insurance products which are still at a nascent stage in India. AI will also help in identifying fraudulent claims and thus promote safe behaviour.

c) Better Co-ordination amongst insurance companies and Policy makers is also needed for pro-active response to the accident scenario.

d) Insurance companies can share data with Vehicle and workplace safety designers/engineers, to design safe vehicles and improve workplace safety.

e) Post-purchase monitoring of behaviour through AI and audits will help in consistent risk-reduction/mitigation and curb 'moral hazard'.

7. Conclusion

Insurance Companies have been recognised as important stakeholders in the achievement of Vision Zero Strategy, world over. India, despite of experiencing huge number of road and industrial accidents, has adopted Vision Zero quite late and that too in a fragmented manner. Insurance companies in India are doing their bit in reducing/mitigating risks through awareness programmes and behaviour-based pricing. Behaviour-based pricing is facilitated through AI but only few companies have adopted it till date. So, if insurers truly want to contribute in the achievement of Vision Zero, there is an urgent need to embrace technology and integrate AI into the underwriting process. Insurers also need to make consistent risk-mitigation efforts like monitoring road-use behaviour; health and safety audits, to reduce accidents, to improve their own financial position and to bring the country closer to Vision Zero. TJ

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"No Penalty Discount" Concept to Aid Vision Zero

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Abstract

Worldwide several regional pilot projects have been launched to implement the new strategies for road safety. The role of insurance in supporting "Vision Zero" initiatives can be significant. Insurance companies can provide financial support for road safety programs and initiatives, and can use their influence to promote safer road design and behavior. In addition, insurance companies can offer incentives for safe driving behaviors, such as lower premiums for drivers with clean records or those who use safety technologies in their vehicles. Integrating a penalty point system with insurance can have a positive impact on road safety by encouraging drivers to be more responsible and reducing the number of traffic violations. Consumers no longer want just an insurance policy but are increasingly asking for services-based insurance coverage. As such, the industry needs to take cognizance of the changing consumer preferences and adopt appropriate strategies as some of the service providers are actually providing certain additional assistance services such as fuel assistance on a highway, towing, spot repairs and others, suggested the study. As the needs of the consumers, governments initiatives, insurance industry set goals are converged through the concept of "No Penalty Discount" aiding to the Vision Zero, similar to the No Clam Bonus (NCB). This paper studies on different issues and analysis the data on success rate of different individual issues and recommends the scope and impact of combination of Vision Zero and role of Insurance with No Penalty Discount innovative concept.

Keywords

Vision Zero, Penalty Point System, Insurance, Road Safety.

1. Introduction

Motor accidents became inevitable and there is no option other than taking measures to decrease the rate of accidents. Worldwide governments are being sensitized on this issue but failing in implementing the desired measures up to the extent planned. Though in Sweden, in 1996-1997 around 540 people were killed, it adopted '*Vision Zero*' in 1997 to imply a widespread commitment from the society to give priority to prevent the worst consequences of road accidents (Mittal, 2008, p.

42-49). In India Road's length are increasing year by year and this also contributing to more accidents. Several measures were also taken in India as well and "Vision Zero is being adopted in India as well.

Table1:

Year wise Roads length and Number of Accidents (NCRB, 2021).

	Number of Accident per Year	Length of Road in km
2017	1,50,093	32,66,916
2018	1,52,780	35,09,582
2019	154732	58,90,000
2020	1332021	NA
2021	155622	62,15,797

1.1 Vision Zero Road Map:

The 'Vision Zero' program initiative has continued to be a key concept and goal for road safety advocates and policymakers around the world, with a focus on reducing the number of road traffic fatalities and serious injuries to zero. It started in 1997 when The Swedish Parliament adopts a road safety policy known as Vision Zero, which aims to eliminate all road traffic fatalities and serious injuries. The UN General Assembly declared the period 2011-2020 as the Decade of Action for Road Safety, with the goal of stabilizing and then reducing the level of road traffic fatalities around the world. This had trigged movement in many countries and organizations having made progress towards improving road safety but falling short of the goal of halving the number of global road traffic fatalities and injuries.

1.2 " Vision Zero" Worldwide initiatives:

There are a number of countries and cities around the world that have implemented "Vision Zero" initiatives to reduce or eliminate traffic fatalities and serious injuries. Here are a few examples:

- **Sweden:** Sweden is often credited with pioneering the "Vision Zero" approach to road safety. Since the 1990s, the country has been working to create safer roads and encourage safer driving behavior through a combination of road design, education, and enforcement measures. As a result, Sweden has one of the lowest traffic fatality rates in the world **(Kristianssen et al., 2018)**.
- **Netherlands:** The Netherlands has long been recognized as a leader in road safety. The country has implemented a number of measures to encourage safe cycling and reduce traffic fatalities, including separate bike lanes and traffic calming measures.
- **Norway:** Norway has set a goal of reducing traffic fatalities to zero by 2050. The country has implemented a number of initiatives to achieve this goal, including speed reduction measures, stricter drunk driving laws, and increased use of roundabouts.
- **New York City, United States:** New York City has implemented a "Vision Zero" initiative to eliminate traffic fatalities by 2024. The initiative includes a number of measures to improve road safety, such as reducing speed limits, redesigning dangerous intersections, and increasing enforcement of traffic laws (New York City Council, 2019).
- **Helsinki, Finland:** Helsinki has set a goal of eliminating all traffic fatalities by 2040. The city has implemented a number of measures to achieve this goal, including redesigning streets to prioritize pedestrian and cycling safety, increasing the use of public transportation, and reducing car use through the implementation of congestion pricing.

These are just a few examples of the many "Vision Zero" initiatives being implemented around the world to improve road safety and reduce traffic fatalities.

1.3 Role of International Organizations in promoting VISION ZERO:

International organizations play a critical role in promoting and supporting "Vision Zero" initiatives around the world. Here are a few examples of the role these organizations play:

- **United Nations:** The United Nations has made road safety a priority issue, with a goal of halving the number of global traffic fatalities and injuries by 2030. The UN works with member states to develop and implement road safety policies and programs, and provides guidance and technical assistance to support these efforts.

- **World Health Organization:** The World Health Organization (WHO) is another international organization that plays a key role in promoting road safety. The WHO provides guidance and technical support to member states to develop and implement effective road safety policies and programs, and conducts research on road safety issues to inform policy development.
- **International Road Assessment Program:** The International Road Assessment Program (iRAP) is a non-profit organization that works to improve road safety through the use of a standardized road assessment methodology. iRAP assesses roads for safety risks and provides guidance on how to make improvements that will reduce the risk of traffic fatalities and serious injuries **(Green, 2023)**. Among the main causes of young people death, road accidents are the major one and it is estimated that each year 1.3 million deaths and 50 million injuries will occur (Schell & Ward, 2022).
- **FIA Foundation:** The FIA Foundation is a non-profit organization that works to promote road safety around the world with an international membership of motoring and road safety organization and there are about 146 founding members, 14 members from 101 countries. The Foundation supports a range of initiatives to improve road safety, including advocacy efforts, research, and the development of innovative road safety programs **(*FIA Foundation*, n.d.).**

Overall, international organizations play an important role in promoting and supporting "Vision Zero" initiatives by providing guidance and technical assistance, conducting research, and advocating for policy changes that will improve road safety (Mittal, 2008).

1.4 Vision Zero initiative in India

In India, the "Vision Zero" initiative has been adopted to improve road safety and reduce the number of traffic fatalities and serious injuries. The initiative is based on the belief that even one traffic fatality is one too many, and that it is possible to eliminate traffic deaths and injuries on Indian roads.

Here are some of the key elements of the "Vision Zero" initiative in India:

- With the help of the International Social Security Association's (ISSA) Prevention Sections for Building, Power, Mining, Transportation, and Information, seven Vision Zero conferences have been held since the international conference in Delhi in March 2017. The German Social Accident Insurance Institution for the energy, textile, electrical, and media products sector established the Indo German Focal Point in 2017 to facilitate the execution of DGUV activities in India. The Indian Union Cabinet approved the collaboration between India and Germany in the field of occupational safety and health (OSH) on March 5, 2020(ISSA, 2020).
- **National Road Safety Policy:** The Indian government has adopted a National Road Safety Policy that aims to reduce the number of traffic fatalities and serious injuries by 50% by the year 2025. The policy includes a range of measures, including improved road infrastructure, increased enforcement of traffic laws, and enhanced public awareness and education campaigns.
- **Road Safety Strategy:** In addition to the National Road Safety Policy, the Indian government has developed a comprehensive Road Safety Strategy that includes a range of measures to improve road safety, such as strengthening road infrastructure, improving vehicle safety standards, and increasing public awareness and education campaigns.
- **National Road Safety Council:** The Indian government has established a National Road Safety Council, which is

responsible for coordinating and implementing road safety initiatives at the national level. The Council includes representatives from various government agencies, as well as private sector and civil society organizations.

- **Safer Roads and Highways Program:** The Indian government has launched a Safer Roads and Highways Program to improve the safety of the country's road network. The program includes a range of measures, such as road safety audits, road engineering improvements, and the development of a national road safety database.
- **Public Awareness Campaigns:** The Indian government and various non-governmental organizations have launched public awareness campaigns to promote safe driving practices and increase awareness of road safety issues. These campaigns include television and radio advertisements, as well as social media and community-based initiatives.

Despite these efforts, India still has one of the highest rates of traffic fatalities in the world. While the "Vision Zero" initiative has helped to raise awareness of road safety issues and drive improvements in road infrastructure, there is still much work to be done to achieve the goal of zero traffic fatalities and serious injuries on Indian roads.

2. Role of insurance in supporting "Vision Zero"

Insurance companies can also play role in providing compensation for victims of traffic accidents. In the event of an accident, insurance can help to cover the costs of medical treatment, property damage, and other expenses. By providing this support, insurance can help to reduce the financial burden on accident victims and their families, and can help to promote the overall goal of "Vision Zero" by ensuring that victims are not left financially devastated by accidents. Overall, insurance can play an important role in supporting "Zero Vision" initiatives by providing financial support for road safety programs and initiatives, offering incentives for safe driving behaviors, and providing compensation for victims of traffic accidents.

2.1 "Vision Zero" lead to decrease in rate of accidents in India

India has been working towards achieving "Vision Zero" for road safety with the aim of reducing the number of traffic fatalities and serious injuries. While progress has been slow and uneven, there are some indications that the initiative is having a positive impact.

According to the Ministry of Road Transport and Highways, there has been a decline in the number of road accidents in India in recent years. In 2019, there were 449,002 road accidents in India, which was a decrease of 3.86% compared to the previous year and the number of deaths in road accidents decreased by 4.1% to 151,113 in 2019. (The Transport Research Wing, 2019). Several states in India have implemented their own "Vision Zero" initiatives, with varying degrees of success. For example, the state of Tamil Nadu launched its own "Vision Zero" initiative in 2011, and has since seen a significant reduction in the number of traffic fatalities. In 2020, the state recorded 10,517 road accidents, which was a decrease of 19% compared to the previous year.

Despite these positive developments, India still has one of the highest rates of traffic fatalities in the world. The country's road infrastructure is often inadequate, and many drivers disregard traffic laws and safety regulations. Furthermore, enforcement of traffic laws can be inconsistent and weak in many parts of the country.

3. Impact on accident rates of Integration of Penalty Point System to Insurance

Integrating a penalty point system with insurance can have a positive impact on road safety by encouraging drivers to be more responsible and reducing the number of traffic violations. Under a penalty point system, drivers receive points on their driving record for each traffic violation they commit. If a driver accumulates a certain number of points, they may face penalties such as fines, license suspension, or even revocation. Integrating this system with insurance can mean that drivers who accumulate a high number of points will also face higher insurance premiums.

Researches have shown that integrating a penalty point system with insurance can have a positive impact on road safety. In a study conducted in the United Kingdom, drivers who had their insurance premiums linked to penalty points were found to be less likely to commit traffic violations than those who did not. The study also found that drivers who accumulated more points were more likely to modify their driving behavior to avoid further penalties.

In addition to encouraging responsible driving behavior, integrating a penalty point system with insurance can also help to reduce the number of uninsured drivers on the road. In some countries, drivers who accumulate a high number of penalty points may have their insurance policies cancelled, which can lead to them driving without insurance. However, if insurance premiums are linked to penalty points, it can provide an incentive for drivers to maintain their insurance coverage and avoid losing their driving privileges. Overall, integrating a penalty point system with insurance can have a positive impact on road safety by encouraging responsible driving behavior and reducing the number of traffic violations. However, it is important to ensure that the penalty point system is fair and transparent, and that drivers are given adequate opportunities to challenge penalties and improve their driving behavior.

3.1 Penalty Point System accepted by insurance companies

Penalty point systems are commonly accepted by insurance companies in many countries around the world. In fact, some insurance companies have implemented their own penalty point systems to encourage responsible driving behavior and to help reduce the risk of accidents and claims. In some countries, insurance premiums are directly linked to penalty points, with drivers who accumulate more points facing higher insurance premiums. This can serve as a strong incentive for drivers to be more cautious and responsible on the road, as well as to avoid traffic violations that could lead to penalty points and higher premiums.

In other countries, insurance companies may use penalty point systems as a factor in determining premiums, but may not have a direct link between penalty points and premiums. For example, drivers with a higher number of penalty points may be classified as high-risk drivers and may face higher premiums as a result.

Overall, the use of penalty point systems by insurance companies is seen as a positive development for road safety, as it encourages responsible driving behavior and helps to reduce the risk of accidents and claims. However, it is important to ensure that the penalty point system is fair and transparent, and that drivers are given adequate opportunities to challenge penalties and improve their driving behavior.

3.2 Penalty Point System reduced accident claims as per India statistics

It is difficult to determine the impact of a penalty point system on accident claims in India, as the implementation and effectiveness of such systems can vary greatly between different states and regions. In India, traffic violation penalties are typically regulated by the Motor Vehicles Act, which sets out fines, license suspension or revocation, and other penalties for drivers who commit traffic violations.

However, studies and reports have suggested that the introduction of stricter penalties and enforcement for traffic violations can help to reduce the number of accidents and claims. For example, a report published by the Ministry of Road Transport and Highways in India in 2019 found that the introduction of stricter traffic enforcement measures, including higher fines for traffic violations, had led to a 10% reduction in the number of accidents and a 9.3% reduction in the number of fatalities in the country.

It is worth noting that the effectiveness of traffic enforcement measures in India can be limited by a number of factors, including inadequate infrastructure and resources, corruption, and cultural attitudes towards driving and road safety. Therefore, the implementation of a penalty point system would likely need to be accompanied by broader efforts to improve road safety, including increased education and awareness campaigns, improved infrastructure, and more effective enforcement and penalties for traffic violations.

4. Insurance Realistic pricing

Another key challenge faced by insurers is that there is not much of data to help them in pricing a risk, pointed out the study by ASSOCHAM. The pricing as of today is based more on the year of manufacture of the vehicle, engine capacity, price and the zone in which the vehicle is bought and less on the age, occupation and credit score of the driver and usage of the vehicle. As we go forward, realistic pricing of the insurance product will be required. Highlighting the importance of claims processing, the study suggested by ASSOCHAM that insurance companies need to work on claims settlement as it is during this process that insurers interact directly with consumers, offering an untapped opportunity to really differentiate them from their competitors.

4.1 "NO Penalty Bonus" Concept:

With this new **No Penalty Bonus** concept there is scope for the Company to really differentiate them from their competitors.

4.1.1 Similar to the No Claim Bonus Concept:

No Penalty Discount cum bonus can be effective and this is not a system that is difficult to adopt, as already the concept of No Claim Bonus is there is can be in the similar lines in the renewals. This is not only linked with the Motor Vehicle OD (Own Damage) Claims but also linked to the Third Party (TP) cases. If the rider or vehicle involved and charge-sheeted in any of the vehicle then this, "No Penalty Discount" will not be granted.

As the Penalty Point System is introduced in India, we need to understand how it works in India and how it will impact the traditional pricing practices of the insurance companies in India.

4.1.2 What Are Penalty Points?

Penalty points were introduced to encourage safe driving and reduce casualties on our roads. A penalty point is essentially a punishment on your driving licence. The penalty points systems for driving offences are being introduced along with the technological upgradation in all the states. The aim of penalty points is to influence and improve driver behaviour and address the unacceptable levels of death and serious injury on our roads. Penalty point systems also operate in many developed countries. International experience has demonstrated the penalty points system has proven successful in reducing the number of road deaths in those countries. Because of these points, it makes sense for drivers to take care on the road and to avoid taking risks that could lead to them having points added to their records.

This is about road safety, and rewarding motorists for safe behaviour. Governments have to keep our focus on developing new measures and new policies to keep a solid focus on road safety, and to save lives. This measure is about road safety, and rewarding motorists for safe behaviour.

4.1.3 How Does The System Work?

Offences are recorded on your driving licence record if you are caught partaking in an offence that attracts penalty points, a fine or the matter being referred to the courts.

4.1.4 Common Driving Offenses

Common driving offenses include: driving while using a mobile phone, driving without car insurance, various dangerous and careless driving, speeding, not wearing a seatbelt, breach of a driver's duty at a car accident and failure to stop when asked by a Garda member. All of these inexcusable motoring offenses can leave you with hefty fines and points on your licence.

4.2 The Penalty Point System in Telangana State of India.

The government of Telangana has come up with a point system to cut back traffic violation. If an individual exceeds more than 12 points in two years, then the government has all the right to cancel his/her driving license for a year.

If the individual repeats it again, then the government has all the right to cancel it in two years. Also individuals with learning license can't get more than 5 points, in such case, they won't be able to take the original procedure and get the official license.

The points allotted for respective traffic violations are mentioned below:

- Not wearing helmet / seat belt: 1 point
- Driving vehicle without insurance / hazardous substances: 2 points
- Driving vehicle over-speed / wrong route: 2 points
- Drunken driving (two wheelers): 3 points
- Drunken driving (four wheelers): 4 points
- Drunken driving (Government vehicle): 5 points
- Car / Bike race: 3 points
- Driving without pollution certificate / parking on the highways: 2 points
- If cases are filed under IPC 279, 336, 337, 338 sections: 2 points
- If cases are filed under 304 (A), 304 (II): 5 points
- Chain snatching and other crimes while driving: 5 points

This penalty point system is yet to be enforced in the state of Telangana. Currently this is under proposal stages. As India is linking all the data with AADHAR there is lot of scope to link this data with the Vehicle and Driving Licence. This proposal is already there in the new Motor Vehicle Act,2019. The same trend is going to happen all over India.

4.3 Insurance loading scenario in developed countries:

4.3.1 Insurance costs

Along with the fines and the potential for a driver to lose their licence if they accumulate 12 points, the potential impact to a driver's motor insurance costs was considered one of the punitive implications of the penalty point regime. The insurers have differing approaches to premiums for motorists with penalty points. Some use the database before renewal, others mainly when making a quote to a potential new customer. In general terms, loadings, or additional costs, tend to be applied on drivers with five or more points while most of the insurers are reluctant to take a new customer who has nine or more points. Penalty points remain on a driver's licence record for three years, after which they are expunged.

4.3.2 Calculating premiums

Insurers accessed penalty point's information for the purpose of calculating premiums. Penalty points are a rating factor for insurers and are used in conjunction with other information, including a driver's age, claims record, driving experience and the type of car and its use, among other considerations, in calculating premiums.

4.3.3 Impact on customer quote

If you have a motoring conviction, insurers will see you as a greater risk. This will be reflected in your quote, which will be higher. How much your premium will increase by depends on a number of factors, including, insurance companies' conviction policies, type of conviction, vehicle type and age. Insurance companies are still allowed to ask the question about the penalty points though, but they are then not allowed to use vehicle owner answer as a reason to increase vehicle owner premium**.** Vehicle owner insurance rates would likely rise as soon as the covered driver starts accruing points on his driving record. Vehicle owner might have to renew his insurance first, so the increased pricing might not be effective right now, but vehicle owner will almost certainly end up paying more. Since these individuals are more likely to cause an accident, several insurance firms impose higher rates for speeding-related offences.

This means that even if the insured motorist does not have many points, driver should be prepared to pay more if he receives a speeding ticket. When driver renews his insurance coverage, these points can end up costing him a sizable sum of money. Remember that these points remain on his driving record for a set number of years, so driver will likely have to pay more every year until this time has passed.

4.3.4 Premium loading on penalty points:

- Three points push premiums up five per cent compared to a clean licence
- Expect to see insurance costs soar 80 per cent if you have 10 or more points
- Londoners pay £8m in premium costs for having driving convictions

4.3.5 Penalty points access to Insurers:

The insurers sought access so that they could more accurately risk assess drivers seeking insurance and also because of a perceived issue with the under-reporting by drivers of penalty points when it came to applying for insurance. For example in Ireland, as things stand, insurance companies apply for a loading on an insurance policy according to the number of penalty points, rather than the nature of the offence. In future, insurance companies will be able to take serious offences into account when applying this loading. Claim processing of insurers put an onus on motorists to disclose penalty points. Drivers who do not own up can invalidate their insurance cover and may be refused a claim.

4.3.6 Reverse Mechanism:

While the insurers in the developing companies imposing more premiums by loading we are welcoming the disciplined customers to use the scope for being disciplined and get the discounts accordingly. ICR/ Profit mechanism, there is scope to bifurcate the discounts on two ways as discussed earlier.

1. Discount to the Vehicle. (5 % Proposed)
2. Discount to the Owner cum Driver: (5 % Proposed)

If both together are considered also it comes to 10 % as discount. The target group is the disciplined group as per the statistics. Even though claim reports also mostly not intentional and occurred due to negligence. So, the incurred claim ratio (ICR) will be reduced among the target group.

4.3.7 Research on e-challahs system:

In India, the traffic police across states have started adopting the automated traffic management systems to promote adherence to traffic rules. According to research paper titled ‘Analysing Traffic Violations through e-challan System in Metropolitan Cities’, timely reminders of fee payments assist in lowering the incidence of violations. Higher traffic fines, according to analysis, immediately reduce traffic infractions, albeit the effect need not continue (Mishra et al., 2020).

5. Reasons why ‘ZERO VISION’ partly failed.

“Zero Vision” is a challenging goal that seeks to reduce or eliminate traffic fatalities and serious injuries. While many countries and cities have made progress in improving road safety, there are several reasons why “Zero Vision” initiatives may fail to achieve their goals as per the timelines decided. Here are a few possible reasons:

- **Lack of political will:** “Zero Vision” initiatives require strong political will to implement and sustain over time. If political leaders are not committed to improving road safety, or if they prioritize other issues over road safety, it can be difficult to make progress towards the goal of zero fatalities and serious injuries.
- **Limited resources:** “Zero Vision” initiatives can require significant resources to implement, including funding for road improvements, education and awareness campaigns, and enforcement measures. If resources are limited or insufficient, it can be difficult to make the necessary investments to achieve the goal of zero fatalities and serious injuries.
- **Poor road infrastructure:** Road infrastructure plays a critical role in road safety. If road infrastructure is inadequate, poorly maintained, or not designed with safety in mind, it can be difficult to achieve the goal of zero fatalities and serious injuries.
- **Limited public awareness:** “Zero Vision” initiatives require public support and buy-in to be successful. If the public is not aware of the importance of road safety, or if they do not prioritize road safety over other concerns, it can be difficult to achieve the goal of zero fatalities and serious injuries.
- **Lack of enforcement:** Enforcement measures, such as speed cameras, seatbelt laws, and drunk driving checkpoints, are critical to improving road safety. If enforcement is limited or ineffective, it can be difficult to achieve the goal of zero fatalities and serious injuries.

As the commons causes for failure the “Zero Vision” and unable to reach the expected goals were identified, and among the lack of awareness and enforcement is also there, urgent steps are necessary to marginalise their impact and march towards the goals set.

6. Conclusion

Luckily, as the experience of many nations' shows, many of these traffic fatalities and injuries are avoidable and affordable. Many factors are shared by the nations that have had the most success in reducing the number of crashes, but the key characteristics are political commitment, a comprehensive strategy, a distinct vision, a workable plan, institutional development and coordination, and a careful and critical assessment of the measures' efficacy. The key driving factor behind this initiative was the adoption of a suitable road safety policy and action plans, as this encouraged effective and efficient solutions to the identified problem areas and allowed all necessary stakeholders to provide their contributions in a timely and cooperative way. To achieve "Vision Zero", it will be necessary for India to continue investing in road infrastructure improvements, vehicle safety standards, and public awareness campaigns. Additionally, there must be greater enforcement of traffic laws and regulations to ensure that drivers are held accountable for their actions on the road.

India tops the world as for as the total number of road fatalities is concerned, but it does not have any proper and formal national road safety policy until the ZERO VISION Initiative. This initiative will be very well be boosted by the penalty pointer system of government and the insurance companies initiatives by using the telematics also for better accuracy. TJ

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Insuring a Safer Future: Vision Zero's Collaborative Approach

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I am working with Reliance General Insurance as a Motor Claims Manager having 10+ years of overall experience in claims assessment and customer service. I have completed MBA in Marketing from Wesley PG College and B-Tech in Mechanical Engineering from Sree Nidhi Institute of Science and Technologies. I have also acquired Licentiate Certification from Insurance Institute of India and I am working towards my goals viz., Associate, Fellowship and Research in Insurance.

Abstract

"Vision Zero - Role of Insurance" addresses the intersection of traffic safety, insurance, and risk management. This paper aims to explore the role of insurance in the Vision Zero framework, which is a global road safety initiative with the ambitious goal of eliminating traffic fatalities and severe injuries. The paper discusses the key aspects of Vision Zero, including its objectives, methodology, and major conclusions based on analysis of existing literature, policy documents, and empirical evidence. The paper highlights the vital role of insurance in supporting the Vision Zero approach through risk assessment, risk mitigation, and collaborative efforts with other stakeholders and discusses the importance of data-driven decision-making, effective regulations, and multi-sectoral partnerships in achieving the Vision Zero objectives. The paper concludes with recommendations for integrating insurance with the aim of reducing road fatalities and severe injuries, and creating safer road environments for all road users.

Keywords

Vision Zero, Role of Insurance, Traffic Safety, Road Fatalities, Risk Assessment, Collaborative Efforts.

I. Introduction

Definition and Background of Vision Zero

Vision Zero is a road safety concept that aims to eliminate traffic fatalities and serious injuries on roads. It is a holistic approach that prioritizes human life and safety over mobility and convenience.

The concept of Vision Zero was first introduced in Sweden in 1997 as a response to the rising number of road fatalities. The Swedish Parliament adopted Vision Zero as the nation's road safety policy, setting a bold target of zero deaths or serious injuries on the roads. The Vision Zero approach focused on creating safe road systems, forgiving road environments, and safe vehicle technologies, and promoting responsible road user behavior. Since then, Vision Zero has gained traction in many countries and cities around the world, with the adoption of similar policies and strategies.

Table no. 1 – Year Wise Road Accidents in India

	Number of accidents		Number of persons		Severity*
Year	Total	Fatal	Killed	Injured	
2005	4,39,255	83,491 (19.0)	94,968	4,65,282	21.6
2006	4,60,920	93,917 (20.4)	1,05,749	4,96,481	22.9
2007	4,79,216	1,01,161 (21.1)	1,14,444	5,13,340	23.9
2008	4,84,704	1,06,591 (22.0)	1,19,860	5,23,193	24.7
2009	4,86,384	1,10,993 (22.8)	1,25,660	5,15,458	25.8
2010	4,99,628	1,19,558 (23.9)	1,34,513	5,27,512	26.9
2011	4,97,686	1,21,618 (24.4)	1,42,485	5,11,394	28.6
2012	4,90,383	1,23,093 (25.1)	1,38,258	5,09,667	28.2
2013	4,86,476	1,22,589 (25.2)	1,37,572	4,94,893	28.3
2014	4,89,400	1,25,828 (25.7)	1,39,671	4,93,474	28.5
2015	5,01,423	1,31,726 (26.3)	1,46,133	5,00,279	29.1
2016	4,80,652	1,36,071 (28.3)	1,50,785	4,94,624	31.4
2017	4,64,910	1,34,796 (29.0)	1,47,913	4,70,975	31.8
2018	4,67,044	1,37,726 (29.5)	1,51,417	4,69,418	32.4
2019	4,49,002	1,37,689 (30.7)	1,51,113	4,51,361	33.7
2020	3,66,138	1,20,806 (33.0)	1,31,714	3,48,279	36.0

Every day, countless lives are lost or irreversibly impacted due to road accidents, making it a global public health concern. The importance of road safety and the need to reduce traffic fatalities cannot be overstated. Collective efforts between Government, Insurance companies and other stakeholders must work towards reaching the goal of Vision Zero.

II. Role of Insurance in Vision Zero

Risk Assessment and Mitigation Strategies by Insurance Companies

Insurance companies play a crucial role in promoting road safety and risk management through risk assessment and mitigation strategies. As part of their business model, insurance companies assess and mitigate risks associated with motor vehicle accidents, and develop strategies to minimize their financial exposure. Here are some key aspects of risk assessment and mitigation strategies by insurance companies:

1. **Underwriting and Pricing:** Insurance companies use risk assessment techniques to evaluate the risk associated with insuring a particular vehicle, driver, or location. Factors such as driving history, age, type of vehicle, and location are taken into account to determine the premium rates. Higher-risk drivers or vehicles may be charged higher premiums, while safer drivers or vehicles may be eligible for discounts, incentivizing safe driving behavior.

2. **Risk Management Services:** Insurance companies provide risk management services to policyholders to help them identify and mitigate risks associated with road safety. This can include providing educational materials, safety guidelines, and resources to help policyholders understand and implement safe driving practices.

3. **Loss Prevention Measures:** Insurance companies may offer loss prevention measures to policyholders, such as discounts on safety equipment installation, vehicle tracking devices, and other risk reduction measures. These measures can incentivize policyholders to adopt safer driving practices and reduce the risk of accidents.

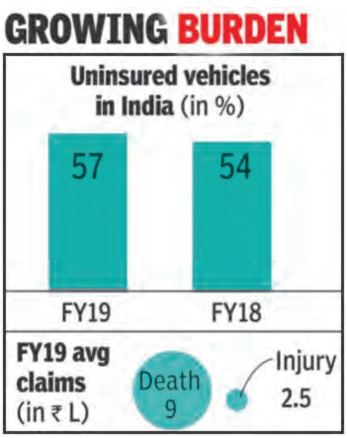
4. **Claims Handling and Settlement**: Insurance companies play a crucial role in claims handling and settlement processes following motor vehicle accidents. Prompt and efficient claims handling can help policyholders recover from accidents and get back on the road quickly, while also ensuring that responsible parties are held accountable for their actions.

5. **Data Analysis and Risk Monitoring**: Insurance companies collect and analyze data on motor vehicle accidents, claims, and other relevant factors to identify trends and patterns that can help improve risk assessment and mitigation strategies. Data analysis can also aid in identifying areas with higher risks and implementing targeted risk reduction measures.

6. **Collaborative Efforts**: Insurance companies often collaborate with other stakeholders, such as policymakers, law enforcement, and advocacy groups, in promoting road safety and risk management. This can include participating in road safety campaigns, supporting legislative initiatives, and working with other stakeholders to develop effective risk reduction strategies.

7. **Uninsured Vehicles**: Insurance plays a critical role in compensating road accident victims. Unfortunately, more than 50% of vehicles plying on the roads of India are uninsured. Despite third-party motor insurance being compulsory by law, a fairly large number of two-wheelers remain uninsured. There is a lot of scope for insurance companies for acquiring business from these uninsured vehicles so that the risk for the insurance company is minimized also it makes sure that proper compensation is provided to road accident victims. IRDA has taken up "Insuring India by 2047" campaign and making sure that insurance watchdog is working towards it.

Chart No. 1 – Uninsured vehicles in India



Role of Insurance in Promoting Road Safety and Risk Management

Insurance plays a critical role in promoting road safety and risk management. As road accidents can result in significant financial losses, insurance serves as a crucial tool for managing these risks and providing financial protection to individuals, businesses, and communities. Here are some key ways in which insurance contributes to promoting road safety and risk management:

1. **Providing Financial Protection**: Insurance coverage, such as auto insurance, provides financial protection in the event of a road accident. It helps individuals and businesses mitigate the financial impact of damages, injuries, or loss of life resulting from accidents. This can include covering medical expenses, vehicle repairs, property damage, and legal liabilities. Insurance helps individuals and businesses recover from the financial losses associated with road accidents and promotes responsible risk management.

2. **Supporting Risk Assessment and Mitigation**: Insurance companies assess and manage risks associated with road accidents through actuarial analysis, data collection, and risk modeling. This helps insurers understand the factors that contribute to accidents and develop strategies for risk mitigation. Insurance companies can also provide risk management guidance and resources to policyholders, such as tips on safe driving practices, vehicle maintenance, and accident prevention measures.

3. **Promoting Road Safety Research and Advocacy**: Insurance companies often invest in research, data analysis, and advocacy efforts to promote road safety. This can include supporting studies on accident trends, risk factors, and effective interventions. Insurance companies can also engage in advocacy efforts to promote road safety policies, regulations, and initiatives at local, national, and international levels.

4. **Encouraging Innovation in Road Safety Technology**: Insurance companies can play a role in promoting the adoption of innovative technologies that improve road safety. For example, insurance companies may offer discounts for vehicles equipped with advanced safety features such as collision avoidance systems, lane departure warning systems, driver sleep behavior detectors, night vision cameras, pedestrian protection systems and telematics devices. By incentivizing the use of such technologies, insurance companies can contribute to reducing accidents and promoting road safety.

Diagram no. 1 – Mercedes-Benz Uses Collision Prevention Assist Technology and Detects Possible Collisions Even Before They Occur by Ultrasonic Sound Wave Sensors

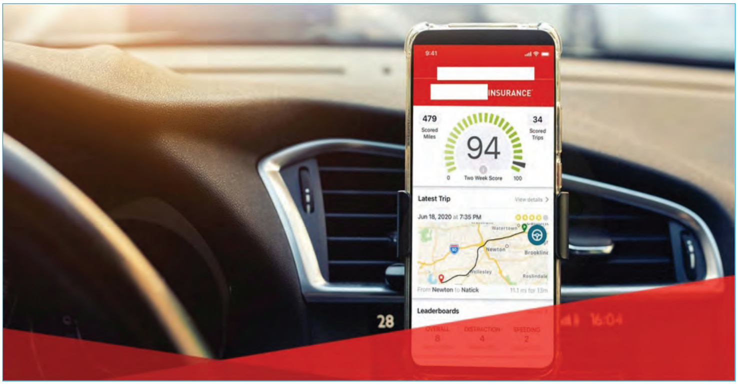
5. **Providing Risk Management Services to Businesses**: Insurance companies often offer risk management services to businesses, including fleet management, driver training programs, and safety consulting. These services can help businesses identify and mitigate risks associated with their operations, such as transportation, delivery, or logistics. By providing risk management services, insurance companies support businesses in implementing safe practices and reducing the risk of road accidents.

Innovative Insurance Products and Incentives for Safe Driving Behaviors

Innovative insurance products and incentives for safe driving behaviors play a crucial role in promoting road safety and reducing traffic accidents. Insurance companies can play an active role in encouraging safe driving behaviors by offering innovative insurance products and incentives that reward safe driving practices. Here are some key aspects of the role of insurance companies in developing and promoting innovative insurance products and incentives for safe driving behaviors:

1. **Usage-Based Insurance (UBI)**: Insurance companies can offer UBI, also known as pay-as-you-drive or pay-per-mile insurance, which bases premiums on the actual usage of a vehicle. UBI utilizes telematics devices installed in vehicles to collect data on driving behaviors such as speed, acceleration, braking, and mileage. Policyholders who exhibit safe driving behaviors can be rewarded with lower premiums, encouraging them to adopt safer driving habits.

Diagram No. 2 – UBI Being Used by an Insurance Company in UK



2. **Behavioral-Based Insurance (BBI)**: Insurance companies can also offer BBI, which uses behavioral data to assess and reward safe driving behaviors. BBI may include factors such as adherence to traffic laws, avoidance of high-risk behaviors like distracted driving, and overall safe driving practices. Policyholders who demonstrate safe driving behaviors can be eligible for discounts or other incentives, motivating them to drive safely.

3. **Incentives for Vehicle Safety Features**: Insurance companies can incentivize the use of safety features in vehicles by offering discounts or other benefits to policyholders who have vehicles equipped with advanced safety technologies such as speed limiters, collision avoidance systems, lane departure warning systems, and anti-lock brakes. This encourages the adoption of safer vehicles and can lead to reduced accidents and injuries on the road.

4. **Driver Education Programs**: Insurance companies can partner with driver education programs to offer incentives for completion of safe driving courses or defensive driving programs. Policyholders who participate in such programs and demonstrate improved driving skills can be eligible for lower premiums or other incentives, promoting safe driving behaviors.

5. **Telematics and Feedback**: Insurance companies can provide policyholders with real-time feedback on their driving behaviors through telematics devices installed in vehicles. This feedback can help policyholders become more aware of their driving habits and make necessary changes to improve their driving behaviors, leading to safer driving practices.

Diagram No. 3 – Telematics Device for Vehicles

6. **Accident Prevention Programs**: Insurance companies can also develop and promote accident prevention programs that provide policyholders with resources and tools to prevent accidents. These programs may include educational materials, online resources, and incentives for policyholders to

take proactive measures to avoid accidents, such as regular vehicle maintenance and defensive driving techniques.

7. Incentivizing Safe Driving Behavior: Insurance companies often offer discounts or incentives to policyholders who demonstrate safe driving behavior. This can include rewards for maintaining a clean driving record, completing defensive driving courses, or using telematics devices that monitor driving habits. By offering financial incentives for safe driving, insurance companies encourage policyholders to adopt safe driving practices and reduce the risk of accidents.

III. Collaborative Efforts

Collaborative Efforts between Insurance Industry and Other Divisions in Promoting Road Safety

Collaborative efforts between the insurance industry and policymakers and other divisions are essential in promoting road safety and advancing the goals of Vision Zero initiatives. By working together, insurance companies and policymakers can leverage their respective strengths to implement effective measures that reduce traffic fatalities and injuries.

One key area of collaboration is in policy development and implementation. Insurance companies can provide valuable insights and expertise in risk assessment and risk management, which can inform the development of evidence-based policies. Policymakers can consult with insurance companies to understand the data, trends, and risk factors related to road safety, and use this information to shape policies that address the root causes of accidents and promote safe driving behaviors.

Another collaborative effort is in public awareness campaigns. Insurance companies can use their resources and reach to promote road safety awareness among their policyholders and the general public. This can include educational campaigns, social media initiatives, and community engagement activities to raise awareness about the importance of safe driving practices, the risks of reckless driving, and the benefits of adhering to road safety regulations.

Furthermore, insurance companies can collaborate with policymakers on road infrastructure improvements. They can provide input on road design, signage, and other measures that can enhance road safety. Policymakers can involve insurance companies in the planning and decision-making process of road infrastructure projects to ensure that they are designed and implemented with a focus on reducing traffic fatalities and injuries.

Diagram No. 4 – Data Taken from Insurance Claims for the Usage of Public Awareness

Additionally, insurance companies can collaborate with policymakers in data sharing and analysis. Insurance companies have access to extensive data on accidents, claims, and risk assessments, which can be shared with policymakers to inform policy decisions. Policymakers can utilize this data to identify trends, patterns, and areas of concern related to road safety, and use it to develop evidence-based policies that are grounded in real-world data and analysis.

Collaboration can also occur in the form of joint initiatives and campaigns. Insurance companies, government agencies, NGOs, and other stakeholders can come together to develop and implement public awareness campaigns aimed at promoting road safety. These campaigns can include educational programs, social media campaigns, community engagement activities, and other initiatives that raise awareness about safe driving practices, the risks of reckless driving, and the importance of adhering to road safety regulations.

Role of Insurance in Fostering Partnerships and Promoting Collective Action

Insurance companies can serve as catalysts for collaboration among various stakeholders, bringing together government agencies, NGOs, road safety organizations, and other key players to work towards common goals.

One way insurance companies can foster partnerships is by serving as facilitators in bringing stakeholders together. Insurance companies can initiate and organize forums, conferences, and workshops that bring together representatives from different sectors to discuss road safety challenges and opportunities, share best practices, and develop collaborative strategies. These forums can serve as platforms for building relationships, exchanging ideas, and identifying areas of synergy and cooperation.

Insurance companies can also play a role in promoting collective action by providing financial and technical support to road safety initiatives. This can include funding research and development of road safety technologies, supporting pilot projects for road infrastructure improvements, sponsoring road safety campaigns, and providing technical expertise in risk assessment and mitigation. By leveraging their financial resources and technical expertise, insurance companies can help accelerate the implementation of road safety measures and promote collective action among stakeholders.

Examples for Collaboration of Insurance and Other Divisions for Road Safety

In India, there are several examples of collaborations between insurance companies and other stakeholders in promoting road safety.

One such example is the collaboration between the Ministry of Road Transport and Highways (MoRTH) and the Insurance Regulatory and Development Authority of India (IRDAI) to develop a motor vehicle insurance database. The database aims to provide a centralized system for recording and sharing information on motor vehicle insurance policies and claims, which can aid in detecting and preventing fraud, and improving road safety.

Another example is the partnership between the Society of Indian Automobile Manufacturers (SIAM) and the IRDAI to develop a voluntary code of conduct for vehicle recall campaigns. The code aims to improve vehicle safety by ensuring that manufacturers conduct timely and effective recall campaigns for faulty vehicles.

Additionally, insurance companies in India have also partnered with non-governmental organizations (NGOs) to promote road safety education and awareness. For example, ICICI Lombard, one of the leading insurance companies in India, has partnered with SaveLIFE Foundation to launch a road safety program for school children. The program aims to educate children on road safety rules and behaviors through interactive sessions and road safety games.

Importance of Insurance Data Collection and Analysis in Supporting Vision Zero Goals

Data collection and analysis play a crucial role in supporting Vision Zero goals, which aim to eliminate traffic fatalities and severe injuries. Accurate and timely data can help identify high-risk areas, behaviors, and factors that contribute to road accidents, enabling policymakers and stakeholders to develop effective interventions and strategies to reduce risks.

Insurance companies play a crucial role in promoting data collection and analysis in road safety. Insurance companies have access to large amounts of data on road accidents and claims, which they can use to identify high-risk areas, behaviors, and factors. By sharing this data with policymakers and other stakeholders, insurance companies can contribute to the development of evidence-based interventions and strategies to improve road safety.

IV. Vision Zero in India

In recent years, India has seen an alarming increase in road traffic accidents and fatalities. According to a report by the Ministry of Road Transport and Highways, there were over 1.5 lakh road fatalities in 2018 alone. In response, the government of India has set a target of reducing road fatalities by 50% by 2025, in line with the United Nations' Sustainable Development Goals. In 2019, the Ministry of Road Transport and Highways launched the National Road Safety Policy, which emphasizes the need for a holistic approach to road safety that includes infrastructure improvements, law enforcement, education, and public awareness campaigns.

Insurance companies in India have also recognized the importance of promoting road safety and have been implementing various initiatives to support Vision Zero. For instance, Bharti AXA General Insurance offered a usage-based insurance policy called "DriveSmart" that uses telematics devices to track driving behavior and offer discounts for safe driving habits. Similarly, HDFC Ergo offers a similar policy called "My:Health Suraksha Car Plan" that offers personalized pricing based on driving behavior data collected through telematics devices. In addition, insurance companies in India are also collaborating with government agencies and other stakeholders to promote road safety initiatives. For example, ICICI Lombard has partnered with the Mumbai Traffic Police to launch a road safety campaign called "Ride to Safety" to raise awareness about safe driving practices and reduce accidents. IRDA implemented regulatory sandbox framework which allows insurance companies to come up with new and innovative insurance products. Through this option, insurance companies can collaborate with other stakeholders to develop and implement innovative solutions for road safety also this approach can help insurance companies to identify high-risk drivers and provide them with targeted interventions to improve their driving behavior. IRDA also committed to enable "Insurance for All" by 2047.

However, implementing Vision Zero in India presents several challenges, including inadequate infrastructure, human behavior, lack of enforcement, and a high number of uninsured drivers. To overcome these challenges, collaborative efforts between insurance companies, policymakers, and other stakeholders are necessary to promote road safety and reduce fatalities. Additionally, the use of advanced technologies such as telematics and predictive analytics can help improve risk assessment and mitigation strategies, thereby supporting Vision Zero goals in India.

V. Conclusion

In conclusion, the role of insurance in promoting road safety and reducing traffic fatalities is multifaceted and critical. Insurance companies play a significant role in risk assessment, mitigation, and fostering partnerships with policymakers, government agencies, NGOs, and other stakeholders to promote Vision Zero initiatives. Through innovative insurance products, incentives for safe driving behaviors, and collaborative efforts with various sectors, insurance companies can contribute to reducing road accidents, injuries, and fatalities.

We discussed the definition and background of Vision Zero, which emphasizes the importance of road safety and the goal of eliminating traffic-related deaths and severe injuries. We explored the objectives and principles of Vision Zero, which include a focus on human life, safe mobility for all, and shared responsibility among different stakeholders.

We also highlighted the challenges and opportunities in implementing Vision Zero initiatives, including the need for coordinated efforts, infrastructure improvements, policy changes, and community engagement. We discussed how insurance companies can assess and mitigate risks, influence policy development and implementation, and foster partnerships to promote collective action towards road safety.

We also touched upon collaboration of insurance companies with other stakeholders for road safety. These essential partnerships demonstrate the collaborative efforts to create meaningful impacts in reducing traffic fatalities and injuries. TJ

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Insurance Roadmap for Vision Zero

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Ms. Saha is Engineer turned General Insurance Professional with 11 years plus experience in this domain. She has been associated with ICICI Lombard since 2012 & has served various roles & dealt with multiple products during this tenure.

What is VISION ZERO?

Is it just a term coined for the people sitting at the top of the pyramid or is it actually a vision where all stakeholders come together to participate and ensure the fulfillment of the task at hand?

Each one of us has the fundamental right to life & health. However the number of fatalities happening on the roads or at workplace make us question this – hence it becomes a collective responsibility for ensuring the safety of these lives. VISION ZERO is based on an underlying ethical principle that "it can never be ethically acceptable that people are killed or seriously injured when moving within the road transport system. VISION ZERO was first kicked off in Sweden in 1997 where they had decided to have zero road accident fatalities by 2050 & reduce it to 50% by 2020. From there, not only has it transgressed to rest of Europe, America & later to entire world; it has also branched out to occupational diseases too.

VISION ZERO is becoming more and more widely known and pursued around the world. A lot of this is thanks to the work of the German Social Accident Insurance (DGUV), the International Social Security Association (ISSA) and the International Labour Organization (ILO). The heads of government of the seven most advanced industrial nations, known as the G7, also announced their commitment to VISION ZERO and their global responsibility at their annual meeting in 2015 in Elmau, Germany.

World Accident Statistics

The International Labour Organization (ILO) estimates that some 2.3 million women and men around the world succumb to work-related accidents or diseases every year; this corresponds to over 6000 deaths every single day. Worldwide, there are around 340 million occupational accidents and 160 million victims of work-related illnesses annually. In the United States, the National Highway Traffic Safety Administration (NHTSA) projects there were an estimated 42,915 traffic fatalities in 2021, a 10.5 percent increase compared to 2020 and the highest annual percentage increase in the Fatality Analysis Reporting System's history. 55% of motor vehicle deaths were the result of single-vehicle crashes, according to 2020 statistics published by the Insurance Institute for Highway Safety (IIHS).

India itself witnessed as many as 4,12,432 road accidents in 2021 in which 1,53,972 people were killed, while 3,84,448 individuals were injured, according to the data released by the Ministry of Road Transport and Highways (MoRTH). According to a recent World Bank report titled 'Traffic Crash Injuries and Disabilities, India accounts for 11% of all road fatalities worldwide, the highest in the world, despite owning only 1% of all vehicles.

Principle

VISION ZERO stands on its 4 basic principles, namely –

- **The first principle:** Life is not negotiable – Lets get our facts straight. The whole aim is to save lives – so this becomes the primary objective.
- **The second principle:** People make mistakes – One can't be attentive all the time. It is human to make mistakes. So aim here

is to try to build an infrastructure which prevents accidents even if people make mistakes.

- **The third principle:** The ability to cope with physical and mental pressure is crucial – In case an accidents does happen – the ability to cure the person is what needs to be focussed on here.
- **The fourth principle:** Situational prevention comes first – This focusses on various infrastructure in terms of road designs, vehicle manufacturing etc. Simply reinstating the saying that Prevention is better than Cure.

Rules & Stakeholders

The rules and components of VISION ZERO help in establishing the framework for its successful execution. They lay the ground work & help the people associated with it to give them a direction.

The 7 Golden rules of VISION ZERO is described as follows –

Rule 1: Take Leadership – Demonstrate Commitment

Rule 2: Identify Hazards – Risk Management (Reduce Occurrence & Impact)

Rule 3: Define Targets – Outline Effective Programmes

Rule 4: Ensure a safe and healthy system – Drafting SOP & Well organized System

Rule 5: Ensure safety and health in machines, equipment and workplaces

Rule 6: Improve Qualifications – Enhance Competence

Rule 7: Invest in People – Participation must be rewarded with aim to motivate

The Vision Zero Network in America describes the following 9 components which are proving helpful in building a strong base for successful implementation of VISION ZERO –

Vision Zero Fund

The VISION ZERO FUND (VZF), multi donor trust fund, an initiative launched in 2015 by G7 and has also been endorsed in G20 is an International Labour Organization (ILO) flapship programme. VZF welcomes contributions from governments, intergovernmental or nongovernmental organizations, and from private sources including companies, foundations and individuals. VZF's main objective is to increase collective public and private action aimed at fostering and enhancing concrete occupational safety and health (OSH) prevention activities in businesses operating in low and middle income countries.

Vision Zero India

Since the International Vision Zero Conference at Delhi in March 2017, DGUV (German Social Accident Insurance) and BG BAU (German Social Accident Insurance Institution for the building trade) have organized seven Vision Zero conferences in different states, with the support from the International Social Security Association (ISSA) Prevention Sections for Construction, Electricity, Mining, Transportation and Information.

In India, almost 200 companies and organizations have already joined as Vision Zero partners. The pandemic however had managed to dampen the initial efforts. Organisations such as Haryana Vision Zero (HVZ) had been pushed to the stage of closing operations in 2020 due to lack of funds. As of now, the Government, car manufacturers, insurers are all working in tandem to achieve the desired outcome of zero accidental fatality by 2050.

Vision Zero - Scope of Insurance

Insurance is an essential part of road safety, and it plays a critical role in reducing the number of fatalities and injuries on the roads. Insurance companies alongwith vehicle manufacturers have access to a plethora of data. In this age of machine learning & data analytics, this information can be used for predictive analytics which will eventually help in prevention of accidents. Insurance companies can also encourage the use of technology to uncover dangerous patterns, build risk models, and help improve the safety of our roads.

Insurance companies are already working on spreading awareness for road safety which establishes the ground work for VISION ZERO. SBI General Insurance has partnered with Doers NGO to support the Himachal Pradesh police in reducing the number of road accidents as part of its CSR program. ICICI Lombard had partnered with Vega Helmets – customers to get access to personal accident insurance on every online purchase of Vega Helmet.

Electric Vehicles raises new questions to the road safety in the entire world. Most manufactures are of the opinion that these will eventually be the safest option to travel. This area needs to be focussed on in near future & will be one of the things to look out for since rules wrt insurance are yet to be formulated specifically for EVs.

Proposed Actionable – Detailed Role of Insurance – An India Perspective

1. **Offering Health & Life Insurance bundled as 1 product** – Currently insurance companies in India operate on a standalone life insurance or general insurance. What needs to be in this regard is to award companies composite license so that necessary products could be bundled & offered to clients. In case of an accident – a person may need either health or life insurance & both coming in the same policy will save a lot of hassles on ground. The age group of most accidental fatalities lie between 15-45 hence both these covers are equally important as most of them are the bread earners of their families.

2. **Motor vehicle insurance** – Currently vehicle insurance has only third party insurance & own vehicle damage. An important feature which needs to be added here is an emergency medical insurance extension.

3. **Workmen compensation** – The workmen compensation act ensures provision of payment by certain class of employers to their workmen compensation in case of any injury by accident at work. This type of insurance offers

medical extension/hospitalisation in case of an emergency as a rider option now which most employers do not opt for. Same if made a mandatory, will help in saving a lot many lives.

4. **Personal accident insurance for rider to be made compulsory while purchasing a motor insurance policy** – As per the current motor insurance act in India, a person cannot drive a vehicle without proper insurance against third party risk. What it does not make mandatory is the personal accident insurance cover. This ensures compensation in case of an eventuality.

5. **Insurance companies to aggressively work towards fraud control in motor insurance policies so that the correct policy is being purchased** – As of now, there is a lot of frauds happening across many belts for fake policy copies or incorrect policy copies. A check needs to be put on the same. Although companies are already working towards the same, it needs to be fastened with the use of technology extensively.

6. **Companies to engage in CSR activities & campaigns for road safety** – As the name suggests, reaching out to masses for awareness is nipping the issue at the bud. All insurance companies be it SAHI, Life or General need to extensively engage in the same.

7. **Policy issuance counters to be increased** – We have definitely covered a lot of journey since insurance policy can be availed at petrol pumps also. But the reach needs to be increased further. Probable places could be police check points, toll tax stops, garages or auto repair markets. If at any police check post, it is found that the rider does not have necessary insurance papers, then such access will help him get a policy then & there.

8. **Working on a model where insurance status can be synced with FASTag** – Fastag is an electronic toll collection system in India operated by the National Highway Authority of India (NHAI). It employs Radio Frequency Identification (RFID) technology for making toll payments directly from the prepaid or savings account linked to it. Scanners for this, if installed at petrol pumps can be used for various purposes if integrated with Vahan. Vahan/Parivahan is an aggregator project of Govt of India where every individual vehicle owner can check his details wrt his vehicle – in terms of license, insurance, pollution, registration – this has helped digitizing all associated details of a vehicle. Fastag if integrated with Vahan can ensure getting insurance/ pollution done in order to get fuel at petrol pumps.

9. **Insurance companies to jointly work with car manufacturers for telematics device** – to be made compulsory for 4 wheelers & above where same is not being provided by the car manufacturer. Driving behaviour in terms of speed limit, e-challan, CIBIL, to impact highly in pricing of motor insurance policies. Insurance companies to work hand in hand with government for data on road cameras. Dashboard cameras to be of excellent use in cases of fleets / vehicles of delivery companies. Such joint operations with vehicle manufactures & government will give additional access to a lot of data at the hands of insurance companies. Such data can be analysed properly to not only design better insurance policies but also guide the government for the accident prone zones & hence design roads/road safety accordingly.

10. **Railway & Bus tickets to come along with mandatory PA cover alongwith emergency medical extension** – Currently this is just an option in terms of booking a train/plane/cab ride. The same if made mandatory can ensure adequate coverage to all passengers.

11. An automatic break/ kavach system to be inbuilt in vehicles or atleast an alert system for pressing brakes in terms of set proximity parameters. This data can also help insurance companies design policies so as to incentivise/penalise wherein such triggers are being needed.

12. Motor Insurance policy bundling – If all vehicles registered at one address can be offered discount/ any other form of incentive given if any of the vehicles if portrayed good driving behaviour. Same can be penalised for opposite behaviour. This will have greater impact since it will cost the owner more dearly for a bulk deal.

Conclusion

As noble as the thought of VISION ZERO is, the tougher the implementation of the same. Although it is a daunting task – its not that the something that the world cannot go ahead & do it. Multiple stakeholders involvement might delay the work but with correct drive & zeal – the target can be achieved by 2050.

Insurance being an important stakeholder plays a pivotal role in successful execution of VISION ZERO. By joining hands with policy makers, vehicle manufacturers & OEMs – it can make correct use of the enormous data at hand & not only guide its internal policy design but also guide the overall layout for VISION ZERO. TJ

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Vision Zero – Role of Insurance

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Abstract

The paper is to highlight the Concept of Vision Zero initiatives and emphasizing on the role of Insurance Industry can play to achieve the objective of vision zero initiatives worldwide through active participation of Insurers and regulators.

Entire world, specially the developing and under developed countries are struggling to control the deaths and Injuries caused by uncontrolled movement of the vehicles on roads, contributing to the deaths and permanent disabilities more than any pandemic or natural calamities.

In developing country like India, during the year 2021, total 4,12,432 road accidents were reported claiming 1,53,972 human lives and 3,84,448 injured persons in the most productive age group of 18 to 45 years.

This fatalities & Injuries on road not only affecting the Insurers but also the GDP of the country hence needs to be controlled on war footing.

Introduction

Globalisation has brought pace in the development and so as the exponential growth in transportation, whether it is transportation of passengers or goods the number of road users increased by manifolds with proportionate increase in number of motor vehicles.

This uncontrolled growth of the road users/motor vehicles has brought the side effects causing more accidents/ collisions on the road resulting in fatalities of either passengers or pedestrians.

These fatalities not only caused mental trauma to the nears and dears of the accident victims but also caused financial trauma to the governments and the Insurers thus checking the pace of growth.

The compensations paid by the governments directly affecting the GDP and economic growth of the country hence governments took initiative to control the fatalities using traditional methods but results were not appreciating and fatalities are increasing with every passing day.

In 1990's an initiative was started in Sweden to make strategies across the globe with vision to bring down the road fatalities to Zero.

Study shows 85 % of accidents occurs due to human errors hence Vision Zero took holistic approach towards community awareness about safer roads, observance of traffic rules and to educate the public for safe usage of roads.

Fundamental of Vision zero is to moving from traditional approach to a safe systematic and scientific approach in minimizing the collisions.

In earlier days it was an accepted norm that the road accidents are bound to happen, deaths and injuries are unavoidable as it was felt that changing road user's behaviour is next to impossible.

Introduction of print and digital media has brought the revolution in the society and the thinkers started their efforts to use these tools to spread awareness and education.

This changes brought revolutionary vision – Zero, an initiative to change the Individual behaviour and masses approach towards road safety.

Core Elements of Vision - Zero

1. **Commitment of leadership**: Vision – Zero cannot be achieved without commitment from the leadership. The elected leaders should always think of Safety first while designing the policies, laws and acts and always given high priority to safety of human life on road. There should be always follow up from the leadership and keeping control of the practices leading to safer roads with day – to – day work for vision – Zero

Positive engagement of the leadership with representatives of the community will not only bring the culturally relevant ways but also convey the effective vision – zero initiatives to the masses through their representatives.

It also brings the inputs from the community to design proper and appropriate vision – zero strategies to be implemented.

2. **Safe infrastructure:** While expecting vision – zero, the provider of the infrastructure should also think of designing well engineered roads, bridges & intersections for smooth and collision free movement of the traffic including properly synchronised signalling using advanced technologies and algorithms

3. **Data collection and Analysis using AI tools:** Now – a – days, when we are discussing the use of advance telematics, we should have strong data bank to feed in the system for effective and error free intelligent output. The data bank can be used in research and analysis of blind spots, accident prone spots and to check the trends for corrective measures.

Vision – Zero can only be achieved by use of large data of errors made in past to secure and safe future.

4. **Transparency & Accountability**: Vision – Zero is a collaborative and cooperative movement where all elements of the society should contribute their best to achieve the desired goals hence transparency in our planning & Execution of the policies is must.

Next is the accountability, enforcement of the vision – Zero policies to be on time line basis and all enforcement authorities must follow the zero tolerance for offenders either on the road or authorities responsible for execution of the policies and safety norms.

Either it is life Insurance or general Insurance, the entire Insurance Industry facing financial trauma due to road accidents but never initiate any coordinated efforts to bring down their losses by scientific approach to reduce the fatalities although having good data bank of accidents, place of accidents, cause of accidents and the perils.

"Preventions is Better than Cure" or "Stich in time Saves Nine"

The Insurance Industry is losing their valuable resources in paying the compensation to road accidents victims.

The worst hit Insurance Industry has vested interest in reducing the number of accidents on the road. They are the ones who pay out claims to victims of vehicle accidents, and as a result, they have a significant financial incentive to reduce the number of claims they must pay out. To achieve this, insurance companies have major role to play in Vision Zero Initiative.

The Insurers can play major role in achieving the objectives of Vision Zero by adopting the following measures…

1. **Analysis of Available Data**: All insurers have very handsome chunk of data but never thought of using the same for reducing their losses, instead the insurers seldom sharing their data with others and silently and individually carrying the burden of losses without any initiative towards reducing the accidents & fatalities.

Collective and coordinated analysis of available Data using advanced technological innovations not only suggest them the ways of reducing the accidents but also the losses and earn good will in the Society.

2. **Community Awareness**: By participating in various road safety programs, in coordination with

various road safety authorities for explaining the importance of safety and observance of traffic rules the insurers can not only bring down the number of accident but create a community friendly repo in society which will help them grow their business and brand value.

3. **Proper training to Drivers:** 85 % of the road accidents occurred due to human errors either it is driver of the vehicle or road user: pedestrian, both play vital roles hence Insurers needs to contribute in proper training to drivers at initial stage and refresher training at the training centres owned by them after an accident, to the drivers of the vehicle insured with them. It is very important for a driver to maintain his mental cool while driving the vehicle and his behaviour, it can only be achieved by proper physiological training through regular lectures and community interactions.

4. **Seminars and Get together:** Insurers can invite their policy holders for routine get together to educate the road users for safe driving habits by explaining the loss (personal & Financial) because of an accident and measures to be adopted to keep the road users safe by reducing numbers of accident thus reducing the fatalities and other consequential losses.

5. **Supply of Road Safety Tips:** Insurers can supply safe driving tips manual or booklet with the Policy to educate the vehicle user for their approach to the road safety.

6. **Participation in Road Safety programs**: Insurers can contribute in road safety weeks observed by the authorities for spreading the awareness about safe road use and observance of traffic rules.

7. **Sponsorships:** The Insurers are providing towing services to the car owners in case of accidents, similarly the Insurers with collective and coordinated pool can adopt the emergency response services like Ambulances and other para medical services through their CSR funds to reduce fatalities on road in turn save them from the losses.

8. **Free Camps:** All Insurers under collective and coordinated initiatives can arrange free eye check-up camps, lectures in local language at road side eateries, Dhabas, Motels to commercial vehicle drivers for improving their behaviour while using highways and express ways from their CSR funds or common pool thus motivating the drivers for safe mobility practice and respect towards traffic regulations and rules.

9. **Vehicle Design**: Insurance companies also play a critical role in promoting safer vehicle design. They have a significant influence on the automotive industry by setting safety standards and incentivizing the production of safer vehicles. For example, insurance companies offer discounts to customers who purchase vehicles equipped with advanced safety features such as automatic emergency braking, lane departure warning, and blind-spot monitoring. By encouraging the production and purchase of safer vehicles, insurance companies help to reduce the likelihood of accidents and save lives.

10. **Road Designs** – As per study 2 % to 5 % accidents are caused because of improper road designs or say bad engineered roads, The Insurers has huge pool of data from which they can shortlist the accident prone spots and bad roads causing accidents, through scientific study using AI and animations, the engineers and Surveyors associated with the Insurers can suggest the conditions to be adopted while designing the roads, intersections, bridges, fly overs and Junctions keeping in view the local conditions.

11. **Appreciating Infrastructure**: Insurance companies can also provide financial incentives for local governments to invest in safer infrastructure. For example, many insurance companies offer grants and financial incentives to cities that invest in road infrastructure improvements such as the installation of pedestrian crossings, traffic lights, and bike lanes. By investing in safer infrastructure, cities can reduce the number of accidents and improve the overall safety of their streets.

12. **Distribution of Safety gears:** The Insurers can randomly distribute the helmets to their two-wheeler policy holders thus motivating them for using the safety gears always and observing safe road practice.

13. **Use of Surveyors for Motivation of road users**: The Indian Insurance Industry has over 12000 well qualified professional surveyors and loss assessors having adroit knowledge of road accidents and circumstances

leading to the accidents, but neither the regulator nor the insurers took advantage of this community to motivate their policy holders towards Vision – Zero initiatives. This force of 12000 professionals can do wonders if start educating the community for safe practices on the roads with their technical knowledge in training safe driving skills.

14. Co-ordination with Various ASSOCIATIONS active in the Motor Industry: All countries are having associations of car owners, commercial vehicle owners and Professionals active in the Insurance Industry. Either the Insurers or the regulator can coordinate with these associations to spread awareness about Vision – Zero initiative and seek their help in community awareness.

In India, there are various associations taking active participations in reducing the accidents and spreading awareness in public, the associations are

i) **Association of Investigators & Detectives (AID):** This is an association of Investigators working for Insurance Industry for Investigation of OD & TP claims thus the members have large data of accident prone spots, Trends in road Accidents, Quantum involved in road fatalities and many more, this professionals are always instrumental in mitigating the losses and suggesting the measures to be undertaken to avoid eventualities on the roads through their professional reports can be the biggest asset if their knowledge be used for Vision – Zero Initiatives.

ii) **Western India Automobile Association:** Insurers can coordinate with this association of private car users for motivating the car users to achieve Vision – Zero objectives.

iii) **All India Motor Trade Association, All India Motor Lorry Owner's Association, All India Tanker Owner's Association, All India Container Truck Association:** These associations of commercial vehicle owners have great influence on the Leadership and the Authorities on one side and on Owners and drivers of the heavy vehicles on other side. If Insurers in coordinated manner educate the members and leadership of these associations for the benefits of the accident free roads, then I am sure that Vision - Zero objectives will be achieved in most sustainable manner.

Aforesaid are some major areas where the Insurance Industry can contribute in achieving the Vision Zero objectives.

In above topics we have discussed the role of insurance to reduce the accidents on road & mitigating number of deaths and Injuries to the road users, in following topics, we will discuss the post-accident management and role of Insurers in the vision zero initiative.

How Insurers Can Achieve Vision Zero Objectives Through Post - Accident Management

In developing or underdeveloped countries due to poor health and post-accident emergency services, the accident victims losing their lives which can be saved through proper post-accident response systems with contribution of Insurance industry as lead stake holder.

Following are some post-accident response systems where the Insurance Industry can play significant role in reducing deaths and permanent disabilities…..

1. **Encouraging community to be good Samaritan**: Whenever there is any accident the general public rush to the accident spot and assisting the victims to get emergency services but some people scared of helping the victims to avoid any legal hassles later on. Here the Insurers through public awareness programmes using social media can encourage the general public to be a Good Samaritan and make them aware of legal provisions of **"Good Samaritan Law"** of not to harass the person helping the road accident victims and create confidence in the community and encouraging them not to turn back to the victims but to help them in their full capacity.

2. **Proper training of First Aid and proper handling of accident victims**: At accident spots, many good Samaritan bystanders trying to support the accident victims but

some time ends up in aggravation of injuries which cannot be cured and leading to death, hence it is very important that the Good Samaritan should have proper training to handle the accident victim and know the basis techniques of first aid.

The Insurers if through public campaigns, slides, Posters and short films can contribute in this initiative will result in reduced fatalities and thus saving lot of money to be paid through compensations.

3. **Way to Ambulance – Awareness:** The governments are doing their best to provide Emergency response system to the road victims but some times due to congested roads and traffic jams the emergency response systems fails and Ambulance can not carry the victims to the medical centres. Through public awareness and as social responsibility the Insurers can train the drivers to give way to Ambulances and any other such Emergency response services to avoid the fatalities.

4. **Contribution in WHO's Emergency, Trauma and Acute Care programme**: This programme is dedicated to strengthen to the emergency care systems that serve as the first point of contact with the health system for so much of the world, and to supporting the development of quality, timely emergency care accessible to all road accident victims. The Insurers can play vital role in this Initiative by contributing in building state of Art accident trauma services near the accident-prone spots on key highways, thus reducing the number of deaths and disabilities indirectly incentivize the compensation payment system.

5. **Appointment of Emergency Management Professional:** If all and every Insurer appoint Emergency Management Professional who can collect, store and analyse the accident, Death & Injury data to design pre-and post-accident strategies to minimise the road accidents and manage the emergency situation for mitigation of losses and being assigned to achieve the objectives of Vision Zero initiatives will create great positive impact on profitability of the industry.

This Professional can also play very active role in creating Coordination between the various authorities, NGO's, Insurers and other stake holder in Vision – Zero Movement

The Issue of road safety becomes even more important for India, having one of the largest networks of roads in the world. The unprecedented rate of motorization and growing urbanization fuelled by high rate of economic growth have compounded the problem, our country is leading in fatalities and contribute 11 % with 422 deaths every day and 18 fatalities every hour due to average 4,12,432 road accident every year which is far more than the nos. of human lives claimed by any pandemic or natural disaster.

We are losing our talent between age group of 15 to 49 on roads, hence we need to work on this issue on war footing to achieve the Vision –Zero initiative with very aggressive participation from Insurance Industry. **TJ**

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Vision Zero: Ruminations on the Role of the Insurance Industry

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1. Origins of the Vision Zero Philosophy

The concept of zero accidents and zero harm can be traced back to Éleuthère Irénée Du Pont de Nemours who had set up a gunpowder factory in 1802 to blast the way for building roads and railway tracks, in the United States of America. In 1818, an explosion destroyed a large part of Du Pont's gunpowder factory, and killed 36 people, including his employees and friends. The incident triggered of vociferous protests from the elders of the town and the masses who were not willing to accept such a dangerous factory in the town. The situation made Du Pont realize that while dealing hazardous processes like producing gunpowder, multiple safety measures were necessary, and introduced three concrete measures that got accepted globally, over time. First, he established a new philosophy of safety that required his production managers to live on the company site, in proximity of the powder mills, thereby integrating their responsibility to ensure safety at the plant as part of their personal necessity and corporate culture. Secondly, Du Pont introduced a new set of safety regulations, arguably the first time in the history of industrialization. Thirdly, he invested in safer production technology and brought in the concept that products should be safer. Du Pont is regarded as the father of the safety philosophy due to these measures, which the world knows today as the Vision Zero philosophy.

The Vision Zero concept was driven by the ethical principle that everyone has the right to move safely within their communities and also that "*life and health can never be exchanged for other benefits within the society*".[1]

1.1. The Road Safety Dimension: The Vision Zero concept got revived in Sweden, in 1997, around 180 years after Du Pont, this time as a road traffic safety project to create a roadway system without any fatalities or serious injuries involving road traffic. The Vision was a marked change from the traditional approach of analysing the costs and benefits of safety related expenditures, where the monetary value ascribed to saving lives and preventing injuries were being assessed while deciding the amount of money to spend on decreasing road risks.[2]

Over the years, the Vision Zero concept was adopted in different countries variously, and despite the increase in the number of vehicles and pedestrians, today, the movement is widely credited for reducing severe collisions and fatalities on roads to a significant extent. Vision Zero was adopted

1 What Is Vision Zero? Overview and Effectiveness- https://www.treehugger.com/what-is-vision-zero -6828484

2 ibid

in the United States of America in 2000. During the two decades that followed, governments, corporations, communities, as well as the people who design, maintain, operate and use the roadway network collaborated variously to make the roads safer in the 50 jurisdictions of the country.

The Vision Zero movement believes that any situation of people getting killed or seriously injured when moving within the transportation system is not acceptable and states that[3] *"system designers and policymakers share the responsibility to ensure safe systems for travel."* 'Vision Zero' became a global non-profit campaign to achieve zero traffic-related fatalities and serious injuries among all categories of road users including drivers, cyclists, and pedestrians.[4]

The top three priorities[5] of Vision Zero Network that call for policy level changes are identified as (i) 'managing speed', (ii) 'centring equity' and (iii) 'engaging communities.' Speed can be managed by designing safer streets, lowering speed limits, implementing automated speed enforcement, and meting out harsher punishment for speeding offenses. Equity focus would include identifying areas (and communities) that are greatly impacted by traffic deaths and serious injuries, and prioritizing roadway safety investments in such areas. Community engagement underscores the importance of working with and supporting community based organizations to work more effectively with residents.

1.2. The Industrial Safety Dimension: This concept of Vision Zero was launched in September 2017 by the International Social Security Association (ISSA), as a transformational approach to prevention that integrates the three dimensions of safety, health and well-being for employees at all levels of work. The Vision Zero vision is to prevent fatal and serious work accidents and occupational diseases[6] in an attempt to build a world without occupational accidents and work-related diseases and strives. Soon the programme got the support of the Institution of Occupational Safety and Health (IOSH) and the two organisations co-developed the Vision Zero training package. ISSA designed its 'Education and Training for Prevention' programme to make people better aware of the risks they are likely to encounter, and to support them in preventing accidents. ISSA believes that instead of preparing and circulating 'prevention rules', some key people like decision-makers, safety engineers, technicians, industrial experts, employee representatives, and operators of various machines need to play active roles in preventing occupational accidents and disease prevention through training in occupational risk prevention and working at deeper levels.

The International Labour Organization (ILO) joined hands with ISSA in March, 2012 to emphasize their commitment to collaborate with other international organizations and in promoting social security. The collaboration recognizes the complementarities and the potential for better coordination of ISSA and ILO, particularly in the extension of social protection, and commits the two organizations to closer programmatic and strategic cooperation. *"Every worker, everywhere deserves a safe and healthy workplace",* says the Vision Zero Fund (VZF) of the International Labour Organisation. The VZF goal *"is a world with zero workplace deaths, accidents and diseases"* as they *"look beyond conventional approaches to find new solutions to the challenge of worker safety and health in global supply chains."*

ISSA recognises that accidents at work and occupational diseases always have causes. ISSA also recognises that many such causes can be identified reduced and work related accidents, harm and occupational diseases can be prevented by building a strong culture of prevention. In addition to these two major areas, there are multiple related dimensions, some known and discussed and many that are yet to reveal themselves.

3 Action Vision Zero - https://actionvisionzero.org/why-vision-zero/

4 ibid

5 A Primer on Vision Zero - https://visionzeronetwork.org/wp-content/uploads/2018/05/What-is-VZ_FINAL.pdf

6 Vision Zero - https://visionzero.global/why-vision-zero

1.3. The Four Principles of Vision Zero: ISSA's Vision Zero concept is flexible enough to be adjusted to the specific organisational and contextual priorities related to safety, health or well-being. However, one should recognize certain principles that are at the core of the Vision.

1.3.1. Principle One: Life is not negotiable: The most important principle of Vision Zero is that human life is more important than everything else. Practically every country treasures the right to life and physical integrity as part of the basic or fundamental rights of the citizens. However, ILO's global estimates that around 360,000 fatal accidents happen at work, around 1,950,000 deaths are attributable to poor working conditions and exposure to harmful substances at work; and approximately 4% of the world's gross domestic product is lost with the cost of injury, death and disease through absence from work, sickness treatment, disability and survivor benefits annually. These figures assume poignancy as this scenario is despite most governments having enshrined such basic human rights within its constitutions and tenets. This would also sadly indicate that much remains to be achieved in terms of real progress. Protecting people from fatalities from accidents is the duty of the government and all its arms, civic bodies, corporates, professionals and practically everyone in the system including insurers.[7]

1.3.2. Principle Two: People make mistakes: All efforts notwithstanding, one should realize and accept that that mistakes at work and on the roads cannot be completely avoided. Some scientific studies[8] have proven that human error needs to be accepted as the rule and reality, rather than as the exception, because human beings have very limited capability to perceive and process the abundant information from the environment, compare it with memorised information, think decisively and act optimally with due swiftness. This means that with one can reasonably expect to find human errors at numerous places in the chain of events that led to the accident whether on the roads or at work. In addition, the human brain can be clouded by emotional, motivational and stress-related processes leading to human error resulting into accidents.

Accidents are often caused because the systems do not guarantee that the work will be performed safely, that life-saving safety regulations will not be ignored, and timely intervention to prevent the accident will be ensured. The need for prevention needs to be understood from three angles, (i) the importance of setting up a management culture that ensures preventive care, (ii) the importance of company executives and the management being aware of and being committed to their responsibilities of prevention, and (iii) the compulsion on all people and systems to act optimally in time.

1.3.3. Principle Three: The ability to cope with Physical and Mental Pressure is crucial: Once we accept the position that mistakes can happen, the logical step that would follow would be to minimize the impact of the mistake. While all efforts are required to be taken to prevent accidents, it has to be ensured that in case accidents happen, the injuries caused are bare minimal and not serious. This principle is succinctly conveyed in the statement *"Everybody gets there safe and sound"* made by the German Road Safety Council (DVR), when it committed itself to Vision Zero and the development of design principles for vehicles and infrastructure to minimise injuries, including assistance and safety systems. This principle is expected to assume more importance as human beings share more space with intelligent machines like driverless vehicles, self-navigating ships, and robots, sophisticated apparatus like intelligent implants and prosthetic devices, as well as with remote controlled apparatuses and applications without protective barriers.[9]

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7 Vision Zero – The Global Prevention Strategy For Life, Towards Safety, Health and Wellbeing at Work, Helmut Ehnes, Secretary General, ISSA Mining - https://visionzero.global/sites/default/files/2019-05/VISIONZERO TheGlobal PreventionStrategy.pdf

8 ibid

9 ibid

1.3.4. Principle Four: Situational Prevention comes first: The situational prevention principle assumes importance as most of the people who are exposed to accidents do not have the wherewithal to anticipate and protect themselves. This situation places the onus to act on those who have the knowledge, the means and the power to make changes to workplaces, traffic systems and the like in order to adapt them to suit human beings, and not the other way around. While employers, managers, machinery manufacturers, planners and authorities are primarily responsible for designing the appropriate parts of the systems to ensure that the system as a whole is safe, individuals also have their responsibilities of (a) obeying laws and regulations and (b) being aware of the risks to themselves and others, as a result of what they are doing and what they are failing to do. This 'shared responsibility' is core to Situational Prevention.

2. Insurance and Vision Zero

Safe and healthy working conditions are not only a legal and moral obligation – they also pay off economically to Governments and to the entire economy. International research on the return on investments in prevention proves that every dollar invested in safety and health does generate a potential benefit of more than two dollars in positive economic effects.[10] Though it may be difficult to accurately assess the value of the losses that have been averted in the past, quantify the economic benefits that would accrue to the insurance industry in the future by way of loss prevention and loss minimisation activities, and prove the economic benefits vis-à-vis the various costs involved, especially in complex situations and multiple country contexts, there is no doubt that the insurance industry can reap significant economic benefits by supporting and implementing Vision Zero concepts. From a different perspective, long before Vision Zero Campaigns started, insurance companies have been encouraging safe driving practices, advocating the need for better road infrastructure, overall reducing crashes, and thereby lowering the number of claims made.

2.1. Governance: Governance gaps, deficient legislative frameworks, insufficient knowledge and resources, unsustainable business practices, and the absence of a culture of prevention at national and workplace levels result in unsafe and unhealthy working environments. All enterprises have the responsibility to mitigate the risk and the effects of workplace injuries and occupational diseases. As providing protection to employees from injuries at workplace is vital to maintain social harmony and inclusiveness, Governments and enterprises have the responsibility of addressing this challenge.

2.2. Society: Through its Global Programme on Employment Injury Insurance and Protection (GEIP), the ILO promotes the safety of workforces from injury and occupational diseases, in an attempt to establish a culture of prevention in Occupational Safety & Health (OSH).[11] Globally, Employment Injury Insurance Schemes (EIIS) work along with robust Operational Safety and Health (OSH) practices to achieve Sustainable Development Goals[12] such as no poverty (Goal 1), good health and well-being (Goal 3), quality education (Goal 4), decent work and economic growth (Goal 8) and partnerships for the goals (Goal 17); and contribute in protecting the vulnerable and providing universal health coverage and access to quality health care services by 2030. EIIS and OSH help in promoting safe and secure working environments for all workers, including migrant workers, women migrants, and others in hazardous employment situations.

2.3. Road Safety: Vision Zero initiatives have been adopted by many countries, globally. In the United States of America, metropolitan areas like New York City, Los Angeles and Portland, local governments like Hoboken, and around 40 communities have demonstrated success in reducing

[10] Why Vision Zero - https://visionzero.global/why-vision-zero

[11] Employment injury insurance and protection - https://www.ilo.org/global/topics/geip/lang--en/index.htm

[12] How to Improve Safety and Health in Global Supply Chains, UN Global Compact - https://unglobalcompact. org/academy/how-to-improve-safety-and-health-in-global-supply-chains

roadway fatalities[13] by implementing various measures like extending the bike-lane network, making extensions at intersections, marking wider crosswalks, timing traffic signals to give pedestrians a seven-second head start, not allowing cars in major commercial areas of the city, and making speed restrictions on some slow streets. The Federal government of the USA has adopted many of these steps for nationwide implementation to reduce the thousands of road deaths that occur every year. Insurers pass on the savings due to lower accident rates to consumers, as some of them did during the pandemic situation.

2.4. Economic: While both wealth creation and wealth protection contribute to financial success and security, logically, preserving wealth is as good as creating wealth. When the insurance mechanism pays losses and gets the unfortunate closer to their economic position before the loss, gets the community of people exposed to similar losses to share it from pooled resources, the wealth of the insured is preserved. Though it can be argued that wealth is imperceptibly redistributed at the community level, from the insured's point of view the wealth is protected and preserved. However, when a loss is averted or minimized through any intervention, insurers and the common pool of the community are directly benefited, and the wealth of the economy is preserved. Over time, averted losses would translate to lesser actuarial expectations of loss, reduce premiums, and in turn make insurance more affordable. In essence, the insurance system stands to gain directly when a loss is averted. As seen above, loss prevention and loss reduction involve a lot of effort and expenditure. Logically, it would make sense for an insurer to spend on a loss prevention/ loss reduction agenda, reap the direct economic benefits on the one hand, and help the society and the nation in preserving wealth, on the other. However, when it comes to brass-tacks, there are many practical considerations in translating ideas into action.

2.5. Seven Golden Rules and Guides: The Vision Zero Campaign of ISSA focusses on Seven Golden Rules and Guides,[14] viz. (i) taking leadership (demonstrating commitment), (ii) identifying hazards (controlling risks), (iii) defining targets (developing programmes), (iv) ensuring a safe and healthy system (being well-organized), (v) ensuring safety and health in machines, equipment and workplaces, (vi) improving qualifications (developing competence), and (vii) investing in people (motivating by participation); which have become the hallmarks of the campaign.

3. Role of Insurance in Vision Zero

The implementation of Vision Zero and the Golden Rules and Guides can be examined from an insurance point of view:

3.1. Taking Leadership and Demonstrating Commitment: Often times, Governmental agencies and NGOs introduce initiatives and lead campaigns for preventing and reducing losses. However, many of these efforts are done in a staccato fashion as a bull-whip response to a calamity or a push from a global think-tank or funding agency. Often, such well-intended efforts tend to bloom, blush and be forgotten like pretty wayside flowers, without them attaining the scale and sustainability required to adorn the manicured gardens where they merit to be.

By virtue of their profession, Insurers have many resources at their control. This includes technical knowledge, copious data resources, manpower, monetary resources and strong economic reasons to lead and demonstrate commitment to Vision Zero campaigns.

3.2. Identifying Hazards and Controlling Risks: Insurers are adept in evaluating property risks, factory/ process risks, transit/ cargo risks, motor vehicle related risks, as well as person specific risks related to death, accident, health, loan default, etc. Many seemingly well managed risks would have latent error zones and fault lines, systemic deficiencies and human infirmities that can render well intended risk management strategies imperfect, and ostensibly

[13] Reducing Traffic Fatalities and Injuries through Vision Zero - Max Dorfman, Research Writer, Triple-I https://www.iii.org/insuranceindustryblog/reducing-traffic-fatalities-and-injuries-through-vision-zero/

[14] ISSA, Vision Zero Campaign - https://visionzero.global/resources

good solutions flawed. Insurers have the technical insights to identify such hazardous areas and advise proper control measures and risk management techniques to make vulnerable situations better. Insurers, being already familiar with risks, can help in navigating the difficult terrain, from the driving seat.

3.3. Defining Targets and Developing Safe and Healthy Systems: The insurance industry as a whole, has a sustained long-term interest in the results of all the manoeuvres for loss prevention and loss minimisation. As commercial entities and professionals, they are interested in getting due returns on their efforts in reducing losses and making good the expenditure incurred. Hence, it makes sense having insurers to lead such endeavours, set their targets, define their goals and try achieving them with professional quality standards. It is also important that the efforts are integrated with other organisational activity and made a perpetual part of the system.

3.4. Ensuring Safety and Health in Machines, Equipment and Workplaces: Insurers are traditionally known to educate the industry on the best safety practices, insist on conducting safety audits and mock-drills, as well as impose conditions that promote a better safety culture. Insurers have systems for rewarding insured by granting lower rates and higher discounts for fostering a safety culture, and penalizing those who do not take due care with higher rates, and premium loadings.

3.5. Investing in People, and Improving Competence: Insurers have well laid structures to integrate quality into systems and manpower. They believe in building internal competencies by investing in their employees by increasing their knowledge and skills, and motivating them to get personally involved. Most insurers reward employees who acquire professional qualifications and integrate competence building activities into the system.

Though insurers have not been using the same nomenclatures used by the Vision Zero movement, they have been sharing the same goals of the movement, albeit for a slightly tangential purpose, vision and spirit. A conscious strategic convergence of the efforts made under Vision Zero and the insurance industry can work for achieving broader humanitarian purposes for the world, like those enshrined in the Sustainable Development Goals (SDGs) of the United Nations.

In line with the broad outlines delineated above, a Vision Zero campaign led by the insurance industry can work to achieve some specific results as indicated below:

3.6. Sharing information and data: A Vision Zero study[15] indicates that there are *"hundreds of billions of miles worth of data that insurance companies can harness. By utilizing data analytics, companies can uncover dangerous patterns, build risk models, and help improve the safety of our roads."* Loss data can reveal the magnitude of the risks, and the actual impact of losses, along with the frequency and the severity of losses. Learnings from the loss surveys can give great insights into what went wrong where, in a loss. These can be quite illuminating and informative for the administrators, the policy makers, the cognizant insured, and the general public, in taking better preventive care. Data can help government agencies in identifying locations having many instances of pedestrian crashes and solving it by introducing manned safe crossings, improving street lighting, reducing speed limits and civic education programmes to influence public behaviour. Learnings from data helps insurers in designing solutions like usage-based insurance policies that reward safe driving habits by allowing lower premiums. This approach encourages owners/ drivers to adopt safe driving habits, reducing the likelihood of accidents and claims. Insurers can contribute in promoting pedestrian and cyclist safety through initiatives like offering discounts to the health insured who use alternative modes of transportation such as walking, cycling, or public transport. They can also build habit forming initiatives into school and campus life to inculcate safety, health and well-being into everyday life, and promote a culture of prevention to safeguard the health and safety of students and young workers. Insurers can

[15] 'Why the Insurance Industry Needs a Seat at the Road Safety Table', Kat Krieger, CMO, Together for Safer Roads - https://medium.com/vision-zero-cities-journal/why-the-insurance-industry-needs-a-seat-at-the-road-safety-table-5b089b63ebff

also influence civic administrations to provide lanes for bikes, safe pedestrian crossings and stricter penalties for traffic violations.

3.7. Examining multiple perspectives of losses: Information from multiple perspectives on the situations that caused losses in the past can provide valuable insights on preventing such losses in the future. For instance, a truck accident can be seen from a road design perspective, and factors like road conditions, faults in road construction, erosion sub-soil, low road density, complexities of construction and infrastructure that contribute to congestion issues, the absence of road signs and markings, the interplay of centrifugal and centripetal forces on the gradient of the road while negotiating curves, etc. can be understood better. From a vehicle design perspective, the braking systems of the vehicle, the extent the centre of gravity can shift during braking or turning, the blind spots from the driver seat, the steering system, the condition of the tyres, the functioning of the airbags, the overloading of the vehicle, etc. could reveal scope for improvement. For instance, if a SUV having a narrow wheelbase becomes top-heavy by high occupancy or a heavy load of luggage, it can become highly prone to rollovers. From the driver's perspective, the lack of lighting on the road, the visibility at turning points, the lack of sleep of the drivers, drunk driving, medical and emotional conditions of drivers, unruly pedestrian or animal movement, etc. can be understood as critical factors. Understanding such different perspectives can help in developing better strategies and interventions for accident prevention/ reduction. Information from dashboard cameras can identify poor driving patterns, and help in providing targeted training for driver improvement. Insurers can play a significant role in promoting the use of telematic devices that track driver behavior such as speed, acceleration, and braking, esp. at fleet levels to collect and analyse data, contributing immensely to road safety. A management perspective can indicate whether a vehicle is well-maintained and serviced periodically, whether the tyres are roadworthy, whether drivers are allowed sufficient rest, whether there are unrealistic time pressures that prevent drivers from over-speeding, whether vehicles are being maintained well, whether appropriate technologies are used to track vehicles and support drivers in bad situations, etc. Studies by the Federal Motor Carrier Safety Administration (FMCSA) supported by risk management platforms of insurers have been able to provide predictive analytics and machine learning to help fleet safety by identifying poor road designs and areas that need improvement. Fleets that have invested in safety equipment, smart sensors, vehicle-to-vehicle communication systems, telematic solutions and advanced collision mitigation systems have proven that collision is no longer a random occurrence, but a controllable cost.[16] With the data at their disposal, Insurers can influence action for improving road design, driver performance, fleet maintenance, and management behavior to save lives and reduce costs.

Figure 1: Courtesy: Drivers Ed - https://driversed.com/driving-information/driving-conditions/understanding-centrifugal-and-centripetal-forces/

3.8. Conducting active campaigns in insured factories and industrial units to bring about a better culture of safety: This would include conducting seminars and lectures on safety, personal incentives for workers/ employees, sharing best practices among similar industries, helping industrial units work collaboratively, fostering communities of factories and industrial units to jointly raise the bar of safety. Results like saving lives from accidents on road, preventing trucks from breaking down, and preventing robberies

[16] Why the Insurance Industry Needs a Seat at the Road Safety Table https://medium.com/vision-zero-cities-journal/why-the-insurance-industry-needs-a-seat-at-the-road-safety-table-5b089b63ebff

from trucks, make direct economic benefits for the insurance industry and the economy at large.

3.8. Conducting active campaigns to achieve safer roads: People and agencies working on road safety often ignore the tremendous potential of the insurance industry to save lives and improve behaviour of road users. By way of examples, Insurers can promote the use of technology for tracking trucks and cargo to thwart robberies by route diversions, and encourage truck owners to invest in the safety of drivers and vehicles. By preventing fires in factories, deaths due to accidents at work, breaking down of machinery etc. the insurance industry would stand to gain economically.

Insurers have a critical role in achieving Vision Zero goals by *"advocating for better road infrastructure, incentivizing safe driving behavior, supporting pedestrian and cyclist safety, and advocating for policy changes that improve road safety."* [17]

3.9. Supporting innovative movements: There are many innovative movements to reduce accidents across the world that could be supported by insurers. For instance, "5Z Culture"[18] was designed to promote the well-being of individuals and sustainable work environments as part of the Vision Zero movement to benefit people of all parts of the world. The "5Z Culture" visualizes (i) Zero Accidents: Reduction of occupational accidents and injuries, (ii) Zero Diseases: Protection and promotion of physical and mental health, (iii) Zero Waste: Ensuring sustainable use of resources, (iv) Zero Inequality: Strengthening teams through diversity, and (v) Zero Unawareness: Transparency and development of talent. Insurance companies, in their attempts to reduce accidents and fatalities in workplaces and on the road, can contribute in achieving the 5Z Culture.

4. A Humble Clarion Call

There are many Vision Zero initiatives in different parts of the world (and within India) and there are many individuals and institutions committed to the philosophy. Possibly, one can wish that Insurance regulators would mandate insurers to lead Vision Zero campaigns and the International Association of Insurance Supervisors (IAIS) would weave them into the Insurance Core Principles (ICPs) sometime to come.

However, without waiting for an external stimulus, it would be desirable if the insurance industry voluntarily leads Vision Zero initiatives and works as the gluing force for all who believe in reducing fatalities and injuries on roadways, in factories, other workplaces, etc. This would prevent the diverse efforts and capabilities from getting hitched to evanescent goals, and the energies getting dissipated in the absence of proper planning and leadership. This can also help in mustering multiple stakeholders such as (i) Central, State and Local Governments to adopt Vision Zero principles as part of governance; (ii) factories, businesses, voluntary organizations, schools, universities, chambers of commerce and others to support the principles as part of their businesses; and (iii) individuals, to believe in them as part of their guiding principles in life. It can be visualized that at a later stage, Vision Zero initiatives will go beyond contributing to personal safety, and help in reducing air and water pollution, lowering carbon dioxide emissions and building healthier communities and making the world a safer, healthier and happier place! TJ

[17] Vision Zero: Role of Insurance in Achieving Safer Roads - https://www.indiaonroad.com/2023/04/vision-zero-role-of-insurance.html

[18] The 5Z Culture integrates the 7 Golden Rules of the ISSA's Vision Zero concept. In line with the UNSDGs 2030, it takes a more comprehensive approach to business by incorporating additional dimensions such as leadership, human resource development, equality and the sustainable use of natural resources, 5Z Culture website - https://5zculture.org/en/home/

Integrating Panchayati Raj Institutions for Vision Zero in Rural India

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Abstract

IRDAI as a regulatory body of the insurance sector of the Government of India has initiated its commitment to enable insurance for all by 2047 through its press note dated 25.11.2022. This gives an expression of vision zero in relation to the insurance sector. In this insightful expletory article, it is explained how Panchayati Raj Institutions can play a vital role in achieving Vision Zero in rural India, which comprises around 70 percent of India's total population.

Objective

The main objective of this article is to explore the importance of Panchayati Raj Institutions with a special focus on Gram Panchayats (which are considered as units of Local Self Government at village level) in achieving "Vision Zero" with respect to insurance for all in rural India.

Methodology

The methodology of this article involved both primary and secondary research, which included interaction with Elected Panchayat Representatives, community members, senior officials of insurers and insurance intermediaries as well as a review of the legal provisions of Panchayati Raj, literatures of IRDAI and other related stakeholders.

Keywords

Article: Article of Indian Constitution, BPL: Below Poverty Line, DAY-NRLM: Deendayal Antayodaya Yojana-National Rural Livelihood Mission, GP: Gram Panchayat, GPDP: Gram Panchayat Development Plan, IRDAI: Insurance Regulatory Development Authority of India, NABARD: National Bank for Agricultural and Rural Development, NGO: Non-Government Organizations, NSS: National Sample Survey, PMJJBY: Pradlan Mantri Jeevan Jyoti Bima Yojana, PMSBY: Pradhan Mantri Suraksha Bima Yojana, PMFBY: Pradhan Mantri Fasal Bima Yojana, AABY: Aam Adami Bima Yojana, PRI: Panchayati Raj Institutions, RADPFI: Rural Area Development Plan Formulation and Implementation, SHG: Self Help Group, ZP: Zila Panchayat.

The Indian Panchayati Raj is a system of local Self-Government in rural India. This system got constitutional status through 73rd Constitutional Amendment Act 1992. This was done to strengthen democratic

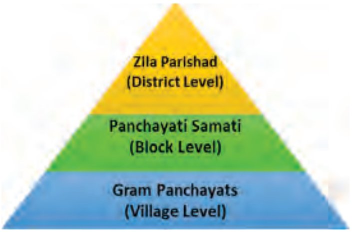

Figure 1.1

decentralization and ensure greater participation of rural citizens in decision making process. Article 243 (d) of Indian Constitutions clearly states that Panchayat "Panchayat" means an institution of Self Government Constituted under article 243B for the rural areas. The Panchayati Raj system provides a three-tier structure, including Gram Panchayat at Village Level, Panchayat Samati at Block Level and Zila District Panchayat/Parishad at District Level (please refer to figure 1.1). At the panchayat level, this system offers a unit of Local Self Government. It gives an opportunity to Indian citizen to enjoy a kind of direct democracy in a true sprit through participation in the Gram Sabhas Baithak (Village Council Meetings).

This Panchayati Raj system covered 833 million people living in rural areas, which is more than two-thirds of the total population i.e. 68.8% as per the census 2011. It crossed 900 million in 2021 which is larger than the entire population of Europe. It is projected that India will remain predominantly rural until 2050. Mahatma Gandhi envisioned it very clearly and told that "the future of India lies in its villages". As per the National Sample Survey (NSS) 2019-20 data, 44% of the rural workforce are engaged in the agricultural and allied sectors. Apart from agriculture, various rural artisanal and handicraft activities, such as pottery, weaving, carpentry, blacksmithing, and other traditional handicrafts activities also provide employment to rural people. However, there are several risk factors associated with these occupations. Despite this, the penetration of insurance in rural areas is low. India is one of the fastest growing economies in the world but rural people in India still face numerous challenges when it comes to accessing insurance. The lack of financial literacy, inadequate infrastructure, less bargaining capacity and limited access to technology are some of the major barriers preventing rural people from availing insurance services. This area is also less attractive for the insurance companies because there is less demand of high premium insurance plans. That's why the IRDAI introduced "Obligations of insurers to Rural and Social Sectors Regulations, 2015" where 20 percent are the mandatory requirements for the rural sector.

But these provisions are not adequate. As per the report of Times of India, life insurance coverage in rural India is set at a mere 8-10% while less than 20% of the rural population has any form of health insurance. Also, 95% of Indian housing lacks any form of property coverage.[1]

These huge gaps are not possible to fulfil by only the insurance companies or some central/state agencies alone. It required the support of Panchayati Raj Institutions especially the Gram Panchayats which are deeply rooted in the rural India as a unit of local self-government.

Panchayati Raj Institutions have full potential not only to make people aware about various insurance products but also to provide appropriate assistance to the rural villagers from purchase of products to claim settlement. Panchayats can act as neutral advisors and intermediaries, helping rural villagers to navigate the complex process of insurance claim settlement. Panchayats can also act as Amicus Curiae during the claim settlement process.

The provisions enabling the Gram Panchayat to support the rural people to get coverage of suitable insurance products can be described below.

1. Constitutionally recognised body of Local Self Government

The provisions related to Self-Government i.e. Panchayati Raj system are enshrined into the part IV & IX of the Indian constitution. In order to promote the Panchayati Raj system after independence, the provision related to Panchayati Raj was included under the Article 40 of the Indian Constitution, as per this provision "the State shall take steps to organize village panchayats and endow them with such powers and

1 (https://timesofindia.indiatimes.com/blogs/voices/the-unexploited-insurance-market-of-rural-india/). (March 20, 2022).

authority as may be necessary to enable them to function as **units of Self Government**". But this comes under directive principals of State Polices mentioned under Part IV, this is only a directive provisions for the State and it is not enforceable in Court of Law. After the 73rd Constitutional Amendment, clear provisions were made for the funds, functions, and functionaries of Panchayati Raj Institutions, which made these provisions mandatory in true spirit and in practice for the States.

Article 243G of the Indian Constitution clearly states that Panchayats have power to prepare plans for the **economic development,** as well to implement schemes for the economic development and social justice. Here it is notable that no society can be economically developed without financial inclusion of its members and insurance coverage is a critical component of financial inclusion. Therefore, Panchayati Raj Institutions can play a significant role in promoting economic development of the rural population by facilitating greater insurance coverage among them. In addition to this, the 11th Schedule of the Indian Constitution provides a list of 29 subjects for the functioning of Panchayats. Out of these 29 subjects the following subjects direct enabled the Panchayats for facilitation to cover the rural people under appropriate insurance products:

- Subject no. 26; related to social welfare
- Subject no. 24; related to family welfare

Three tiers	Institutions	Elected Representatives
District level	Zila Parishad (ZP)	Chairman, Vice Chairman and ZP members
Block Level	Panchayat Samiti (PS)	Chairman, Vice Chairman and PS members
Village Level	Gram Panchayats (GP)	Pradhan/Sarpanch/Mukhiya, Up Pradhan and Ward Panchs/ward Members

Table 1.2

- Subject no. 16; related to poverty alleviation program
- Subject no. 1 related to Agriculture, including agricultural extension and subject no. 4 related to animal husbandry offer vast field for the insurance products to cover the risk of rural farmers related to their agricultural, animal husbandry and other allied sector activities including dairy, poultry, goat rearing, fisheries which are the key factors of rural economy.

2. The Panchayati Raj system involves a huge workforce

Today, there are more than 2,59,000 Panchayats and around 3.1 million elected Panchayat Representatives in India, making it the world's largest decentralised system of Self-Government (Please see Table 1.2 for the types of Elected Panchayat Representatives). The Panchayati Raj system involves a large number of workers, including elected Panchayat representatives, secretaries, and other village functionaries appointed by the government, as well as volunteers who work collectively towards the development of rural areas."

The workforce, especially the Elected Panchayat representatives of Gram Panchayats, work very closely with the nearby population and have good understanding of the socio-economic conditions of each household. The Panchayat officials provide various services, including issuing birth, marriage and death certificates to the rural population. Hence, they are well-informed about the local situation and demands. If this workforce is utilized prudently, the Vision Zero (i.e., fully coverage of population under the wings of insurance or minimal insurance gap) is not far away in rural India.

3. The Panchayati Raj system provides women friendly platform

As per provisions contained in Article 243 D of the Constitution, 1/3rd of the Seats of Panchayati Raj Institutions and 1/3rd offices of the Chairperson at all level of Panchayati Raj Institutions are reserved for women. Currently 21 States have made provisions in their respective State Panchayati Raj Acts/Rules for 50% reservation for women in Panchayati Raj Institutions[2]. Currently there are around 1.3 million women are elected Panchayat Representative in India. This indicate that there are large number of women elected representatives are directly involved as representative of the rural people. These Elected Women Representatives can provide a women friendly environment and peer support to rural women who are deprived of their basic rights in many ways due to patriarchal social and cultural norms. Most of the rural women in rural areas are not financially independent. They are totally dependent on their male partner. In such a situation, if any untoward incident happens with the earning male partner, then the situation becomes very pathetic for the rural women. To avoid this unwanted situation these Elected Women Representatives have tremendous potential to provide support and motivate the vulnerable families including the male partners of rural women to get proper insurance coverage for their family members.

4. The Panchayats have the potential to provide assistance to the villagers at their doorstep

The common villagers do not want to indulge themselves in any administrative or judicial process. Therefore, they often face a great threat when they approach grievance redressal agencies such as Consumer Protection Commissions and formal courts to address their issues. Such agencies can be intimidating and difficult to navigate, especially for those who are unfamiliar with the legal system and living in remote rural areas. Though the government has set up several online grievance redressal mechanisms for insurance consumers, but these services are still far away for rural people due to lack of awareness and procedural difficulties. As a result, many villagers feel powerless and unable to seek justice during the claim settlement process. This poses a significant threat to rural people, leading many to withdraw from insurers altogether.

Taking advantage of the simplicity and ignorance of the rural people, many insurance company officials, agents as well as insurance intermediaries indulge in malpractices in rural areas. Due to low bargaining capacity, the villagers are not able to take proper action against those malpractices. In such a situation, Gram Panchayats can play a big role as a unit of local self-government. They can use their administrative and judicial powers to prevent such malpractices and provide proper assistance to the rural consumers to get justice at their doorsteps.

Panchayats as a government body have the right to seek information/ clarification from any service provider including insurance companies, agents or insurance intermediaries operating in their jurisdiction. The Panchayat may make a complaint/ recommendation/suggestion regarding the misconduct of any service provider to the appropriate authorities. It will definitely give more thrust rather than the individual efforts made by an ordinary villager. Here it is notable that Gram Panchayats have many administrative and quasi-judicial powers provided by concerned state legislations. Some state including Himachal Pradesh, Punjab, Bihar, Uttar Pradesh have provided judicial powers to their Gram Panchayats too.

5. The Gram Panchayats provide a platform for rural people to participate in Self-Government

This Panchayati Raj system is based on the traditional village system, with elected representatives at the village, Block and district levels. At the Village level the Gram Sabha Provides an opportunity to each and every rural citizen of India to participate in designing, planning, implementation and monitoring of schemes and plans made for them. Gram Sabha is clearly defined under Article 243(b) as "Gram Sabha means a body consisting of persons registered in the electoral rolls relating to a village comprised within the area of panchayat at the village level". It means all the citizen who completed 18 years and registered in the electoral list of the concerned village can participate in their concerned Gram Sabha meetings. All the Elected Panchayat representatives and village level functionaries/Govt. Officials are responsible to the Gram Sabhas members (please refer to figure 1.3).

[2] (Government of India Ministry of Panchayati Raj Rajya Sabha unstarred question no. 720 answered on-08.02.2023) answered by the Minister of State for Panchayati Raj (Shri Kapil Moreshwar Patil)

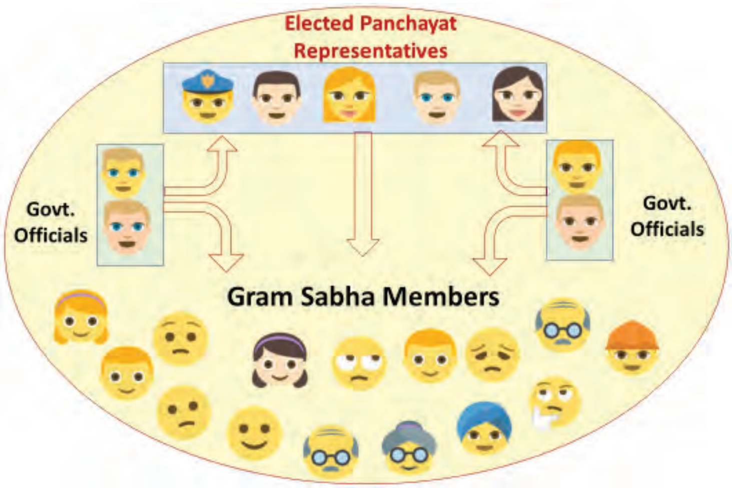

Figure 1.3: Gram Sabha Meeting where all the Elected Panchayat Representatives and Govt. Officials are responsible to the Gram Sabha Members

Through Gram Sabha meetings, all information related to insurance schemes including the schemes launched by the Government like Pradhan Mantri Jeevan Jyoti Bima Yojana, Pradhan Mantri Fasal Bima Yojana, Pradhan Mantri Suraksha Bima Yojana can be easily shared with the villagers. In these Gram Sabha meetings, the villagers can also play a major role in identifying the actual beneficiaries of suitable government schemes. For example, the central government and the state government provide several benefits to people living under BPL (Below Poverty Line) including insurance coverage for life, health, livestock or agriculture free of cost or at a very subsidized rate. As a selection body of the BPL families, the Gram Sabha plays an important role in identifying the genuine beneficiaries. The Gram Sabha members can also pass appropriate resolutions against the irregular activities of insurance companies/agents and forward them to the appropriate authorities.

The Ministry of Panchayati Raj and Rural Development are facilitating to promote the insurance sachems through its guidelines under Gram Panchayat Development Plans (GPDP) too. Through the GPDP the Government are covering around 2.56 lakhs Gram Panchayats in India. This program was initiated on 2nd October 2018, known as “Sabki Yojana Sabka Vikas”. During the campaign from 2nd October 2022 to 31st January 2023, 249942 Gram Sabhas were organized with the active participation of Gram Sabha members (local villagers) to plan for their economic development and social justice.

Overall, the Gram Sabha provides rural citizens with a crucial platform to hold local village-level functionaries and related service providers accountable, as well as facilitate open discussion about the issues and concerns of rural people with passing appropriate resolutions accordingly.

6. Integration with existing other government programs at Gram Panchayat Level

Gram Panchayats can play a significant role in integrating with government departments, banks, NGOs, and other financial institutions. By leveraging resources of these stakeholders, Panchayats can provide more benefits to villagers at the panchayat level. For example, under the Deendayal Antayodaya Yojana-National Rural Livelihood Mission (DAY-NRLM), a flagship Program of Central Government, the Government has nurtured and facilitated a total of 83,51,309 SHGs (Self Help Groups) with 9,00,44,024 members (as on July 2023). These groups are directly/indirectly associated with Gram panchayats, because the members of these groups are also member of Gram Sabhas (Village Council). They are eligible for the group insurance.

As a body of local Self-Government Panchayats have a strong bargaining capacity. Therefore, the Gram Panchayats can help their villagers to access group insurance by collaborating/networking with insurance companies and other relevant stakeholders. They can organize meetings and awareness campaigns to educate villagers about the benefits of group insurance and the different types of policies available. Panchayats can also help villagers to compare and choose the best insurance policies based on their needs and budget. At the village level, various community-based groups/organizations such as SHG, Farmer Clubs, Joint Liability Groups (JLGs), Women Groups, Mahila Mangal Dal, Youth Groups are facilitated by NABARD, NGOs, Nehru Yuva Kendras and other Governments Departments. Gram Panchayats can play a important role for institutional capacity building of such groups and facilitate their villagers to access group insurance policies through these community-based groups, which can be a more cost-effective way of providing insurance coverage compared to individual policies. By taking group insurance, villagers can take advantage of better coverage, lower premiums, and simplified administration.

Currently, there are verities of insurance products tailored for rural areas provided by different insurance companies. These include motor insurance, property insurance, accident insurance, cattle insurance, poultry insurance, hut insurance, crop insurance. Additionally, the Central Government and the State Government have also taken several initiatives to cover the farmers and other rural and marginal people through their various insurance schemes, some of which are described below where the rural people can avail the benefits.

Sr. No.	Name of Scheme	Short Description
1	Pradhan Mantri Jeevan Jyoti Bima Yojama	Life insurance coverage up to Rs. 2 Lakhs for individuals. Age group is 18 to 50 years. Renewal option is available up to 55 years of age.
2	Pradhan Mantri Suraksha Bima Yojana	Accidental insurance coverage up to Rs. 2 Lakhs for individuals aged 18 to 70 Age Group 18 to 70 with an annual premium of Rs. 20.
3	Pradhan Mantri Fasal Bima Yojana (PMFBY)	For the farmers related to food crops (cereals, millets and pulses), oil seeds, annual commercial/ horticultural crops
4	Aam Adami Bima Yojana (AABY) For un organized sector Labours	Age group is 19 to 59 years. This is for unorganized workers with very low premium. Candidate must be from BPL (Below Poverty Line)/ rural landless households.
5	Ayushman Bharat	It provides a cover of Rs. 5 lakhs per family per year for secondary and tertiary care hospitalization across public and private empanelled hospitals in India. This health care coverage is for poorest and most vulnerable population, without any premium cost.
6	Niramaya Health Insurance	Person with Disabilities related to Autism, Cerebral Palsy, Mental Retardation and Multiple Disabilities with a minimal single premium across all age groups. Insurance coverage is up to one lakhs on reimbursement basis. Enrolment fee for BPL Families is Rs. 250, while for Non BPL families, it is Rs. 500. Person with Disabilities with a Legal Gurdian (Other than natural Parents) can enroll for free.
7	Employees' State Insurance Corporation (ESIC)	the organized sector employees can avail various benefits including medical benefit, sickness benefit, maternity benefit, disablement benefit, dependents benefit and funeral expenses.
8	The Building and other construction workers (Regulation of Employment and Conditions of Services) Act, 1996 BOCW (RECS) Act.	The Building and Construction Workers Act allows building and construction workers to receive insurance and other benefits. Additionally, after completing the prescribed days of work, the worker under MGNREGA (Mahatma Gandhai National Rural Employment Guarantee Act, 2005) can also enrolled in the BOCW (RECS) Act and avail themselves of its benefits.

Gram Panchayats can also help the rural people to get benefits of these schemes through networking with related stakeholders.

With the above facts, the journey of an insurance consumer will become easier and more assured at every step (depicted in figure 1.4), as mentioned below:

A Journey of Insurance Consumers with Gram Panchayats in Rural India

- **Awareness and sensitization:** The journey starts with awareness and sensitization, where Gram Panchayats can organize awareness campaigns and meetings to educate & sensitize villagers about the importance of insurance and the different types of policies available through networking with Insurance Companies, NGOs, Financial Institutions and other related stakeholders. Panchayats can also highlight the benefits of insurance and how it can help them mitigate risks and protect themselves against unforeseen events.
- **Consideration:** Once villagers are aware of the benefits of insurance as well as institutional support of Gram Panchayats as Government body, the villagers can consider their options based on their needs and budget without any hesitation or fear. Gram Panchayats can help villagers compare different policies, including government-facilitated ones, without bias, and choose the ones that best suit their needs. This can include factors such as premiums, coverage, and benefits.
- **Purchase:** Once villagers have selected the policies they want, they can purchase them through various channels such as insurance agents, online portals, or directly from insurance companies. Here, Gram Panchayats can organize the camps where the villagers can purchase their insurance policies on their ease. Gram Panchayats can help villagers to purchase policies through a simplified and transparent process, ensuring that they understand the terms and conditions of the policy.
- **Monitoring and support during renewal:** After the policy is purchased, the policyholder needs to renew the policy annually/as per chosen renewal period to ensure continuous coverage. Gram Panchayats can remind villagers about policy renewal dates and assist them in the renewal process. In a case of a financial crisis faced by villagers, Panchayats can facilitate access to micro credit through Self Help Groups, local cooperative societies, or banks to help them pay their insurance policy premiums without any difficulty.
- **Claims:** If an insured event occurs, the policyholder/ survivals can file a claim with the insurance company to receive compensation for the loss. Gram Panchayats can provide support and assistance to policyholders/ survivals in filing claims and ensuring that they receive their entitled benefits in a timebound manner.
- **Feedback:** After the claims process is complete,

Figure 1.4
Insurance consumer cycle

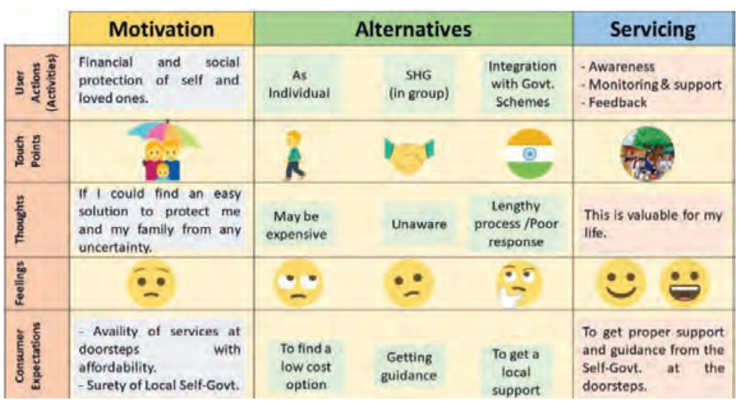

Figure 1.5 Consumer Journey Map

policyholders/claimant can provide feedback on their experience with the insurance company. Gram Panchayats can collect feedback from policyholders and share it with insurance companies to improve their products and services.

The journey of rural consumers with Gram Panchayat is depicted very clearly In the Figure 1.5. It shows how consumer expectations can be fulfilled through the supportive services offered by Gram Panchayats which can have an impact on the feelings and thoughts of rural insurance consumers.

By involving Gram Panchayats in the insurance consumer journey, villagers can access better insurance coverage with easier processes and improved supports, which can lead to higher insurance penetration rates and greater financial security in rural populations."

Through proper investment in training and capacity building of Panchayati Raj Institutions, their efficiency and effectiveness in providing services to rural communities can be enhanced.

Capacity building programs can help to build the capacity of PRIs to better manage and administer insurance schemes at the grassroots level. This can involve the provision of necessary infrastructure, tools, and resources, including computer systems, software, and other technical equipment.

Union Minister Shri Giriraj Singh releases revised Rural Area Development Plan Formulation and Implementation (RADPFI) Guidelines on 22th January 2022 and called upon Panchayati Raj Institutions to take the RADPFI Guidelines as a "Sankalp Patra" for vision India 2047. This RADPFI guideline is also focused to improve the **quality of life in rural area**. This vision is also in-line with the vision of IRDAI to make insurance accessible to all by 2047. Both vision documents are mutually complementary and supplementary to each other. Together, IRDAI and Ministry of Panchayat Raj may develop a comprehensive framework to achieve **Vision Zero** in the insurance sector for rural area with active involvement of Panchayati Raj Institutions. This can be a revolutionary step for the benefit of rural society during this period of *Amrit Kaal* (a period of pivotal movement), as our country is celebrating *Ajadi Ka Amrit Mahotsav* (75th Anniversary of Indian Independence). TJ

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Promoting Safety, Health & Well-being through Vision Zero – Decoding the role of Indian insurance sector

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Abstract

Occupational hazards, accidents at work and mishaps on roads are neither unavoidable nor predetermined. But causes that can lead to accidents can be eliminated. "Vision Zero" is a transformational approach that integrates safety, health and well-being at all levels of work. Investments in improving safety measures and promoting health and well-being of human beings can be rewarding for the universe as a whole and should not be treated as expenditure. Research has demonstrated that every unit invested in safety and health generates double the returns in terms of positive economic effects. A climate of trust and openness in communication with all the stakeholders is essential for successful delivery of the "Vision Zero" strategy.

While the digitalization efforts of the industry began before the Covid-19 pandemic, the pandemic provided an excellent opportunity for the insurance industry to firmly embed digitalization in their business processes. From here, the momentum is only expected to intensify further. Greater level of engagement with customers will enable insurance sector to increase the penetration levels of insurance and improve the insurance density. Associating with a noble and humanitarian cause like "Vision Zero" will provide the insurance industry a platform to foster greater levels of customer engagement by creating awareness about social issues like road safety and workplace safety. Such efforts can strengthen the value proposition of insurance as a tool for risk mitigation and protection.

Keywords

Vision Zero, Insurance, Road Safety, Motor Insurance, Safety, Health.

Introduction

Vision Zero is a traffic safety concept that aims to eliminate all traffic fatalities and serious injuries from road traffic. As a goal that focuses on prevention, Vision Zero denotes visualizing a world without occupational accidents and work-related diseases.

Occupational accidents and diseases are devastating to families and lead to losses in economic output. According to ILO estimates, about 2.3 million men and women worldwide die from work-related illnesses or accidents each year, or more than 6000 people per day. Each year, there are over 160 million cases of work-related disease and 340 million occupational accidents worldwide. 4% of global GDP is lost every year due to poor occupational safety and health.

The industries that have the greatest fatalities in India are manufacturing, chemicals, and construction, according to data gathered by global workers' union Industri All. According to the report (www.bbc.com/news/world-asia-india-62631699), seven accidents were reported on average per month in India's manufacturing sectors in 2021 alone, killing more than 162 people. Workers in "small, unregistered factories" are frequently the ones most impacted by industrial accidents, according to news accounts over the years. The victims are mostly low-income laborers or immigrants whose families lack the funds to fund legal defense.

First introduced in Sweden in the 1990s, the basic idea behind Vision Zero is that traffic accidents and fatalities are not inevitable, but rather the result of a failure to design and manage the transportation system safely. As such, the goal of Vision Zero is to create a transportation system that is safe for all users, regardless of their mode of travel. German Social Accident Insurance Institution uses Vision Zero strategy for the raw materials and chemical industry to reduce the risk of accidents and occupational diseases. This will need all stakeholders to respect health, safety and well-being as fundamental values.

As a strategic and qualitative approach, Vision Zero is based on the underlying principles of

1. People make mistakes!
2. Life is not negotiable!
3. The ability to cope with physical and mental pressure is crucial
4. People have a basic right to a safe working environment – Situational prevention comes first!

Vision Zero to Reduce Traffic Fatalities

Traffic fatalities and serious injuries are a significant public health and safety issue. Each year, millions of people are killed or seriously injured in traffic accidents around the world, and these accidents often have a profound impact on the lives of individuals, families, and communities. Traffic accidents often have economic and social consequences. In addition to the human toll, traffic accidents can also have significant economic costs, including lost productivity, medical expenses, and other costs associated with property damage and emergency response. By working towards the goal of eliminating traffic fatalities and serious injuries, Vision Zero aims to make transportation safer for everyone (See Figure 1). A multidisciplinary approach, Vision Zero brings together different stakeholders (local traffic planners and engineers, policymakers, and public health professionals) to have a meaningful collaboration.

Key steps in achieving vision zero

1. Establishing a task force to mobilize key stakeholders
2. Reducing the speed limit for roadways with a track record of frequent mishaps
3. Enlisting the support of transportation department
4. Initiating discussions with the state for policy level changes
5. Launching marketing outreach programs to create awareness about Vision Zero
6. Using fleet tracking solutions to improve visibility and reduce downtime
7. Using historic data to drive the present and future agenda of Vision Zero
8. Installation of safety cameras/ red light cameras for high crash corridors to monitor driver behaviour and reduce speeding; safety cameras can be installed in vehicles (side and rear cameras, dash cams that are installed on the outside of the vehicle).

Figure 1: Vision Zero Strategies

WHAT ARE VISION ZERO STRATEGIES?
1. Reducing speeds: Lowering speeds can significantly reduce the severity of accidents and improve the chances of survival for people involved in crashes.
2. Improving infrastructure: By designing roads, intersections, and other infrastructure to be safer, it is possible to reduce the likelihood of accidents occurring in the first place.
3. Promoting safe behaviours: Educational campaigns and other efforts to encourage safe behaviors, such as wearing a seatbelt or not texting while driving, can also help reduce the risk of accidents.
4. Enhancing enforcement: Increasing the enforcement of traffic laws can help to deter risky behaviors and reduce the number of accidents.

Vision Zero: What Is So Unique About It?

Vision Zero recognizes that people will sometimes make mistakes, so the road system and related policies should be designed to ensure those inevitable mistakes do not result in severe injuries or fatalities. Thus, the onus is on policy makers and system designers to improve roadways and speed management. Vision Zero acknowledges that many factors contribute to safe mobility — including roadway design, speeds, behaviours, technology, and policies.

Traditional approach to road safety focused on traffic accidents as the major problem that needed a solution with individual users being held responsible for 95% of accidents. Vision Zero deflects focus not on the accidents per se but on the resulting fatalities and serious injuries (Refer Table 1).

Table 1: Traditional Approach versus Vision Zero

Traditional approach	Vision Zero
Human behaviour has to be perfect at all times	Humans can fail
Traffic deaths are inevitable	Traffic deaths are preventable
Prevent collisions	Prevent fatal crashes
Safety is individuals' responsibility	Safety is a joint responsibility
Investing in safety can bleed the organization in terms of loss in revenue and erosion in profitability	Investing in safety can generate strategic benefits for the organization
Approach to mobility is more tactical	Promotes sustainable mobility efforts
This is more of a reactive approach without taking any concrete steps to improve the situation	Calls for actions from policymakers and traffic system designers
Absence of community involvement	Greater community involvement

The Seven Golden Rules of Vision Zero are:

1. Take leadership – demonstrate commitment
2. Identify hazards – control risks
3. Define targets – develop programmes
4. Ensure a safe and healthy system –be well-organized
5. Ensure safety and health in machines, equipment and workplaces
6. Improve qualifications – develop competence
7. Invest in people – motivate by participation

Vision Zero Initiatives in India

The International Vision Zero Conference was held at Delhi in March 2017. Since then, DGUV (German Social Accident Insurance) and BG BAU (German Social Accident Insurance Institution for the building trade) have organized seven Vision Zero conferences in different states, with the support from the International Social Security Association (ISSA) Prevention Sections for Construction, Electricity, Mining, Transportation and Information.

200 Indian companies have enrolled themselves as Vision Zero partners. Vision Zero Conferences in Gujarat (Vadodara), Karnataka (Bangalore) and Odisha (Bhubaneswar) stand testimony to the growing realization of the significance of Vision Zero. On 5th March 2020, the Union Cabinet approved the co-operation between India and Germany in the area of occupational safety and health in manufacturing and construction sector.

Save Life Foundation and Volkswagen Group India launched a Vision Zero initiative to create a scalable and replicable model to promote the cause of road safety across Indian highways. This initiative was aimed at reducing crash deaths on the old Mumbai-Pune Highway (NH 48). The Maharashtra State Road Development Corporation supported this effort. Data driven and evidence based interventions are expected to support this initiative.

Road engineering interventions, emergency care, police enforcement and community engagement at the grassroots level are some of the areas that are part of this effort. Interestingly, Vision Zero can contribute to sustainable mobility agenda of organizations. Such efforts will need a strong support from governments and co-operation among all the stakeholders.

Vision Zero & Insurance Sector

Insurance industry can engender a massive cultural transformation to save human lives. Fleet management involves enabling fleets to run on time within the budget and without losing focus on efficiency. A private car or a heavy-duty truck, technology can be used to capture data about engine performance and driving behaviour to reduce costs. Telematics is a known technology in motor insurance that is useful during investigation of motor accident claims. As an additional precautionary measure, insurance sector can request fleet management companies to invest in the safety of the driver and the vehicle. Telematics is a reactive measure; Vision Zero is a proactive measure.

SBI Life has joined hands with Rajasthan Royals franchise to inaugurate a larger than life “helmet” installation at Sawai Mansingh Stadium. The unique design is intended to attract the attention of cricket fans and spread the message of protection. Citizens are encouraged to value safety and accord it top priority by wearing helmets while riding. Just as wearing helmets are an integral part of road safety, buying a life insurance policy is an essential aspect of protection.

Insurance companies can also use data and analytics to identify patterns and trends in accidents, and use this information to help design more effective safety interventions. For example, an insurance company might analyze data on accidents involving certain types of vehicles or at specific locations, and use this information to design targeted safety campaigns or advocate for changes to infrastructure.

For example, an insurance company might support initiatives such as:

- Campaigns to promote safe driving behaviors, such as not texting while driving or wearing a seatbelt
- Infrastructure improvements, such as the installation of speed cameras or the creation of pedestrian and bike lanes
- Educational programs or training for drivers

Table 2:

Benefits of vision zero for insurance
1. Reduce the number of claims
2. Reduction in the number of traffic accidents and fatalities
3. Lower costs for insurance companies
4. Lower premiums for policyholders
5. Investing in safety campaigns and infrastructure improvements can create a safer transportation system, which can lead to fewer accidents and lower costs in the long run.
6. Improve reputation of insurance companies

Insurance companies can use their influence and resources to promote safety and prevent accidents from occurring. This could include partnering with government agencies and other organizations to fund education and outreach campaigns, or supporting infrastructure improvements that make roads and intersections safer.

- Partnerships with government agencies or other organizations to promote road safety

Insurance companies can support the goals of Vision Zero in a number of ways:

1. Insurance companies could potentially offer discounts or other incentives to policyholders who demonstrate safe behaviors, such as wearing a seatbelt or not texting while driving.
2. Insurance companies could offer educational materials, training programs, or other resources to help policyholders learn about safe driving practices and reduce their risk of being involved in an accident.
3. Insurance companies could potentially invest in infrastructure improvements, such as the installation of speed cameras or the creation of pedestrian and bike lanes, which can help to make roads and intersections safer.
4. Insurance companies could potentially partner with government agencies and other organizations to support initiatives that align with the principles of Vision Zero, such as education and outreach campaigns or infrastructure improvements.

Vision zero as a CSR initiative

CSR refers to the responsibility of businesses to consider the social and environmental impact of their operations, and to take actions that contribute to the well-being of society and the environment. Supporting Vision Zero could be seen as a way for insurance companies to demonstrate their commitment to social responsibility and to make a positive impact on the community. By supporting initiatives that promote safe driving behaviours and improve the design of the transportation system, insurance companies can contribute to the goal of reducing traffic accidents and fatalities, and create a safer and more sustainable transportation system for everyone.

Review of Literature

Regan and Oviedo-Trespalacios (2022) emphasize the global impact of unsafe working conditions, leading to millions of deaths annually. They highlight the role of organizations in implementing VZ, aligning with international bodies like the International Labour Organization and the International Social Security Association. They underline the importance of prevention culture for workforce safety and well-being, considering VZ as a long-term vision. Tignor, Williams, and Eck (2022) focus on the implementation of VZ and infrastructure-user errors in the United States. They point out the need for a modified approach, as the current strategy has not successfully reduced road fatalities. Their work underscores the importance of collaboration between government bodies and private organizations. Alavi, Jones, and Hunter (2023) discuss the Safe System approach in Victoria and its challenges in significantly reducing road trauma. They identify barriers to implementation and propose concept-level projects to address these issues, aiming for better alignment with Safe System principles.

Wasserman, Tadić, and Bec (2022) draw lessons from infectious disease campaigns, such as smallpox eradication, to provide insights into reducing road traffic injuries. They highlight 12 key lessons, emphasizing the importance of science, management, and global health equity in road safety efforts. Shi, Methoxha, Atkinson-Palombo, and Garrick (2023) explore the Safe System's success in the Netherlands and Sweden, with a focus on reducing fatality risks, especially for pedestrians and bicyclists. They advocate for a paradigm shift in transportation planning, emphasizing safety and quality of life.

Stigson, Kullgren, and Andersson (2022) introduce the topic of driver distraction and its impact on road safety. They discuss strategies for preventing distraction and highlight the need for continued efforts to address this issue until fully autonomous vehicles become prevalent. Jamroz, Romanowska, Michalski, and Żukowska (2022) provide an overview of Poland's road safety efforts, including the adoption of Vision Zero. They assess the progress made and identify persistent challenges, emphasizing the need for effective actions and systematic monitoring.

Björnberg (2022) examines the use of goals and targets in road safety policy. The chapter outlines criteria for achievement-inducing goals and discusses their role in guiding efforts toward the goal of zero fatalities and serious injuries. He, Fan, Yan, Peng, and Li (2022) focus on Vision Zero as a policy in China. They analyze the literature on Vision Zero, identify research directions, and explore China's strategic routes toward achieving zero road deaths.

Ebrahimi, Momenitabar, Arani, and Bridgelall (2023) investigate factors contributing to fatal crashes among aging drivers in rural Florida. They use a multicriteria decision-making model to identify critical factors and recommend measures for improvement. Ngo, Milton, Reynolds, Carpenter, and Veka (2022) discuss the adoption of road safety goals of zero deaths and serious injuries at both the state and local levels in the United States. They highlight the shared belief in the unacceptability of such outcomes.

Degrande, Vannieuwenborg, Verbrugge, and Colle (2023) examine the societal benefits of roadside unit investments in Flanders for cooperative intelligent transport systems (C-ITS). They assess the contribution of C-ITS to achieving societal goals, particularly in traffic safety and emissions reduction. Tingvall (2022) offers a personal account of the development of Vision Zero in Sweden, emphasizing safety as a responsibility of road transport providers. The chapter calls for measures to eliminate amateurism and trade-offs in road traffic safety. Khayesi (2022) explores the development and use of Vision Zero policy in the road safety programs of the United Nations and its specialized agencies. The chapter highlights the shift toward embracing Vision Zero as a guiding principle and ethical imperative within the UN system.

Popp (2020) discusses the improvements in hospital hygiene in recent years while highlighting persistent implementation gaps. Popp suggests the need for a nationwide organization responsible for monitoring hospital hygiene and providing compensation for nosocomial infections. The proposal of infection-follow-up insurance, akin to accident insurance, and the call for greater social pressure emphasize the urgency of prioritizing patient protection over economic concerns (Popp, 2020).

Schäfer, Mahlberg, and Klockmann (2021) focus on the evaluation of fatal occupational accidents in trade and logistics industries between 2012 and mid-2019. Their study categorizes these accidents into six focal points, providing valuable insights that can inform the development of preventive measures and further enhance safety in these sectors (Schäfer et al., 2021).

Dekker (2014) explores the bureaucratization of safety, noting that it has led to reduced harm, standardization, transparency, and control. However, the paper also highlights the unintended consequences, such as reduced innovation, bureaucratic obstacles, and constraints on personal freedom and creativity. Dekker's work calls for addressing these issues to maximize the benefits of safety bureaucratization (Dekker, 2014).

Aymo, Settimini, and Iocco (2018) share insights from the La Segunda Insurance Group's road safety efforts in Argentina. They discuss how embracing the Vision Zero Safety philosophy and standardizing the Road Safety Management System led to a comprehensive approach to accident prevention. Certification according to ISO 39001-2013 highlights their commitment to enhancing road safety through various factors, including road design and innovation (Aymo et al., 2018).

The review of literature emphasizes the significance of holistic approaches like the Vision Zero Safety philosophy in addressing road safety concerns. These insights provide a valuable foundation for ongoing research and practical initiatives aimed at safeguarding lives and promoting well-being in the workplace.

Data Analysis

Data was extracted from the Scopus database by using the keywords – "Vision Zero". This resulted in 350 documents between the years 1999 and 2023. The documents were analysed and the results were (Refer Table 3):

a. Sweden, US, Germany, Norway, Poland, Australia, UK, Netherlands, Russian Federation and Belgium are countries that have been doing research on Vision Zero.

b. It is clear that there is no substantial research output from India.

Though Vision Zero was initiated in 2007 in Sweden, research on Vision Zero has increased only after 2020 (Table 4). This leaves a lot of scope for research in this arena.

Table 5 shows the list of prominent authors who have worked on Vision Zero.

Table 3: Countries leading in research on vision zero

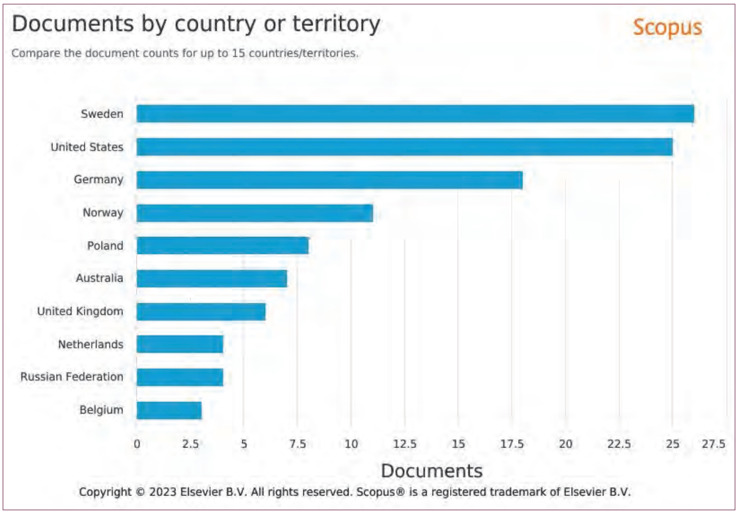


Table 4: Progress of research on vision zero

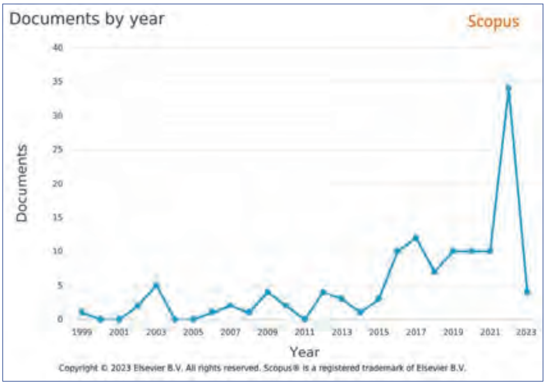
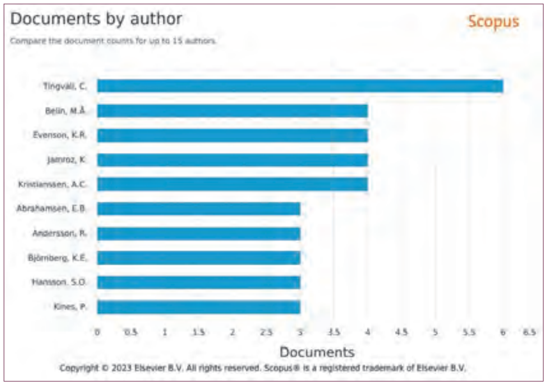


Table 5: List of authors who have worked on vision zero



Using Vos Viewer software, the output of bibliographic database Scopus was analysed (See Figure 2). A strategy for road safety can help achieve Vision Zero. Safe systems can reduce accidents and this can help achieve the strategy of Vision Zero.

Figure 2: VOS Viewer Output

The chart shows the results of a study on the factors that contribute to road fatalities and serious injuries. The study was conducted by the European Union and involved data from 28 countries.

The chart shows that the top three factors that contribute to road fatalities and serious injuries are:

1. Speed: Speed is a major factor in road fatalities and serious injuries. The study found that for every 1 km/h increase in average speed, the risk of a fatal crash increases by 3%.

2. Alcohol and drug use: Alcohol and drug use are also major factors in road fatalities and serious injuries. The study found that drivers who are intoxicated are four times more likely to be involved in a fatal crash than sober drivers.

3. Distraction: Distraction is a growing problem on the roads. The study found that drivers who are distracted are twice as likely to be involved in a fatal crash than drivers who are not distracted.

The chart also shows that other factors that contribute to road fatalities and serious injuries include:

- Age: Young drivers and older drivers are at higher risk of being involved in a fatal crash.
- Gender: Male drivers are more likely to be involved in fatal crashes than female drivers.
- Vehicle type: Motorcycles and bicycles are more dangerous than cars.
- Road environment: Poor road design and conditions can contribute to road fatalities and serious injuries.

The study also found that there are a number of measures that can be taken to reduce road fatalities and serious injuries, such as:

- Speed limits: Reducing speed limits can help to reduce the number of fatal crashes.
- Drink driving laws: Stricter drink driving laws can help to reduce the number of fatal crashes caused by alcohol.
- Distracted driving laws: Laws that ban distracted driving can help to reduce the number of fatal crashes caused by distraction.
- Improved road design: Improving road design can help to make roads safer for all road users.
- Education and awareness: Education and awareness campaigns can help to change driver behavior and reduce the number of road fatalities and serious injuries.

Challenges in Implementing Vision Zero

Changing the way a transportation system is designed and managed can be a complex and controversial process, and it can be difficult to gain political support for initiatives that may be seen as disruptive or costly. In addition, cultural attitudes towards traffic safety can vary widely, and it may be difficult to change behaviours or attitudes that are deeply ingrained. Implementation of such initiatives can require massive investments in infrastructure, education, and enforcement. Sourcing funds and allocating resources can be a challenge.

It can be difficult to measure progress towards the goal of eliminating traffic fatalities and serious injuries, as it may take years or even decades to see the full impact of safety interventions. This can make it challenging to determine which interventions are most effective and to allocate resources accordingly. People can be resistant to change, and it can be difficult to convince people to adopt new behaviours or to support initiatives that may be seen as disruptive or inconvenient.

Future of Vision Zero

Vision Zero acknowledges that:

1. Good design will reduce the impact of human mistakes
2. Life saving measures need precedence over time saving measures
3. Increased mobility cannot be at the cost of human lives
4. Prevention is the responsibility of the system design.
5. Engineering design must be complemented by research-led legislation.

Governments at all levels (federal, state, and local) play a key role in shaping the transportation system and can have a significant impact on traffic safety. Governments can support Vision Zero by implementing policies and regulations that promote safe behaviours and improve the design of the transportation system, and by investing in infrastructure improvements and other initiatives that support the goals of Vision Zero.

Transportation agencies, such as departments of transportation or transit agencies, are responsible for designing and managing the transportation system, and can play a key role in supporting the goals of Vision Zero. Law enforcement agencies are responsible for enforcing traffic laws and can support Vision Zero by increasing enforcement of laws that promote safe behaviours, such as laws against drunk driving or texting while driving. Community organizations, such as schools, churches, and civic groups, can play a role in supporting Vision Zero by educating their members about safe driving practices and advocating for policies and infrastructure improvements that promote safety.

The future of Vision Zero will rely on a variety of factors, including the continued commitment of governments and other stakeholders to the goal of eliminating traffic fatalities and serious injuries, as well as the effectiveness of the strategies and interventions that are implemented. Vision Zero will continue to be an important goal for many cities and communities around the world, as traffic accidents and fatalities remain a significant public health and safety issue. It is also possible that the focus of Vision Zero may evolve over time, as new technologies and trends emerge in the transportation sector.

For example, the increasing adoption of autonomous vehicles and the development of new transportation technologies, such as electric and shared mobility systems, could potentially have a significant impact on the safety of transportation systems. As these technologies and trends continue to evolve, it is likely that Vision Zero will continue to be an important goal and a guiding principle for the design and management of transportation systems around the world.

A Few Suggestions

Educating on the general public about safe driving practices through awareness campaigns is crucial to protect human lives. Street designs must influence traffic patterns. Policies to protect cyclists and pedestrians are important. Safety cameras can improve visibility and reduce traffic collisions. Speed limits must be adjusted to reduce over speeding.

Data analytics can reveal dangerous patterns, build risk models and improve safety on the road. Dashboard cameras can help identify errant driving behaviour. This can lead to imparting of defensive driving training programs for drivers where they take preventive actions to protect themselves and assets from risks. Poor road design can be exposed using technology and can pave the path for making improvements. Predictive analytics can help target accident prone areas and technology can help in real time monitoring. This can help save a life and prevent a truck from breaking down in the middle of the road and causing traffic bottlenecks and hazards. Data analytics can improve insurance pricing and risk management. For example, 10-year review of data pertaining to a fleet won't give a holistic picture of the drivers. Insurance industry must maintain links with transportation industry to get a better idea of risk.

The insurance industry can use data available to enable customers to improve safety. Transportation professionals and insurance sector can work with the transportation industry to improve road design, driver performance, fleet maintenance and pedestrian safety. Integration of innovative safety tools into driver training and coaching can result in drivers who appreciate the role of technology and modify their approach and behaviour. Night driving can be avoided at all costs in the interests of safety.

To Sum Up

Sweden was the first country where Vision Zero was first implemented in 1997. Since then, traffic fatalities have halved in Sweden. According to the Swedish government, the long-term goal of road safety is that "no one should be killed or seriously injured as a result of traffic accidents in the road transport system". It functions as a normative framework against which road safety measures can be developed, implemented, evaluated, and adjusted.

The success of Vision Zero in Sweden has attracted global attention. US, UK, Canada, Netherlands and India have shown keen interest in Vision Zero. The challenge lies in overcoming resistance to Vision Zero as an effort that can slow down traffic and increase commuting times. However, there is also the opportunity to enhance route efficiency as part of Vision Zero.

Vision Zero increases safe, healthy, equitable mobility for all. Connected transportation presents its own set of challenges. Vision Zero moves beyond systemic changes. It envisions defeating traffic deaths by adopting a proactive approach. Adoption of Vision Zero can create a safer and more sustainable transportation system for everyone, but involvement of stakeholders (including community support) is a must to achieve success in minimizing roadway fatalities and serious injuries.

India has implemented several road safety initiatives but their impact has been meagre. Growing urbanization demands a comprehensive approach to improve safety on Indian roads. Indian government has made attempts to strengthen road legislation. Amendments were made to the Motor Vehicle Act, 1988 in 2016. A strong coalition of informed and committed stakeholders can lead to massive road safety reforms in India.

A pilot Vision Zero project in Haryana involved the participation of 10 districts in the state to implement the plan. Haryana reports high road fatalities every year. Within a year, Haryana saw a 10% reduction in fatalities. Gurugram, the district that did not implement Vision Zero saw 16% increase in fatalities over the same period.

Vision Zero can provide benefits to the insurance industry by reducing claims, improving safety, and increasing customer loyalty. By supporting Vision Zero initiatives, insurance companies can help to create a safer and more sustainable transportation system for everyone. By associating themselves with socially responsible efforts such as Vision Zero, the insurance sector can earn a lot of goodwill among the customers and prospects. Insurance sector can use "Vision Zero" as a platform to demonstrate their commitment towards social responsibility and adherence to their ESG goals. TJ

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Vision Zero Insurance: A New Approach to Achieving Road Safety Goals

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Abstract

Vision Zero Insurance is a new approach to road safety that combines the principles of the Vision Zero framework with insurance incentives. The concept proposes linking insurance premiums to driving behaviour, rewarding safe driving behaviour and increasing premiums for risky driving behaviour. In addition, the concept includes a victim compensation fund financed through a small surcharge on insurance premiums. Vision Zero Insurance aims to incentivize safer driving behaviour and reduce the number of road accidents, while also providing support to victims of these accidents. This paper proposes a new approach to road safety, called Vision Zero Insurance, which incentivizes safe driving behaviour and provides financial support to victims of road accidents and complements traditional methods of reducing accidents and help achieve goal of zero fatalities and serious injuries on roads. The concept also includes a victim compensation fund to provide financial support to victims of road accidents, regardless of fault.

Keywords

Vision Zero Insurance, Road Safety, Traffic Fatalities, Comprehensive Approach, System-Based Approach, Safe Roads, Safe Vehicles, Education, Awareness, Enforcement, Collaboration, Data-Driven Decision-Making, Political Commitment, Leadership, Challenges, Benefits, Innovative Approach, Sustainable Future.

Introduction

Vision Zero is a road safety philosophy that originated in Sweden in the late 1990s and has since been adopted by cities and countries around the world. The central idea behind Vision Zero is that no loss of life on the roads is acceptable and that road safety is a shared responsibility of all road users. The initiative emphasizes that traffic crashes are preventable through a combination of safe road design, education, enforcement, and technology. Insurance companies have a vested interest in promoting road safety, as traffic crashes can result in significant financial losses, including property damage, medical expenses, and liability claims. Through risk assessment and analysis, insurance companies can work with policymakers and transportation planners to develop targeted interventions that address specific road safety issues.

Road traffic accidents are a major cause of death and disability worldwide. According to the World Health Organization (WHO), around 1.35 million people die each year as a result of road traffic crashes, and up to 50 million more are injured or disabled (WHO, 2020). In addition to the human toll, road accidents also have a significant economic cost, estimated at 1-2% of gross domestic product (GDP) in many countries (OECD, 2019). To address this issue, various countries and cities have adopted the Vision Zero framework, which aims to eliminate all traffic fatalities and serious injuries.

Vision Zero is a holistic approach to road safety that prioritizes the safety of all road users, including pedestrians, cyclists, and motorists. The concept originated in Sweden in the 1990s and has since been adopted by many countries and cities around the world, including the United States, Canada, Australia, and several European countries (Elvik, 2017). The Vision Zero framework is based on the premise that no loss of life or serious injury on the roads is acceptable, and that road safety should be the highest priority in transportation policy.

One potential approach to road safety is the use of insurance incentives. Insurance has long been used as a tool for managing risk, and it has the potential to incentivize safe driving behaviour and provide financial support to victims of road accidents.

Literature Survey

Vision Zero Insurance is a new concept that has gained traction in recent years. It is an approach to road safety that aims to eliminate all traffic fatalities and severe injuries. In this literature review, we will explore the current state of knowledge on Vision Zero Insurance, including academic research, government reports, and industry publications.

Academic Research:

Several academic studies have explored the potential benefits of Vision Zero Insurance. A study by Berg et al. (2018) found that the implementation of a Vision Zero policy in Stockholm, Sweden, resulted in a 50% reduction in fatal and severe injury crashes over a ten-year period. Another study by Elvik (2016) found that Vision Zero policies have the potential to significantly reduce the number of traffic fatalities and injuries in urban areas.

Government Reports:

Several governments have implemented Vision Zero policies, and many have published reports on their effectiveness. For example, the Swedish Transport Administration published a report in 2018 that found that the implementation of a Vision Zero policy had reduced traffic fatalities and injuries by 50% since 2000. The report also noted that Vision Zero had become a key part of Swedish transport policy, with a focus on both infrastructure improvements and public education campaigns.

Industry Publications:

Insurance companies have a key role to play in the implementation of Vision Zero policies. Several insurance companies have published reports on the potential benefits of such policies. For example, a report by Swiss Re (2017) found that the implementation of Vision Zero policies could significantly reduce insurance claims and premiums. The report also noted that insurance companies have an important role to play in promoting the adoption of such policies, through the provision of incentives and risk assessments.

The literature on Vision Zero Insurance suggests that the implementation of such policies can have significant benefits in terms of reducing traffic fatalities and injuries. However, further research is needed to fully understand the potential impact of such policies on road safety and the insurance industry. Governments, insurers, and other stakeholders should work together to develop and implement effective Vision Zero policies, with a focus on infrastructure improvements, public education campaigns, and risk assessments.

Concept of Vision Zero Insurance

Vision Zero Insurance is a new approach to road safety that incentivizes safe driving behaviour and provides financial support to victims of road accidents. The concept is based on the idea that insurance premiums should be linked to driving behaviour, rather than just vehicle type and driver history. Under this approach, drivers who engage in safe driving behaviours, such as obeying speed limits, avoiding distractions, and using seat belts, would be rewarded with lower insurance premiums. Drivers who engage in risky driving behaviours, such as speeding, aggressive driving, and drunk driving, would face higher insurance premiums.

In addition to incentivizing safe driving behaviour, Vision Zero Insurance would also provide financial support to victims of road accidents. This could be done through a combination of insurance pay-outs and a victim compensation fund. The victim compensation fund would be financed through a small surcharge on insurance premiums, and would provide financial support to victims of road accidents, regardless of fault.

The concept of Vision Zero Insurance is a novel approach to road safety that combines the principles of the Vision Zero framework with insurance incentives. The goal of Vision Zero

Insurance is to create a system that incentivizes safe driving behaviour and reduces the number of road accidents, while also providing support to victims of these accidents.

Under the Vision Zero Insurance concept, insurance premiums are linked to driving behaviour. Safe driving behaviours, such as obeying traffic laws, driving within the speed limit, and avoiding distracted driving, are rewarded with lower premiums. Risky driving behaviours, such as speeding, aggressive driving, and driving under the influence of drugs or alcohol, lead to higher premiums. This creates a financial incentive for drivers to adopt safe driving behaviours, reducing the likelihood of accidents and injuries.

In addition to insurance incentives, Vision Zero Insurance also includes a victim compensation fund. This fund is financed through a small surcharge on insurance premiums and provides financial support to victims of road accidents, regardless of fault. This ensures that victims receive the necessary support to recover from their injuries and get back on their feet (Helsloot, I., 2019).

Sr. #	Components	Challenges	Benefits	Potential Solutions
1	Vision Zero Philosophy	Resistance to adopting Vision Zero principles from traditional approaches.	Eliminate traffic fatalities and severe injuries.	Promote the success stories of Vision Zero cities and their positive impacts on road safety.
		Overcoming misconceptions about the feasibility of achieving zero road fatalities.	Prioritize human life and safety above all else.	Conduct educational campaigns to raise awareness about the philosophy and its effectiveness.
2	Insurance Incentives	Resistance from insurance companies to adopt innovative insurance incentives.	Encourage responsible driving behavior.	Engage with insurance providers and demonstrate the potential benefits of Vision Zero Insurance.
		Ensuring fairness and transparency in dynamic premium systems.	Promote adherence to road safety rules.	Utilize data analytics to create personalized insurance incentives based on driving behavior.
3	Telematics Technology	Privacy concerns regarding data collection and monitoring.	Real-time data collection for risk assessment.	Implement strong data security measures and provide transparent information to users about data usage.
		Resistance from some drivers to install telematics devices in their vehicles.	Identifying high-risk driving behaviors.	Educate drivers about the benefits of telematics in improving road safety and receiving potential rewards.
4	Risk Assessment	Addressing disparities in insurance access based on risk assessment.	Personalized insurance premiums based on driving performance.	Advocate for inclusive policies that provide affordable insurance options to all socio-economic groups.
		Overcoming challenges in evaluating and adjusting premiums fairly.	Encouraging safer driving habits.	Utilize data analytics and actuarial expertise to ensure premiums align with risk and remain transparent.

Theoretical Framework

In this theoretical framework, we will explore the underlying principles and theories that underpin Vision Zero Insurance, including systems thinking, risk management, and Behavioural economics.

Systems Thinking:

Systems thinking is a fundamental principle that underpins Vision Zero Insurance. Systems thinking recognizes that road safety is a complex issue that involves multiple stakeholders, including road users, infrastructure providers, and policymakers. To achieve the goal of zero traffic fatalities and injuries, it is necessary to consider the entire road system, rather than focusing solely on individual components. Systems thinking emphasizes the importance of collaboration and coordination among stakeholders, as well as the need for continuous monitoring and evaluation of road safety interventions.

Risk Management:

Risk management is another key principle that underpins Vision Zero Insurance. Risk management involves identifying potential hazards, assessing the likelihood and severity of harm, and implementing measures to mitigate or eliminate risks. In the context of road safety, risk management involves identifying high-risk areas, such as intersections or road segments with a high incidence of crashes, and implementing measures to reduce the likelihood and severity of crashes, such as traffic calming measures, improved signage and markings, and speed management strategies.

Behavioural Economics:

Behavioural economics is an emerging field that has important implications for road safety and Vision Zero Insurance. Behavioural economics recognizes that human behaviour is not always rational or predictable, and that individuals may make decisions that are not in their best interests, such as engaging in risky driving behaviours. To address this issue, Behavioural economics suggests that policymakers should use nudges, or subtle changes in the environment, to encourage safer behaviour. For example, changing the design of roads to make them more pedestrian-friendly may encourage more people to walk or cycle, reducing the number of cars on the road and decreasing the likelihood of crashes.

Systems thinking, risk management, and Behavioural economics are key principles that underpin Vision Zero Insurance, and can provide a theoretical framework for policymakers and practitioners to design and implement effective road safety interventions. By adopting a comprehensive approach that addresses the entire road system, identifies and mitigates risks, and encourages safer behaviour, it may be possible to achieve the goal of zero traffic fatalities and injuries.

Potential Benefits of Vision Zero Insurance

Vision Zero Insurance has the potential to provide a range of benefits, both for drivers and for society as a whole. Here are some of the potential benefits of Vision Zero Insurance:

Incentivizing Safe Driving Behaviours:

One of the main benefits of Vision Zero Insurance is that it incentivizes safe driving behaviours. By linking insurance premiums to driving behaviour, drivers are financially incentivized to adopt safe driving practices. This can lead to a reduction in accidents and injuries on the roads. Studies have shown that insurance incentives can be effective in promoting safe driving behaviour (Morrison & Winston, 2013; Tennyson & Weimer, 2013).

Improving Road Safety:

Vision Zero Insurance has the potential to improve road safety by reducing the number of accidents and injuries on the roads. By incentivizing safe driving behaviours, drivers are more likely to obey traffic laws, drive within the speed limit, and avoid risky behaviours such as distracted driving or driving under the influence of drugs or alcohol. This can lead to a reduction in accidents and injuries on the roads, making the roads safer for everyone.

Providing Support to Accident Victims:

Another potential benefit of Vision Zero Insurance is that it provides support to victims of road accidents. The victim compensation fund ensures that victims receive the necessary financial support to recover from their injuries and get back on their feet. This can help alleviate some of the financial burdens that victims of road accidents often face.

Promoting Equity:

Vision Zero Insurance has the potential to promote equity by providing support to victims of road accidents, regardless of fault. This ensures that all victims receive the necessary financial support to recover from their injuries, regardless of their income or social status. In addition, insurance incentives can help reduce disparities in access to safe transportation by incentivizing safe driving behaviours across all income and demographic groups.

Improving Traffic Flow:

Vision Zero Insurance can also improve traffic flow by reducing the number of accidents and injuries on the roads. Accidents and injuries can cause delays and disruptions to traffic flow, leading to congestion and increased travel times. By reducing the number of accidents and injuries, Vision Zero Insurance can help improve traffic flow and reduce congestion on the roads.

Reducing Insurance Costs:

While insurance premiums may initially increase for some drivers under Vision Zero Insurance, the long-term goal is to reduce insurance costs for all drivers by reducing the number of accidents and injuries on the roads. Insurance companies can pass on the savings from reduced claims to drivers in the form of lower premiums.

Encouraging Innovation:

Vision Zero Insurance can also encourage innovation in the insurance industry. Insurance companies may develop new technologies and products to better track and incentivize safe driving behaviours, or offer new types of insurance policies that provide additional benefits for safe drivers. This can lead to a more competitive and innovative insurance market.

In conclusion, Vision Zero Insurance has the potential to provide a range of benefits, including incentivizing safe driving behaviours, improving road safety, providing support to accident victims, promoting equity, improving traffic flow, reducing insurance costs, and encouraging innovation in the insurance industry. While there are challenges to implementing a Vision Zero Insurance system, the potential benefits make it a promising approach to promoting road safety and reducing the number of accidents and injuries on the roads.

Methodology

The methodology for implementing Vision Zero Insurance is a multifaceted process that involves the identification of high-risk areas, the development of targeted interventions, and the ongoing monitoring and evaluation of road safety measures. This methodology is guided by the principles of systems thinking, risk management, and behavioural economics, which provide a theoretical framework for designing and implementing effective road safety interventions.

Identification of High-Risk Areas:

The first step in the methodology for implementing Vision Zero Insurance is to identify high-risk areas where the likelihood and severity of traffic crashes are the highest. This may involve analysing crash data and conducting site visits to identify areas with a high incidence of crashes, such as intersections, highway segments, and other areas with high traffic volumes. The identification of high-risk areas is essential to prioritize resources and focus efforts on areas with the highest potential for reducing traffic fatalities and injuries.

Development of Targeted Interventions:

Once high-risk areas have been identified, the next step in the methodology for implementing Vision Zero Insurance is to develop targeted interventions to mitigate the risks. This may involve a combination of engineering, education, and enforcement measures, such as traffic calming measures, improved signage and markings, speed management strategies, and public awareness campaigns. The interventions should be tailored to the specific needs of the identified high-risk areas and be based on the latest research and best practices in road safety.

Ongoing Monitoring and Evaluation:

The final step in the methodology for implementing Vision Zero Insurance is ongoing monitoring and evaluation of the interventions. This involves tracking the impact of the interventions on traffic crashes and fatalities and adjusting the interventions as necessary to ensure continued effectiveness. Ongoing monitoring and evaluation are critical to ensure that resources are being used effectively and to identify areas where additional interventions may be necessary.

The methodology for implementing Vision Zero Insurance involves a comprehensive approach to road safety that is guided by the principles of systems thinking, risk management, and behavioural economics. The identification of high-risk areas, development of targeted interventions, and ongoing monitoring and evaluation are key steps in this methodology and are essential to achieving the goal of zero traffic fatalities and injuries.

Results

The results of implementing Vision Zero Insurance have been promising in many jurisdictions around the world. By prioritizing road safety and adopting a comprehensive approach to reducing traffic fatalities and injuries, cities have been able to achieve significant reductions in traffic crashes and fatalities.

For example, in Sweden, the birthplace of Vision Zero, traffic fatalities have declined by more than 50% since the introduction of the program in 1997 (Vision Zero Academy, 2021). Similarly, in New York City, traffic fatalities have declined by nearly 40% since the adoption of Vision Zero in 2014 (New York City Mayor's Office, 2021). Other cities, such as Helsinki and Oslo, have also seen significant reductions in traffic fatalities and injuries since implementing Vision Zero policies (European Transport Safety Council, 2019).

In addition to reducing traffic fatalities and injuries, implementing Vision Zero Insurance can also have economic benefits. A study conducted by the European Commission estimated that the costs of road crashes in the European Union amounted to € 120 billion in 2019, including medical costs, lost productivity, and property damage (European Commission, 2021). By reducing the number and severity of crashes, Vision Zero Insurance can help to reduce these costs and provide significant economic benefits.

The results of implementing Vision Zero Insurance have been promising in many jurisdictions, with significant reductions in traffic fatalities and injuries observed. In addition to improving road safety, Vision Zero Insurance can also have economic benefits by reducing the costs associated with road crashes. These results highlight the importance of adopting a comprehensive approach to road safety that prioritizes the safety of all road users and takes a systems-thinking approach to reducing traffic fatalities and injuries.

Discussions

The implementation of Vision Zero Insurance is a promising approach to improving road safety and reducing traffic fatalities and injuries. By adopting a comprehensive and system-based approach to road safety, Vision Zero Insurance prioritizes the safety of all road users and seeks to eliminate traffic fatalities and injuries altogether. This approach recognizes that road crashes are not inevitable and that they can be prevented through the design and management of safe roads and vehicles, education and awareness programs, and enforcement of traffic laws.

One of the key strengths of Vision Zero Insurance is its focus on a safe system approach. This approach recognizes that road safety is a shared responsibility and that it requires a holistic and integrated approach that considers all aspects of the road environment, including the behaviour of road users, the design of roads and vehicles, and the policies and practices that govern their use. By adopting this approach, Vision Zero Insurance seeks to create a safe and forgiving road environment that minimizes the risk of crashes and reduces the severity of their consequences.

Another strength of Vision Zero Insurance is its emphasis on data-driven decision-making. By collecting and analysing data on road crashes and their causes, Vision Zero Insurance enables decision-makers to identify high-risk areas and develop targeted interventions to improve road safety. This approach allows for a more effective and efficient use of resources and can help to prioritize interventions that have the greatest potential to reduce traffic fatalities and injuries.

Despite its many strengths, there are also challenges associated with implementing Vision Zero Insurance. One of the major challenges is the need for political commitment and leadership. Vision Zero Insurance requires a long-term vision and a sustained commitment from policymakers and other stakeholders, as well as the resources necessary to implement the necessary interventions. This can be difficult to achieve in the face of competing priorities and limited resources.

Another challenge is the need for collaboration and coordination across different sectors and stakeholders. Vision Zero Insurance requires a coordinated and collaborative approach that brings together a range of stakeholders, including policymakers, road safety experts, law enforcement, and the public. This can be challenging, as stakeholders may have different priorities and perspectives on road safety, and may require different levels of engagement and support.

Overall, the implementation of Vision Zero Insurance is a promising approach to improving road safety and reducing traffic fatalities and injuries. By adopting a comprehensive and system-based approach to road safety, Vision Zero Insurance can help to create a safe and forgiving road environment that minimizes the risk of crashes and reduces their severity. However, it will require sustained political commitment, resources, and collaboration across different sectors and stakeholders to achieve its goals.

Conclusion

With Vision Zero Insurance revolutionary approach, lives are safeguarded through a collective commitment to responsible behaviour and cutting-edge technology. It liberates our roads from the grip of peril, making accidents a thing of the past. We break free from the shackles of complacency, realizing that every life is invaluable and should not be compromised. Choosing Vision Zero Insurance means embracing a future where safety reigns supreme. It is not a distant dream but a tangible reality within reach. By prioritizing safety above all else, we ensure that every journey begins and ends with the promise of a safer, better tomorrow.

This paradigm shift fosters a new era of road safety, one where lives matter most. It's a transformative step that demands us to drive without fear, knowing that accidents need not be an inevitable part of our lives. With Vision Zero Insurance, we embrace change and usher in a new narrative of road safety – a future where roads become safe havens for all.

In conclusion, Vision Zero Insurance is a game-changer, urging us to act proactively and decisively. It is an audacious commitment to protect lives, making our roads safer for everyone. Let us seize this opportunity to pave the way towards a future where road accidents are but a distant memory, and human lives are cherished above all else. Together, we can make Vision Zero Insurance the driving force behind a safer, brighter world. TJ

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Vision Zero: Insurance Redefined

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Abstract

This paper focuses on the concept of Vision Zero and its potential impact on the insurance industry. Vision Zero is a comprehensive road safety strategy that aims to eliminate all traffic fatalities and serious injuries. The prime objective of the present paper is to understand the concept of Vision Zero, assess the challenges that come with its implementation, and highlight the critical role that insurance can play in achieving vision zero for both road safety and occupational health and safety. The study proposed that insurers should proactively redefine their product engineering and pricing strategies by maintaining constant customer connectivity. This can be achieved by assessing their risk, continuously monitoring risk with technologies, and incentivizing good human behaviour to mitigate risk. Moreover, the study suggests collaboration between insurance companies, InsureTech companies, government agencies and other stakeholders to increase awareness, enforcement, and infrastructure development. By doing so, a comprehensive ecosystem can be created to achieve Vision Zero.

Keywords

Vision Zero, Road Accident, Insurers.

1. Vision Zero: An Overview

Economic growth brings about numerous advantages, yet it also comes with a downside - the rise of traffic congestion in urban areas. This, in turn, significantly increases the risk of death and serious injuries caused by accidents. Every year the lives of approximately 1.3 million people are cut short globally because of a road traffic crash (Government of India, 2021). The Vision Zero is a Swedish approach use for the road safety. Sweden, the largest country in Northern Europe, conceived Vision Zero in 1994. Later, in the year 1997, Swedish parliament passed a Road Traffic Safety Bill, which codified the Vision Zero initiative. The bill sets an ultimate target of no deaths or serious injuries on Sweden's roads, and it is not satisfied with merely reducing accidents to an economically manageable level. It can be summarized in one sentence: No loss of life is acceptable.

The Vision Zero approach has achieved a great success. Sweden has substantially reduced deaths and serious injuries to 50% by 2020 and has set a target of zero by 2050 (Safarpour, et al., 2020). This approach has constantly evolved time to time. Gradually, other countries of the world are also taking inspiration from this approach and implementing it. Introduction of this approach in different countries are as follows: Norway in 2001, Australia and New Zealand in 2003, Poland in 2005, UK in 2006, Germany in 2007, United States 2010, Czech Republic in 2011, Finland in 2012, Scotland near to 2012, Denmark in 2013, Slovenia in 2013, Luxembourg in 2014, Canada and Mexico in 2015, Columbia in 2017, and India in 2017.

2. Vision Zero Approach in India

In India, the foundation of Vision Zero was laid way back in 2015. A road safety conference under the banner of India's Vision Zero was organised by Underwriters Laboratories (UL), the Bloomberg Philanthropies initiative for Global Road Safety and the World Resources Institute of India (WRI) to explore the challenges, opportunities, and solutions to reduce road toll in India (Safarpour et al., 2020). Haryana was the first Indian state to adopt a vision zero approach towards road safety. Haryana Vision Zero – "No More Traffic Deaths" was officially launched by the Government of Haryana in partnership with WRI India and NASSCOM on 2nd May 2017 in Gurgaon. Vision Zero was initially implemented in 10 districts of Haryana and later all 21 districts were covered under it (Pai, 2017). The programme works on four different aspects such as engineering, enforcement, education, and emergency. In order to achieve Vision Zero, NASSCOM and WRI India have developed road strategy plan for the state of Haryana. Together with the state government and partners, NASSCOM and WRI have initially worked on the areas highlighted in the figure1.

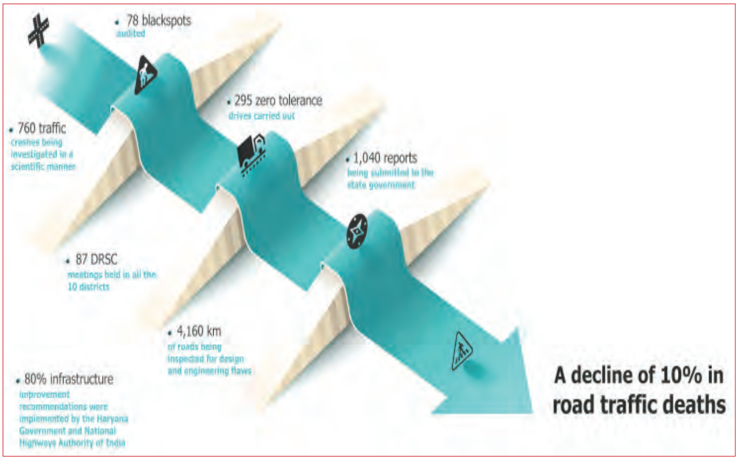


Figure 1. Initial action plan for Vision Zero (Haryana)

Source: https://nasscomfoundation.org/haryana-vision-zero/

As a result of excellent coordination between the government and other stakeholders, the state of Haryana has successfully reduced road accident deaths by 10%.

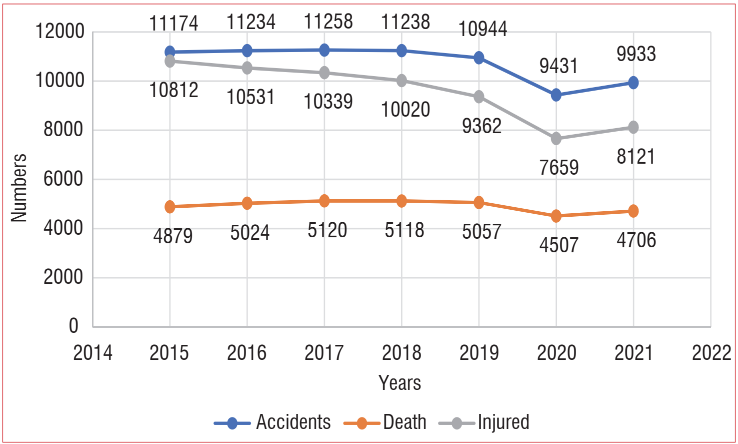
Table 1. Accident Statistics in Haryana (in%)

Year	2021	2020	2019	2018	2017	2016	2015
Accidents	5.32%	-13.82%	-2.62%	-0.18%	0.21%	0.54%	4.66%
Death	4.42%	-10.88%	-1.19%	-0.04%	1.91%	2.97%	8.83%
Injured	6.03%	-18.19%	-6.57%	-3.09%	-1.82%	-2.60%	20.89%

Source: Computed, data collected from https://traffic.haryanapolice.gov.in/accidentdata

Table 1 above highlights percentage of Accidents, Deaths, and Injuries during the year 2015 to 2021 in the state of Haryana. Overall, it is observed that after implementation of Vision Zero in the year 2017, the percentage of accidents and deaths has gradually decreased. It is noteworthy that in the year 2020, the percentage of deaths and injuries due to road accident has significantly reduced by more than 10%. However, this year the Covid 19 lockdown has also played a major role. Later, in the year 2021, the percentage of accidents and death have increased dramatically. Increasing population growth or other factors may be responsible behind it.

Chart 1. Accident Numbers in Haryana



Source: Computed

Chart 1 depicts absolute number of accidents, deaths, and injuries during the year 2014 to 2021 for the Haryana district. The year 2020 has clearly seen a significant reduction in road accidents, deaths, and injuries. On the other hand, year 2021 has revealed slight upward movement in the number of accidents and deaths on road. Overall, it has been observed that due to the implementation of Vision Zero approach, the government has been able to show a reduction in road accidents, deaths and injuries after the year 2018-19.

Table 2. Road Safety Steps towards Vision Zero taken by the Haryana State:

Education & Public Awareness	Enforcement	Training	Emergency Care
• Road Safety Education at school level • Establishment of Road Safety Club at Colleges • Awareness through Radio Station • Through Essay, Quiz, Drama, Poster Making, Painting, Seminars, Workshops etc. • Short films broadcasting at large. • Sadak Surksha Chetna Yatras • National Road Safety Week • Quarter wise Road Safety program • Six Traffic Parks have been developed for imparting training to public. • Improvement and Inclusion Road Safety Lessons in Teacher Training shall	• Automatic E-Challan • 23 Traffic Police Stations have been equipped with ambulances, interceptors, cranes, Police gypsy vehicles, motorcycles, alco sensors, cameras and saw machine etc. • 1577 Police officers to regulate traffic. • Speed limit has been fixed. • Installed CCTV Cameras on 20 fresh locations. • 45 Police Assistance Booths have been set-up at every 10 Kms	• 77 Engineers have been trained on Road Safety. • 1166 Police personnel were trained in "Basic Life Support and Paramedic Training. • 22 Driver Training Schools. • An automated Inspection & Certification Centre for Inspection of Motor vehicle. • Approximately 32,000 Heavy vehicle driver sare trained every year. • More than 50000 drivers are being sensitized through refresher courses by these institutes.	• 7 Trauma Care Centers in the State and proposal for establishment of 13 more Trauma Care Centers. • 43 ambulances of Haryana Police with 1073 toll free number and 382 ambulances with 108 toll free number for emergency. • Training is being imparted to the drivers in First Aid Trauma care from time to time

Source: Haryana Road Safety Action Plan 2018 (Secretariat of State Road Safety Council, Haryana, 2018).

Apart from the above actions government and private partners have implemented six pillars Road Safety Action Plans to achieve the target. The state government of Haryana is continuously monitoring the situation. Recently, Navdeep Singh Virk, Principal Secretary, Road Transport Department, has unveiled "Haryana Road Safety Manual" on January 19, 2023, to reduce traffic accident.

3. Vision Zero towards Occupational Health and Safety

Over recent years, Vision Zero has evolved into many forms of approaches and initiatives. In the early 2000s, the concept was expanded to include occupational health and safety through the Swedish Work Environment Authority's vision zero approach to workplace safety. It addresses health, safety and well-being at workplace. The prime motive was to create a culture of prevention and elimination of all serious accidents and deaths at workplace. This approach emphasizes the importance of involving workers in the process and creating shared responsibility for safety.

The concept has since been adopted by various countries and organizations worldwide, including the International Social Security Association (ISSA), which launched the Vision Zero campaign in 2017 to promote its principles in social security systems. The campaign focuses on areas such as prevention, leadership, participation, and continuous improvement to eliminate accidents and injuries in the workplace and promote overall well-being (Alanko & Alanko, 2022), (Zwetsloot, Leka, & Kines, 2017).

The concept of Vision Zero for industries in India originated from the Indian government's focus on ensuring safety and well-being of all workers. The concept was officially launched by the Ministry of Labour and Employment in 2017, with the aim of achieving zero accidents and zero harm in the workplace. Indo German Focal Point was founded in 2017 and since its foundation, various training and awareness programs, workshops, plays on Vision Zero have been organized in India in collaboration with DGUV (German Social Accident Insurance) and BG BAU (German Social Accident Insurance). Institute for Building Trade) and BG ETEM and in close cooperation with State Government Labour Departments in India. However, The Indian Union Cabinet approved the collaboration between India and Germany in the field of occupational safety and health (OSH) on March 5, 2020. DGUV works through ISSA to meet the challenges in occupational safety and health, especially in the construction and manufacturing sector in India. More than 200 companies and organizations have already joined as Vision Zero partners in India.

4. Present Scenario of Road Accidents & Deaths in India

Today, "Road Safety" is one of the nation's top public health concerns. According to Eight Report of Accidental Deaths and Suicides in India 2021- The National Crime Records Bureau (NCRB), 1,55,622 road accident deaths were reported in India during the year 2021 (National Crime Records Bureau, Ministry of Home Affairs, 2022). Table 3 below highlights statistics related to road accidents and fatalities in India during 2015 to 2021.

Table 3. Road Accidents & Fatalities in India (2015 to 2021)

Year	Projected Population (in '000)*	% change in Population over the Previous Year	Road Accidents	% change in Road Accident over the Previous Year	Fatalities	% change in Fatalities over the Previous Year
2015	12,54,019	-	5,01,423	-	1,46,133	-
2016	12,68,961	1.19%	4,80,652	-4.14%	1,50,785	3.18%
2017	12,83,601	1.15%	4,64,910	-3.28%	1,47,913	-1.90%
2018	12,98,043	1.13%	4,67,044	0.46%	1,51,417	2.37%
2019	13,12,241	1.09%	4,49,002	-3.86%	1,51,113	-0.20%
2020	13,26,155	1.06%	3,66,138	-18.46%	1,31,714	-12.84%
2021	13,23,616	-0.19%	4,12,432	12.64%	1,53,972	16.90%

Source: Computed, data collected from Road Accidents in India 2021 Report (Government of India, Ministry of Road Transport and Highways Transport Research Wing, 2022).
(*Projected Population: As per projections of Registrar General of India)

The given table shows number of road accidents and deaths with year-on-year change in percentage in comparison with the annual population growth rate.

Overall, the population has increased by about 1% every year, compared to which the road accident and death figures have fluctuated. 2020-21 is the year of pandemic, in which mortality rate was higher, which leads to decrease in the population by 0.19% in the year 2021. On the contrary, due to the lockdown in the year 2020, road accidents and deaths were drastically decreased by 18%. However, after the opening of the lockdown, number of road accidents were increased significantly, and deaths percentage has increased by 16.90. with growing economy, the number of road accidents and deaths will also increase in the future, and it will have a negative impact on the GDP (World Health Organisation and International Labour Organisation, 2021).

5. Present Scenario of Insurance in India

In India, the insurance sector is still underpenetrated and has a low density. According to the Insurance Regulatory and Development Authority of India (IRDAI) - Handbook on Indian Insurance Statistics for 2021-22, the insurance penetration rate in India was 4.20%, which is lower than the world average of 7.00%. Insurance density, which is the premium per capita, was 91 US$, which is also lower than the world average of 874 US$.

However, over the years, there has been steady growth in the insurance sector in India. In 2021-22, the total premium underwritten by insurance companies in India was Rs 9,16,616.94 crore, which was a growth of 10.33% compared to the previous year. This growth is due to the increase in awareness about insurance, the growth of the economy, and the introduction of new products and distribution channels. Table 4 below depicts personal accident insurance coverage in India for the period of 2015 to 2021.

Table 4. Personal Accident Insurance Coverage in India

Year	Projected Population (in '000)	Personal Accident Insurance - Number of Persons Covered (in '000)			Personal Accident Insurance – % of Population		
		Group Business	Individual Business	Govt. Sponsored Business	Group Business	Individual Business	Govt. Sponsored Business
2015	12,54,019	2,82,623	24,061	14,574	23%	2%	1%
2016	12,68,961	4,16,540	11,081	19,706	33%	1%	2%
2017	12,83,601	1,40,499	8,605	5,01,005	11%	1%	39%
2018	12,98,043	1,65,993	21,811	5,79,012	13%	2%	45%
2019	13,12,241	2,14,685	15,331	6,37,183	16%	1%	49%
2020	13,26,155	6,12,306	14,851	7,04,756	46%	1%	53%
2021	13,23,616	5,10,289	11,276	3,62,783	39%	1%	27%
Average					25.74%	1.18%	30.78%

Source: Computed, data collected from Handbook on Indian Insurance Statistics 2021-22
(*Projected Population: As per projections of Registrar General of India)

The given table shows the number of persons covered under personal accident insurance and the percentage of coverage out of the total population. Personal accident insurance is classified into three classes of business namely group, individual and government sponsored. Wherein group business consists of both family floater and other than family floater plans, and Government sponsored schemes includes Rashtriya Swasthya Bima Yojana (RSBY), Pradhan Mantri Suraksha

Bima Yojna (PMSBY), and Pradhan Mantri Jan Dhan Yojna (PMJDY), IRCTC travel insurance for e-ticket passengers are excluded.

As regards group business, an average of 25.71% of the total population is covered. However, government sponsored scheme covered an average of 30.78% of the total population. On the other hand, individual business has reported an average of less than 2% of the total population, which indicates lucrative opportunities that insurance have.

As far as Life insurance business is concerned, 30 out of 100 people have life insurance policy (Edelweiss Tokio Life, 2022). According to the study, approximately 70% of Indians do not have life insurance and very few are adequately covered. In India 70% of the population live in rural areas. Life insurance coverage in rural area is ranging between 8 to 10% which indicates untapped rural market in India (Shrey, 2023). Looking at the Indian insurance market, it has a long way to go in terms of penetration and density.

6. Challenges faced by India in implementation of Vision Zero

India has not yet formally adopted Vision Zero approach; several cities and states have started their own initiatives. After the Haryana state initiative, several other states such as Tamil Nadu, Mumbai, Bengaluru, and Pune have launched their own Vision Zero initiatives (Srivastava & Shrivastava, 2023).

As a nation, we face several challenges that have been identified and enumerated as follows:

- **Lack of Awareness:** The concept is new to India; therefore, people and organizations need to be educated about the benefits of Vision Zero.
- **Poor Infrastructure:** Quality of road and safety measurements are not up to the mark. 40% of roads in India are dirt roads, and more than 30% of villages have no access to all-weather roads. However, roads are congested, and road maintenance is underfunded (University of Reading, 2021).
- **Inadequate Enforcement:** According to Global Status Report on Road safety 2018, Enforcement Laws on speeding and drink driving in India are rated 3 and 4 out of 10, which is considerably lower as compared to China and Sri Lanka. Due to limited infrastructure and a lack of resources, India faces difficulty in implementation of traffic rules & regulations. The police force does not have enough equipment to constantly monitor traffic.
- **Behavioural Aspects:** Accident analysis has produced much of data that the most frequent causes of accidents in India include excessive speeding, drunk driving, distractions, and disregard for safety precautions (Sucha & Seitl, 2011). Changing behaviour and attitudes towards traffic rules and safe driving practices is a significant challenge in India. People often ignore traffic rules or are not aware of them, which results in accidents.
- **Rapid Urbanization:** India is experiencing fast-paced urbanization, which is putting pressure on the existing infrastructure. India's urbanization is growing at an annual rate of 1.5%, resulting in an increase of 19.6% between 2010 and 2021 (GlobalData, 2023). The lack of proper planning for urbanization makes it difficult to implement Vision Zero.
- **Lack of resources:** Implementation of Vision Zero requires proper funding and resources. The government must invest in improving infrastructure, public transport, and road safety measures.
- **Road design:** Roads are often designed without considering the safety of all users, which poses a significant challenge to implementing Vision Zero. To ensure safe and accessible infrastructure for all, road designs must prioritize the needs of all road users.
- **Political will:** There is a need for political will to ensure that Vision Zero is implemented across the country. This requires the government to take active steps to promote road safety and ensure the implementation of Vision Zero.

7. Potential participation of insurance companies in Vision Zero

The participation of insurance companies in Vision Zero in India can have a significant impact on road safety and help to achieve the goal of zero fatalities and serious injuries on the country's roads.

- The first and most obvious contribution by an insurance company is to reduce the financial burden of accident victims and their families. This can help to reduce the negative impact of accidents and promote a culture of safety in the country. Looking at the underpenetrated insurance market in India, it appears that companies have lucrative opportunities to expand their business in rural as well as urban areas. As far as industry is concerned, insurance companies can offer a range of products and services such as industrial accident insurance, liability insurance and health insurance, which can help businesses mitigate risks and ensure that injured employees receive compensation and medical treatment.
- Insurance companies can join hands with government, private organizations and other stakeholders for awareness campaigns related to Vision Zero towards road safety and occupational health and safety. Such a campaign towards road safety can educate and sensitize people about road safety rules and practices, dangers of drink driving, importance of wearing helmets and seat belts, etc. On the other hand, different training and programs should be organized for health and safety for the employees at the workplace.
- Insurance companies can collect data on accidents and analyse it to identify risk factors. This information can be used to develop and implement measures to minimize road accidents. Insurers can also work with the government to conduct road safety assessments, identify high-risk areas, and develop strategies to minimize accidents in those areas. Similarly, insurance companies can also work with industry to identify and mitigate risk and create a safe and healthy workplace.
- Insurance companies can invest in research and innovative technologies that can reduce the likelihood of road accidents or industrial accidents. Such technologies may include better personal monitoring and automated vehicle monitoring that will ensure more efficient and safer driving habits. In addition to this, develop the use of automated machine & tools that can automatically prevent damage or accidents at workplace.

By taking a comprehensive approach to road safety and occupational health and safety, insurance companies can help to create a safer and more secure environment for all. This can have a positive impact not only on the individuals and families affected by accidents but also on the country's economy as a whole.

8. Redefine the Role of Insurance

To define the role of insurance towards a Vision Zero approach in India, it may be necessary to modify some of the basic concepts of insurance. Traditionally, insurance has been focused on risk transfer and compensation for losses. However, to support Vision Zero, insurance companies can shift their focus towards preventing accidents and injuries from happening in the first place. Insurance companies should not only sell policies to their policyholders, but also focus on continuously monitoring and mitigating the risk of road accidents and workplace accidents. This requires companies to redefine their product engineering and pricing strategies. Here are some ways insurance companies can redefine their role towards Vision Zero in India:

Risk of road traffic accidents are closely associated with young age, male gender, speed, influence of substance, use of mobile phone, driving experience, temperament, attitude, aggression, stress, anxiety, emotionality, fatigue, lack of sleep, and road conditions (Lakhan, Pal, Baluja, Moscote-Salazar, & Agrawal, 2020). Therefore, insurers should focus on the human behaviour and environmental factors that are often responsible for the road accidents. With using AI-powered sensor insurer can monitor driving behaviour, such as speed, braking, and acceleration, to identify risky driving patterns. By leveraging the power of AI, insurance companies can help to prevent accidents and reduce the number of injuries and fatalities on the roads. Insurance companies can incentivize those with good driving behaviour by discounting their premiums.

As regards industrial Vision Zero, insurers should conduct risk assessment to identify safety hazards and develop safety standards and guidelines for various industries and workplaces for accident prevention. The guidelines should cover topics such as machinery safety, personal protective equipment, and ergonomics. Insurers can incentivize the industry by offering discounts on premiums for meeting certain safety standards and best practices. This will encourage companies to invest in health and safety, thereby reducing industrial accidents and fatalities.

For technical breakthroughs, insurance companies can collaborate with InsurTech firms in India. Insurers can collaborate with the government and other stakeholders to promote road safety initiatives and support the implementation of the Vision Zero policy.

Insurance companies can offer financial support to government agencies and local organizations that work to improve road safety infrastructure. This can include grants, as well as direct or indirect investments to support the implementation of safety initiatives.

By taking a more proactive approach towards risk prevention and infrastructure improvements, insurance companies can help to address inadequate enforcement related to road safety and health. This can help to reduce the number of accidents and injuries on the roads, leading to a safer and more sustainable future for all.

9. Conclusion

The implementation of Vision Zero will require significant investments in infrastructure, resources, and awareness campaigns to make it successful. It is crucial to recognize the importance of Vision Zero and its potential to save lives and prevent accidents in India. Insurance companies can play a crucial role in addressing this issue by aligning their concepts with the Vision Zero approach, which emphasizes reducing the loss of life due to accidents and increasing insurance coverage. Redefining the insurance business involves a shift from a reactive approach to a proactive one. Insurance companies should invest in road safety measures, such as improving road infrastructure and promoting safe driving practices, to prevent accidents from occurring in the first place. Furthermore, insurance companies can partner with technology companies to develop innovative solutions that improve road safety and reduce accidents.

In order to respond the Vision Zero, insurance companies shall have to proactively redefine their product engineering and pricing strategy with constant customer connectivity by assessing their risk, continuous monitoring of risk with technologies and mitigating it by focusing on incentivizing good human behaviour. For example, insurance companies may need to offer incentives to policyholders who prioritize safe driving habits or invest in safe vehicles. Insurers may need to adopt new risk-assessment strategies that consider a driver's adherence to safe driving practices when determining policy rates.

In conclusion, redefining the insurance business by aligning with the Vision Zero approach presents an opportunity for the insurance industry to not only reduce the number of accidents but also increase insurance penetration. Insurance companies that prioritize road safety and develop innovative solutions can create a competitive advantage and become industry leaders in the coming years.

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Changing Insurance Market Dynamics: Analyzing the Trends of Insurance Density and Insurance Penetration in Global Economies with a Focus on India

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Abstract

Insurance Penetration and Insurance Density have changed significantly over the past decade, which has had a significant impact on the economies of India and other nations. Between 2016 and 2020, there was a substantial shift in the Insurance Penetration and Insurance Density. These are the parameters used to evaluate the country's insurance industry. COVID had a substantial effect on insurance penetration and insurance density. After COVID, insurance awareness expanded and individuals became aware of insurance. On a global scale, the industrialised nations have a notably high prevalence of general insurance coverage. It is mostly owing to an improved knowledge of the advantages of general insurance in these nations. The introduction of insurance sector reforms not only abolished the life insurance industry's monopoly, but also opened the insurance market to private companies, hence multiplying competition. For our study, we collected 'Insurance Penetration and Density' data for Fiscal Years (FY) 2016-17 through FY 2020-21. This study illustrates the variations in insurance penetration and insurance density between 2016 and 2020, as well as COVID's primary effect on them.

Keywords

Insurance Density, Insurance Penetration, Insurance Sector.

1. Introduction

The past few years were extremely challenging for the global financial market, as it took a roller coaster ride due to the impact of Pandemic, Russia-Ukraine war, surge in commodity prices and supply chain disruptions. Although, the insurance sector had come out to be the most resilient and flexible. The Insurance sector not only affects the economic development of a country in a positive way but it also acts as a road map for other sectors of economic activity in a country. Due to the increase in use of internet, the associated risk such as cybercrime, data loss, property theft, and cyber extortion has increased demand of Cyber insurance. Peer-to-peer insurance is gaining momentum because of reduction in cost of insurance premium in developing countries. Peer to peer insurance is combining insurance premium of all the participants that can be used to balance the future uncertain losses and share rest among participants. Globally, North America was the largest region in the insurance market in 2021 followed by Asia-Pacific, western and eastern Europe. As per annual report of IRDA (2022), the global economy is slowing, and the risk of an inflationary recession in several economies has risen. According to Swiss Re Sigma research (2022), this economic slowdown and high inflation environment will impact insurance markets, leading to lower demand for insurance. The major impact of inflation will be seen in rising claims costs in non-life insurance, particularly in property and motor insurance, in the near term. In 2021, global insurance premiums grew by 3.4% in real terms. The non-life sector saw a growth of 2.6%, driven by rate hardening in commercial lines in advanced markets. Global premium growth in the life sector rebounded strongly by 4.5% in both advanced and emerging markets (excluding China). The US remains the largest insurance market worldwide, followed by China and Japan, which together accounted for nearly 56% of global premiums in 2021. The market share of the top 20 countries stayed at 90% in 2021, with six Asian markets (China, Japan, South Korea, India, Taiwan, and Hong Kong) contributing to a 23% market share in the top 20 rankings of Swiss Re. Swiss Re estimates predict that global premium volumes will exceed USD 7 trillion in 2022, with a robust growth rate of 6.1%, demonstrating the insurance markets' resilience during the COVID pandemic. This report also highlights that, India ranks tenth in global insurance business, with a market share of 1.85% in 2021. India's total insurance premium increased by 13.46% in 2021, while the global total insurance premium increased by 9.04% during the same year.

The extent of development of a country's insurance market is measured through insurance penetration. Penetration rate is measured as the ratio of premium underwritten in a particular year to the GDP. The penetration rate serves as a high-level indicator for comparison of insurance market development across different countries, but it fails to give detailed information such as insurance coverage and quality of coverage. The Insurance density is calculated as the ratio premium to population (Premium per capita). It indicates about how much each person of the country spends on insurance premiums.

India's Insurance Industry is one of the exceptional sectors which is encountering the colossal growth at the rate of 32-34% each year. This growth can be laid to the account of rising remuneration and awareness about the benefits of insurance. As a result of this, the sector is facing immense competition. The licensing is monitored by Insurance Regulatory and Development authority of India (IRDAI) and Upto 74% FDI is allowed in Indian insurance sector as on Feb 2021. The insurance industry of India has 57 insurance companies, out of which 34 are non-life insurers and 24 are life insurers and LIC is the sole public sector company. The insurance sector is anticipated to rise at CAGR of 5.3% for 2019 to 2023. India's insurance penetration was marked at 4.2% in FY21 where life insurance penetration was 3.2% and non-life insurance was 1.0%. At the same time, Insurance density was marked US$78 in FY21. But is this sector ready for upcoming hurdles like rising inflation, interest rate, recession, climate change and the increasing competition.

According to the IBEF report, the insurance market in India is projected to reach US$ 222 billion by 2026. The implementation of the government's flagship initiative for crop insurance, Pradhan Mantri Fasal Bima Yojana (PMFBY), has significantly contributed to the growth in premium income for crop insurance. As per the Insurance Regulatory and Development Authority of India (IRDAI), India is set to become the sixth-largest insurance market globally within the next decade, surpassing Germany, Canada, Italy, and South Korea. The future of the insurance industry in India will see a prominent role for Robotic Process Automation (RPA) and Artificial Intelligence (AI), driven by emerging data channels, enhanced data processing capabilities, and advancements in AI algorithms.

We are all aware of the numerous benefits and significance of insurance. People's understanding of Insurance Penetration and Insurance Density is low, despite the fact that insurance helps to ensure family stability, bring peace of mind, decrease stress during difficult times, and many other benefits. This present study evaluates the changes in insurance density and insurance penetration that have happened in various nations during the previous five years. Using graphs and charts from the previous five years, this study also explains the variations and changes that have occurred in the Insurance Penetration and Insurance Density of Life Insurance and Non-Life Insurance in different nations. Using descriptive statistics, graphs and charts, this paper will assist the readers in comprehending the causes of the five-year fluctuations in Insurance Penetration and Insurance density across various nations.

2. Review of Literature

This section aims to explore and synthesize the collective knowledge and findings of previous studies, enabling a better understanding of the research context and identifying gaps in the existing literature. B.Vimala and Dr. K. Alamelu (2018) compared the life insurance penetration and density between rural and urban areas in India in their study. Sumeet Gupta (2021) highlighted national and international comparisons of insurance penetration and insurance density in India and other nations. Suman Kalyan Chaudhury and Sanjay Kanti Das (2014), described the study and evaluation of current trends and market share in the Indian Life Insurance sector. Ujjval B. Joshi and Prin. Dr. Vijaybhai A. Joshi (2017), examined and studied the changing trends in the Life Insurance Sector in India and compared it to some selected Global nations in recent years.

In a report Dr. S.S.S. Durga Ganesh (2014) reviewed the situation of the insurance industry in India since it was opened to private companies. The research also compared the performance of the insurance industry in the post-reform era. C Kalpana Naidu and Dr. C Paramasivan (2015) analysed the Public & Private Life Insurance Companies in India, compared customer perceptions of service quality, and assessed the performance of public and private life insurance companies in India. R Sivarama Prasad and R S N Sharma (2017) analysed the Indian life insurance penetration and Indian life insurance density using annual reports from LIC and IRDAI and IRDAI's Handbooks of insurance statistics. Saurabh

Bajpai and Dr. Syed Shahid Mazhar analysed the performance of the Indian insurance industry in terms of insurance penetration and density, particularly after the liberalisation of the insurance sector, focusing on Life insurance corporation of India. The annual reports of IRDA (2017:2022) illustrates the change in Insurance Penetration and Insurance Density in the life and non-life sectors during 2017-21.

Sharma, R., & Singh, P. (2021), investigated the relationship between digital transformation and insurance penetration in India. The study explores how technological advancements, such as mobile applications and online distribution channels, have influenced insurance consumption in the country. Kumar, A., & Malhotra, N. (2020) analyzed the relationship between insurance density and economic development in South Asian countries, including India. The paper employs cross-sectional data to examine the impact of insurance consumption on the region's economic growth. Patil, S., & Raghavan, S. (2019), identified and evaluated the factors influencing insurance penetration in India. The authors use statistical techniques to determine the significance of variables such as education, income level, and awareness of insurance products. The findings offer essential implications for policymakers and insurance companies seeking to boost insurance penetration in India

While the reviewed literature provides valuable insights into the changing dynamics of insurance market trends, there are still some notable research gaps that need to be addressed to gain a comprehensive understanding about insurance penetration and density in India in recent years.

➢ **Objectives of the Study:**

1. To comprehend the terms insurance sector penetration and density.
2. Examine the worldwide insurance penetration and density from FY 2016-17 to FY 2020-21.
3. Examine the penetration and density of insurance in the chosen continents viz. Asia, Europe, between FY 2016-17 and FY 2020-21.

3. Research Design

Data related to Insurance Penetration and Insurance Density was gathered from a diverse range of sources, with a primary focus on IRDAI Reports covering the past five Financial Years (2016-2021). Additional insights from relevant journal articles and newspapers were also utilized to gain a broader understanding of the global context surrounding the data under examination. This data collection process encompassed not only India but also encompassed 28 other countries worldwide. To ensure a comprehensive analysis, global benchmarks were utilized as points of reference. These benchmarks aided in enhancing comprehension and appreciation of variations and trends observed across different regions. The collected data from various sources was meticulously categorized by continent to facilitate a better grasp of the information and enable region-specific comparisons and assessments.

4. Data Analysis and Discussion

A systematic study of IRDAI Annual Reports of previous five years 2016-21 shed light on the variations that occurred with respect to Insurance Penetration and Insurance Density in the Indian context. Insurance penetration is computed as the ratio of total insurance premiums to gross domestic product for a particular year. It is primarily used as a measure of insurance sector development within a country. As an indicator of the growth of insurance within a country, insurance density is computed as the ratio of total insurance premiums to the total population of a certain country. In addition, the faster growth rate of the Indian economy is determined to be crucial for the development of the life insurance industry (Mishra & Mir, 2019).

The privatisation of the business has also helped significantly by expanding both the life and non-life insurance penetration and density. People do not comprehend what insurance is, what it covers, and what it does not cover, as reported by Bajpai and Mazhar. Even among the literate, insurance is accorded the lowest priority in the financial planning of the people. Raising the literacy rate is one method for eradicating the so-called trust deficit (Ganesh, 2014).

4.1 Worldwide changes in Insurance Penetration over the previous five years

Table:1: Worldwide changes in Insurance Penetration

INTERNATIONAL COMPARISON OF INSURANCE PENETRATION																
S. No.	Country	2016			2017			2018			2019			2020		
		Life	Non-Life	Total	Life	Non-Life	Total	Life	Non-Life	Total	Life	Non-Life	Total	Life	Non-Life	Total
	America															
1	USA	3.02	4.29	**7.31**	2.82	4.28	**7.10**	2.88	4.26	**7.14**	2.92	8.51	**11.43**	3.00	9.00	**12.00**
2	Canada							3.16	4.32	**7.48**	3.07	4.60	**7.67**	3.50	5.20	**8.70**
3	Brazil	2.3	1.8	**4.04**	2.28	1.77	**4.05**	2.1	1.8	**3.9**	2.25	1.78	**4.03**	2.30	1.80	**4.10**
4	Mexico							0.99	1.24	**2.23**	1.13	1.29	**2.42**	1.20	1.40	**2.60**
	Europe-Middle East-Africa															
5	France	6.06	3.17	**9.23**	5.77	3.18	**8.95**	5.75	3.14	**8.89**	5.98	3.24	**9.21**	5.10	3.50	**8.60**
6	Germany	2.75	3.33	**6.08**	2.63	3.41	**6.04**	2.41	3.62	**6.03**	2.64	3.69	**6.33**	2.80	4.00	**6.80**
7	Italy							6.17	2.17	**8.34**	6.15	2.18	**8.33**	6.30	2.30	**8.60**
8	Netherlands							1.72	7.51	**9.24**	1.59	7.63	**9.22**	1.50	8.10	**9.60**
9	Spain							2.39	2.80	**5.20**	2.21	2.88	**5.10**	1.90	3.20	**5.20**
10	Sweden							4.91	1.84	**6.75**	5.39	1.83	**7.22**	5.80	1.80	**7.60**
11	Switzerland	4.72	4.12	**8.84**	4.41	4.12	**8.53**	4.32	4.10	**8.42**	4.30	4.09	**8.38**	4.30	4.10	**8.40**
12	UK	7.58	2.58	**10.16**	7.22	2.36	**9.58**	8.32	2.29	**10.61**	7.99	2.31	**10.30**	8.80	2.30	**11.10**
13	Pakistan	0.63	0.26	**0.89**	0.60	0.26	**0.86**	0.68	0.25	**0.93**	0.61	0.27	**0.88**	0.50	0.30	**0.80**
14	Russia	0.25	1.13	**1.38**	0.36	1.04	**1.40**	0.47	1.06	**1.53**	0.37	0.97	**1.35**	0.40	1.00	**1.40**
15	South Africa	11.52	2.74	**14.26**	11.02	2.74	**13.76**	10.27	2.62	**12.89**	10.73	2.67	**13.40**	11.20	2.50	**13.70**
	Asia Pacific															
16	**India**	**2.72**	**0.77**	**3.49**	**2.76**	**0.93**	**3.69**	**2.74**	**0.97**	**3.7**	**2.82**	**0.94**	**3.76**	**3.20**	**1.00**	**4.20**
17	China	2.34	1.81	**4.15**	2.68	1.89	**4.57**	2.30	1.92	**4.22**	2.30	2.01	**4.30**	2.40	2.10	**4.50**
18	Japan	7.15	2.37	**9.52**	6.26	2.34	**8.60**	6.72	2.14	**8.86**	6.69	2.31	**9.00**	5.80	2.40	**8.10**
19	Indonesia							1.49	0.47	**1.95**	1.41	0.58	**1.99**	1.40	0.50	**1.90**
20	Malaysian	3.15	1.62	**4.77**	3.32	1.44	**4.76**	3.32	1.45	**4.77**	3.35	1.37	**4.72**	4.00	1.50	**5.40**
21	Singapore	5.48	1.7	**7.15**	6.64	1.58	**8.22**	6.22	1.6	**7.82**	5.96	1.59	**7.55**	7.60	1.90	**9.50**
22	South Korea	7.37	4.72	**12.09**	6.56	5.00	**11.56**	6.12	5.05	**11.16**	5.84	4.95	**10.78**	6.40	5.20	**11.60**
23	Taiwan	16.65	3.3	**19.99**	21.32	17.89	**39.21**	17.48	3.4	**20.88**	16.51	3.46	**19.97**	14.00	3.40	**17.40**
24	Thailand	3.72	1.70	**5.42**	3.59	1.69	**5.28**	3.59	1.68	**5.27**	3.28	1.71	**4.99**	3.40	1.90	**5.30**
25	Sri Lanka	0.52	0.60	**1.12**	0.54	0.62	**1.16**	0.54	0.62	**1.15**	0.55	0.70	**1.25**	0.50	0.60	**1.20**
26	New Zealand							0.88	4.27	**5.15**	0.85	4.29	**5.14**	0.80	4.10	**4.90**
27	Australia	2.99	3.53	**6.52**	2.33	3.48	**5.81**	2.13	3.46	**5.58**	1.52	3.44	**4.95**	1.10	3.60	**4.70**
28	Hong Kong	16.20	1.41	**17.61**	14.58	3.36	**17.94**									
	World	**3.47**	**2.81**	**6.28**	**3.33**	**2.80**	**6.13**	**3.31**	**2.78**	**6.09**	**3.35**	**3.88**	**7.23**	**3.30**	**4.10**	**7.40**

Source: Data Compiled from IRDA Annual Reports (2016–2021)

- **Insurance Penetration and Density by Region in the World in 2021**

Table:2

Region	Penetration (%)			Density (USD)		
	Life	Non-Life	Total	Life	Non-Life	Total
USA and Canada	2.7	8.7	11.4	1823	5960	7782
Advanced EMEA	4.8	3.2	8.0	2226	1468	3694
Emerging EMEA	0.6	1.0	1.6	35	58	92
Advanced Asia Pacific	6.0	3.0	9.0	2325	1187	3512
Emerging Asia Pacific	2.1	1.6	3.7	132	100	232
India	3.2	1.0	4.2	69	22	91
World	**3.0**	**3.9**	**7.0**	**382**	**492**	**874**

Source: Data Compiled from IRDA Annual Reports (2016–2021)

The above analysis of insurance penetration among various countries reveals unequal changes and varying ratios of growth. Pakistan consistently maintained a penetration rate below 1 percent over the past five years, while Sri Lanka, Russia, and Brazil also had low rates, with Brazil's performance being the best at approximately 4%. India's insurance penetration showed a positive expansion trend, rising from 3.49 in 2016 to 4.20 in 2020. China experienced fluctuations, reaching a peak of 4.57 in 2017 but then declining and recovering to 4.50 in 2020.

Australia, Thailand, and Malaysia witnessed fluctuations in their insurance penetration rates over the years. Australia's rate decreased from 6.52 in 2016 to 4.50 in 2020, while Thailand's fell from 5.42 in 2016 to 4.99 in 2019 before rising to 5.30 in 2020. Malaysia's rate remained relatively stable at around 4.77 in 2016 to 2018, then decreased to 4.72 in 2019 before rising to 5.40 in 2020. Germany, Japan, Switzerland, France, Singapore, the United Kingdom, South Korea, the United States, South Africa, and Taiwan all experienced fluctuations in their insurance penetration rates during the specified period. These changes ranged from increases to declines, with some countries experiencing significant variations. Taiwan, in particular, saw a sharp peak in 2017, followed by a decline to 17.7 percent in 2020.

Overall, the analysis indicates a diverse landscape of insurance penetration across countries, reflecting varying levels of development and market dynamics within the global insurance sector.

4.2 Worldwide changes in Insurance Density over the previous five years

Table:3

INTERNATIONAL COMPARISON OF INSURANCE DENSITY

(In USD)

S. No.	Country	2016			2017			2018			2019			2020		
		Life	Non-Life	Total	Life	Non-Life	Total	Life	Non-Life	Total	Life	Non-Life	Total	Life	Non-Life	Total
	America															
1	USA	**1**,724.9	2449.2	**4,174.1**	1674	2542	**4216**	1,81**0**	2,672	**4,481**	1,915	5,580	**7,495**	1,918	5,754	**7,673**
2	Canada							1,462	1,996	**3,457**	1,421	2,128	**3,548**	1,532	2,243	**3,775**
3	Brazil	195.5	150.8	**346.3**	224	174	**398**	186	159	**345**	196	155	**351**	151	120	**271**
4	Mexico							93	116	**209**	111	128	**239**	99	116	**214**

S. No.	Country	2016			2017			2018			2019			2020		
		Life	Non-Life	Total	Life	Non-Life	Total	Life	Non-Life	Total	Life	Non-Life	Total	Life	Non-Life	Total
	Europe-Middle East-Africa															
5	France	2,227.7	1167.5	**3,395.3**	2222	1224	**3446**	2,370	1,296	**3,667**	2,413	1,306	**3,719**	1,959	1,359	**3,317**
6	Germany	1,150.6	1397.1	**2,547.6**	1169	1519	**2687**	1,161	1,747	**2,908**	1,222	1,712	**2,934**	1,281	1,827	**3,108**
7	Italy							2,110	742	**2,852**	2,039	725	**2,764**	1,972	721	**2,692**
8	Netherlands							913	3,977	**4,890**	832	3,990	**4,822**	799	4,223	**5,022**
9	Spain							732	857	**1,588**	654	854	**1,508**	525	871	**1,396**
10	Sweden							2,653	991	**3,644**	2,783	946	**3,729**	2,993	945	**3,938**
11	Switzerland	3,700.3	3233	**6,933.5**	3522	3289	**6811**	3,555	3,379	**6,934**	3,502	3,332	**6,835**	3,667	3,557	**7,224**
12	UK	3,033.2	1030.5	**4,063.6**	2873	938	**3810**	3,532	971	**4,503**	3,383	978	**4,362**	3,574	949	**4,523**
13	Pakistan	9.2	3.9	**13.1**	9	4	**13**	10	4	**14**	8	4	**12**	6	3	**10**
14	Russia	22.4	100.3	**122.8**	39	113	**152**	50	114	**164**	43	113	**157**	41	105	**146**
15	South Africa	615.8	146.7	**762.5**	674	167	**842**	669	170	**840**	643	160	**803**	560	124	**684**
	Asia Pacific															
16	**India**	**46.5**	**13.2**	**59.7**	**55**	**18**	**73**	**55**	**19**	**74**	**58**	**19**	**78**	**59**	**19**	**78**
17	China	189.9	147.2	**337.1**	225	159	**384**	221	185	**406**	230	201	**430**	241	214	**455**
18	Japan	2,803.4	928.3	**3,731.7**	2411	901	**3312**	2,629	837	**3,466**	2,691	930	**3,621**	2,329	951	**3,280**
19	Indonesia							58	18	**76**	58	24	**82**	54	21	**75**
20	Malaysian	298.3	153.9	**452.2**	339	147	**486**	361	157	**518**	380	156	**536**	415	153	**568**
21	Singapore	2,894.5	882.4	**3,776.8**	3835	915	**4749**	3,944	1,014	**4,958**	3,844	1,028	**4,872**	4,528	1,110	**5,638**
22	South Korea	2,049.6	1312.3	**3,361.9**	1999	1523	**3522**	1,898	1,567	**3,465**	1,822	1,544	**3,366**	2,050	1,691	**3,741**
23	Taiwan	3,598.7	722	**4,320.7**	4195	803	**4997**	4,320	841	**5,161**	4,129	865	**4,993**	3,861	938	**4,800**
24	Thailand	222	101.4	**323.4**	237	112	**348**	262	123	**385**	256	134	**389**	244	139	**383**
25	Sri Lanka	21.2	24.5	**45.6**	22	25	**47**	23	26	**49**	23	29	**51**	21	24	**45**
26	New Zealand							367	1,780	**2,146**	354	1,790	**2,144**	349	1,678	**2,027**
27	Australia	1,558.5	1836.6	**3,397.1**	1304	1942	**3247**	1,203	1,957	**3,160**	827	1,875	**2,702**	568	1,880	**2,448**
28	Hong Kong	7,065.6	613.2	**7,678.8**	6756	1557	**8313**									
	World	**353**	**285.3**	**638.3**	**353**	**297**	**650**	**370**	**312**	**682**	**379**	**439**	**818**	**360**	**449**	**809**

Source: Data Compiled from IRDA Annual Reports (2016–2021)

Insurance spending in OECD countries: Insurance spending (Total, % of GDP), 2015 – 2021

Location ▾	**▾ 2015**	**▾ 2016**	**▾ 2017**	**▾ 2018**	**▾ 2019**	**▾ 2020**	**▾ 2021**
OECD-Total	8.535	8.735	8.765	8.853	9.023	9.437	9.387
Information on data for Israel: http://oe.cd/israel-disclaimer							

The above data analysis reveals unequal shifts in Insurance Density among countries, with varying growth rates. Pakistan had the lowest Insurance Density over the past five years, declining from 13.1 in 2016 to 10 in 2020. Sri Lanka's density remained below 50, but it was higher than Pakistan's. India's density increased from 59.7 in 2016 to 78 in 2020, while Brazil experienced fluctuations from 346.3 in 2016 to 273 in 2020. Thailand, China, Russia, Australia, Malaysia, Germany, Japan, Switzerland, France, Singapore, the United Kingdom, South Korea, the United States, South Africa, and Taiwan also had varying changes in Insurance Density over the specified period.

The development of insurance is seen as contributing to economic growth by enhancing societal stability and security. While investment, demand, education, and technological innovation have historically driven economic expansion, insurance's role in enhancing stability and security is considered a positive factor for economic growth (Han, Li, Moshirian, & Tian, 2010).

4.3 Insurance Penetration and Density in India

It is evident from above graph that Insurance Penetration and Density in India are increasing year on year with a slow speed. In case of Non-Life Insurance, it is lowest.
It is also noteworthy that The gap between Life and Non-life insurance is also increasing. With life insurance penetration at 3.2% and non-life

Table:4-Insurance Penetration and Density in India

Year	Penetration (%)			Density (USD)		
	Life	Non-Life	Total	Life	Non-Life	Total
2001-02	2.15	0.56	2.71	9.10	2.40	11.50
2002-03	2.59	0.67	3.26	11.70	3.00	14.70
2003-04	2.26	0.62	2.88	12.90	3.50	16.40
2004-05	2.53	0.64	3.17	15.70	4.00	19.70
2005-06	2.53	0.61	3.14	18.30	4.40	22.70
2006-07	4.10	0.60	4.80	33.20	5.20	38.40
2007-08	4.00	0.60	4.70	40.40	6.20	46.60
2008-09	4.00	0.60	4.60	41.20	6.20	47.40
2009-10	4.60	0.60	5.20	47.70	6.70	54.30
2010-11	4.40	0.71	5.10	55.70	8.70	64.40
2011-12	3.40	0.70	4.10	49.00	10.00	59.00
2012-13	3.17	0.78	3.96	42.70	10.50	53.20
2013-14	3.10	0.80	3.90	41.00	11.00	52.00
2014-15	2.60	0.70	3.30	44.00	11.00	55.00
2015-16	2.72	0.72	3.44	43.20	11.50	54.70
2016-17	2.72	0.77	3.49	46.50	13.20	59.70
2017-18	2.76	0.93	3.69	55.00	18.00	73.00
2018-19	2.74	0.97	3.70	55.00	19.00	74.00
2019-20	2.82	0.94	3.76	58.00	19.00	78.00*
2020-21	3.20	1.00	4.20	59.00	19.00	78.00
2021-22	3.20	1.00	4.20	69.00	22.00	91.00

Source: Data Compiled from IRDA Annual Reports (2016–2021)

Figure:1 Insurance Penetration in India (%)

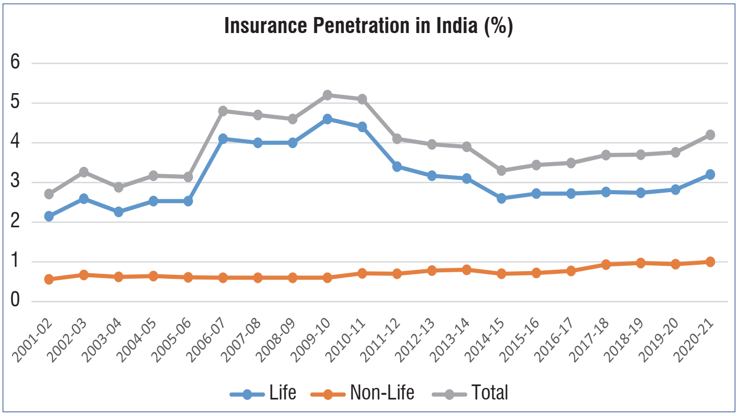
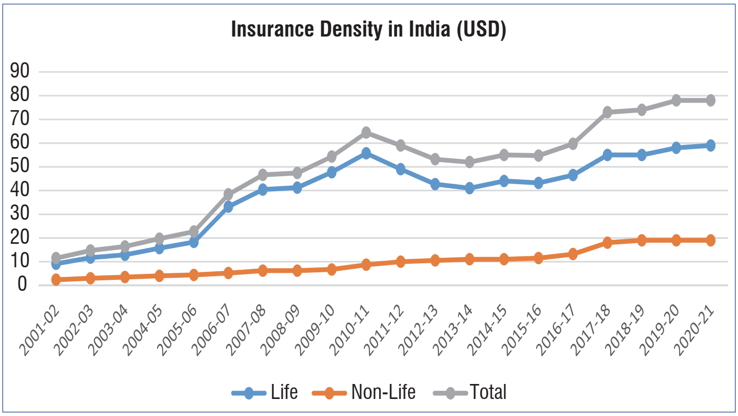


Figure:2 Insurance Density in India (USD)



Source: Data Compiled from IRDA Annual Reports (2016–2021)

insurance penetration at 1%, India's insurance penetration was estimated to be 4.2% in FY21 (up from 3.76% in 2019–20). Private sector businesses increased their market share in the non-life insurance industry from 15% in FY2004 to 49.3% in FY2021. According to the size of the Indian insurance market, life insurance makes up 75.24 percent of all premiums, while non-life insurance makes up 24.76 percent (2020). INR 2.78 tn ($38 bn) in new business premiums were reported by life insurers in FY21, an increase of 7.49% from the previous year, with private life insurers rising at a rate of 16.29%. 33.8% of the new business premium paid by the industry's private life insurers (FY21).

5. Major Findings

In every country, both insurance penetration and insurance density have increased in the life and non-life sectors. This indicates that individuals are becoming increasingly aware of insurance. Insurance Density and Insurance Penetration are extremely high on a worldwide scale for industrialised nations. This may be attributed to the growing understanding of insurance's benefits in those nations. There is a substantial gap in the insurance penetration and insurance density of developing and wealthy countries. Compared to undeveloped nations, developing nations place a greater emphasis on the insurance sector.

There were significant disparities in the changes observed in insurance penetration among countries, indicating varying levels of development and market dynamics in the global insurance sector. Several countries, including Pakistan, Sri Lanka, and Russia, experienced consistently low insurance penetration rates, which were below 2 percent, presenting challenges for the insurance industry to expand its reach in these regions. India's insurance penetration showed an expanding phase, increasing from 3.49 in 2016 to 4.20 in 2020. Similarly, China's insurance penetration exhibited growth, rising from 4.15 in 2016 to 4.57 in 2017, before experiencing fluctuations. Data analysis reveals that Insurance density varied considerably across countries and over time. Some nations, like Taiwan and Brazil, experienced sharp fluctuations, while others, like Malaysia and Singapore, demonstrated more stable growth patterns. Developed countries, such as the United States, the United Kingdom, and Switzerland, generally exhibited higher insurance density, indicating a higher level of insurance consumption in these advanced economies. The research highlights that the development of insurance plays a positive role in enhancing economic growth by contributing to the stability and security of societies. Overall, the findings underscore the importance of insurance in fostering economic growth and stability while pointing out disparities in insurance penetration and density across different countries.

Insurance Penetration and Insurance Density in the life and non-life sectors of every country experienced a rapid surge in 2019 following COVID. This demonstrates that people become aware of the importance of insurance after learning about the effects of COVID **(Joshi & Joshi, 2017)**. Previous Research studies also highlighted that Prior to the formation of the Insurance Regulatory and Development Authority and the introduction of private life insurers, insurance density and penetration were low in India as well. Following the foundation of the Insurance

Regulatory and Development Authority, the expansion and development of the Indian insurance industry are accelerated **(Prasad & Sharma, 2017)**. The current pandemic has highlighted the impact of healthcare on the economy, and strengthening the healthcare ecosystem would depend heavily on health insurance in India.

6. Future Scope of Research

The analysis identifies several research gaps, including the role of microinsurance and health insurance in inclusive growth, the impact of regulatory reforms on insurance markets, and the influence of behavioural economics on insurance uptake. Addressing these gaps can provide a more comprehensive understanding of the insurance market dynamics and its implications for economic development. TJ

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Insurance Industry of India Needs Quantum Leap Forward

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A Reality Check

How much developed is the life insurance market of India? Life insurance penetration and density, the two popular metrics to measure this, currently stand at 3.2 and $69 respectively. This is an improvement over the figures of last few years. Many analysts have started becoming euphoric on finding India's Life Insurance Penetration to be above the world average of 3.0. Only advanced Asia Pacific and advanced EMEA (Europe, Middle East and Africa) are ahead of us at 6.0 and 4.8 respectively.

New IRDAI Chief has advised the insurers to double the insurance penetration in next five years. This is really a very bold initiative and this should stretch the insurers to their maximum possible to achieve this lofty goal. But we have to look beyond these two metrics and see what the life insurance protection gap in India really is. After all, the future of life insurance industry in India lies in reducing the yawning protection gap. According to reliable government and industry data as collated by Invest India[1], there is 83% Mortality Protection Gap in the country. That means, most Indians are either uninsured or under-insured. That also means, Indians on an average have just Rs. 17 in the form of savings and insurance for every Rs. 100 needed for protection of the households. Even IRDAI admits that life insurance protection gap is to the tune of a whopping Rs. 480 lakhs of crores[2]. So, the task is cut out for the insurers. They have to do everything possible to close the gap, give citizens greater financial security and help build a stronger nation.

According to latest IRDAI Handbook[3], only 32.86 crores of life insurance policies are in force in the books of insurers. Out of these, 28.07 crores belong to the industry leader LIC and just 4.79 crores belonging to 23 private insurers collectively. That means, LIC has a market share of 85.42% of in-force policies. None of the private insurers are in possession of at least one crore of in-force policies. The top three positions are held by SBI Life (94.89 lac), HDFC Life (57.64 lac) and ICICI Prudential (51.63 lac). Table-1 shows the number of in-force policies held by the life insurers as on 31.03.2022.

Table-1: Insurer wise Number of In-force Policies (in Lac)

Insurer	No. of In-force Policies	Insurer	No. of In-force Policies
LIC of India	2807.41	Aditya Birla Sunlife	20.09
Aegon	3.12	Aegas Federal	6.06
Aviva	3.95	Bajaj Allianz	36.93
Bharti Axa	7.20	Canara HSBC OBC	7.57
Edelweiss Tokio	3.36	Exide	15.95
Future Generali	3.79	***HDFC Life***	57.64
ICICI Prudential	51.63	India First	10.44
Kotak Life	21.45	Max Life	47.70
PNB Metlife	15.67	Pramerica	3.43
Reliance Nippon	23.97	Sahara India	2.11
SBI Life	94.89	Shriram Life	10.87
Star Union Dai Ichi	6.31	Tata AIA	25.29

Source: IRDAI Handbook

The researcher has compared these important figures with previous year's figures. Previous year's handbook shows that 33.20 crores of policies had been in-force with LIC contributing 28.62 crores and private insurers together contributing 4.58 crores. So, while the market share of LIC in in-force policies remain almost the same, in absolute terms the number of in-force policies of the market leader has actually reduced by 55 lac! For private insurers, the number has marginally increased by 21 lacs. All this indicates two things. One, number of new policies is outweighed by number of exits in the form of claims, surrenders and lapsations. That is a very disturbing thing for the industry. Two, insurers are perhaps focusing more on the sale of high-ticket policies leading to growth in the industry but are indifferent to prevent leakages in the form of lapsations and surrenders. The result is that the industry is now covering the risks of fewer individuals than they did last year. Certainly, this is not a happy situation for the Indians since our prime objective is to give financial protection to larger number of people. While we welcome growth of new business premium and penetration (which is all about collecting more premiums only), Indian insurers need to be more committed to the goal of insuring all Indians.

Since many policyholders are in possession of multiple policies, it can safely be said that total Indians covered by in-force life insurance policies does not exceed 22 crores. According to a reliable estimate, only 8 to 10 percent rural Indians are covered by life insurance. So, life insurance remains an urban phenomenon as insurers are hardly interested to venture into areas beyond Tier-2 cities. LIC still has some significant presence in the rural areas and its rural Divisions are doing excellent business. But, private insurers are busy closing their brick and mortar offices set up earlier in rural areas. Some experts speak highly about the continuous growth registered by the industry in the recent years. True, the industry has grown by 9.74% (inflation adjusted) according to latest Annual Report of IRDAI[4]. But, much of the growth is nullified by early lapsations, surrenders and continuous churning of policies. Surely, the industry needs to make progress in right direction. They have to think beyond short term gains of market share and business targets and focus more on acquiring and retaining new customers.

The Industry Needs Quantum Leap Forward

The industry has always been thinking and acting incrementally. We are still not clear about what should be our top priorities. We are still obsessed with market share and insurance penetration. Increase in market share means nothing if it fails to result in better customer loyalty and policy persistency. Should we continue to bask in the glory of having registered life insurance penetration of 3.2 which is the global average at the moment? Certainly not, if we consider the reality that we have about 22 crores of people holding in-force policies in a nation of 141 crores. If we look at the 61-month persistency ratios of insurers (around 45% on average), we understand that we have miles to go before we can be complacent about our performance. The globally acceptable 61-month persistency ratio is 65%. Only one life insurer has reached that figure and that insurer is so small in business volume that it can not be taken into consideration at this stage. A look at 61 month Persistency Ratios of life insurers is presented below:

Table-2: 61 month Persistency Ratios of Life Insurers

Insurer	Persistency Ratio	Insurer	Persistency Ratio
LIC of India	49.90	Aditya Birla Sunlife	40.00
Aegon	51.99	Aegas Federal	37.06
Aviva	42.08	Bajaj Allianz	40.63
Bharti Axa	36.66	Canara HSBC OBC	47.64
Edelweiss Tokio	44.75	Exide	37.89
Future Generali	30.19	***HDFC Life***	46.23
ICICI Prudential	59.78	India First	43.98
Kotak Life	60.32	Max Life	49.00
PNB Metlife	43.95	Pramerica	65.99
Reliance Nippon	44.11	Sahara India	30.46
SBI Life	40.28	Shriram Life	28.65
Star Union Dai Ichi	40.95	Tata AIA	46.83

Source: IRDAI Handbook

Let us see what we can do urgently to transform the industry and make all Indians insured before 2047. In fact, we should achieve the target much earlier given the fact that India is the fastest developing country at this moment and will continue to grow at this rate for many more years.

A vigorous Insurance Awareness Campaign must be launched immediately, to make people understand what life insurance really is and also help them distinguish life insurance from other financial products. The campaign launched earlier by Life Insurance Council called "Sabse Pehle Life Insurance" with their creative partner McCann India did not really reach the masses, the way Mutual Fund has been able to, with their AMFI generated campaign "Mutual Fund Sahi Hai." In fact, the campaign of Insurance Council has not taken off and life insurance has so far failed to acquire its rightful place in public discourse. IRDAI and Life Insurance Council have a huge role to give the campaign much needed impetus to evoke desired response from the people.

Insurance Awareness Campaign needs to be launched in both conventional and digital mediums in all scheduled languages and in jargon-free words. This "Sabse Pehle…" campaign should appeal to people at the very instinctive level and prompt them to use their already existing protective behaviour to prioritise buying life insurance. Needless to say, the government departments of respective states should extend their hands of co-operation to take the movement to the remotest corners of the country. The blame for failure of the Insurance Awareness Campaign can not be put on insurers only.

The insurers need to engage more in events that interest the people in general and youths in particular. When the insurer is in the same page with the people, the awareness campaigns can bring better results. The insurers, instead of spending crores of rupees on national level cultural and sports events, should spend generously on promoting localised sporting events and cultural programs both at rural and urban areas. Efforts should be there to integrate each activity with life insurance. Insurance employees should be actively involved in such events rather than giving away money to sponsor some events.

The industry should make best use of its unique strength. The strength of life insurance lies in creating a mechanism of long-term savings which guarantees payment of definite sum(s) at various life stages. There is hardly any other financial product that is long term in nature. Although Mutual Funds and Equities promise better returns in long term, in essence they consider 3 to 5 years as a long enough term. PPF is a 15 year long product but without any insurance cover. Life insurance is very simple to handle while most risky portfolios need constant monitoring for better returns. Mutual Fund industry always says how much has been the inflow of money into their funds. Hardly do they say that in 2022, an equal amount of money was withdrawn by the customers.

Now, pensions provided by the government or employers are proving to be inadequate and secure government jobs are replaced with corporate jobs characterised by frequent lay-offs and salary cuts. So, new age customers should go for some contractual savings scheme of life insurance, rather than becoming adventurous and risk losing money in ambitious investments.

Our agents and other intermediaries are perhaps not fully aware of the strengths of this industry. In the training centres, they have to be provided with data and reports that can help them in positioning insurance products properly in the market.

Life Insurance as a Product must evolve significantly. Indian insurers should improve their ability to understand evolving risks in the society and develop products that manage such risks. Some insurers are already developing new kinds of products under Sandbox Scheme of IRDAI. So far, most innovations have taken place in the domain of non-life. I believe Sandbox Scheme can enable life insurers too, to experiment with products that can manage risks of some special segments. Insurers should make use of IRDAI's Sandbox system to prove that they are not in the business of selling some "one size fits all" types of products. Now that life insurers will get composite licences, interesting combo-products should be launched to address multiple risks of individuals. After all, the risks facing the people are multi-dimensional in nature.

Indian life insurers have been obsessed with competitors' actions instead of doing own research on customer needs. Now that the insurers have huge data on potential customers, it is easier than ever before to develop products by partnering with companies that have varied and complementary sets of data. Thanks to IoT, the insurers can make best use of a lot of data on customers that they can get from various non-traditional data-points like shopping malls, social media and credit rating agencies. New partnerships have to be developed. Products should contain a wide range of benefits that improve the quality of lives of the people.

Some products need to be developed exclusively for the benefit of new age customers who are experiencing greater uncertainties in life due to more frequent visitations of economic recessions, pandemics, natural catastrophes and cybercrimes than ever before. For those taking annuity policies, the option for Variable Annuity (market-linked) may be introduced, to enable the customers earn better returns. A rider may be in-built in such policy, to insure the downside risks in case value of investments fall significantly.

All product innovations need not be tech enabled. Insurers have enough experience to understand the changing customer needs and aspirations. They need to think out of box and experiment. We have discussed the advantages of using Sandbox Scheme. Now the insurers have 36 month period to test the viability of products instead of just six months that were provided earlier. So, they can take more time to decide whether the product should be launched at a larger scale across the country.

Future of life insurance is all about connected wellness. Now that life expectancy has increased but lifestyle diseases have increased at a faster rate, insurers who offer wellness benefits and an ecosystem of services much beyond insurance to improve health conditions of customers, can make life insurance an institution that values customers' lives a lot. According to proposed Insurance Amendments Bill 2022, the life insurers are going to be allowed to offer services related or incidental to insurance business.

Most Indians especially the youths are prone to a wide variety of lifestyle diseases today. The most notable among these are Obesity, Type II Diabetes, Cancer and Heart Diseases. It was found that most people died in India of Covid infections had been significantly obese. Of late Indians are eating a lot of unhealthy food and doing least physical activities leading to obesity. India is second most obese country with 155 million people recorded as obese. Regarding Diabetes, it can be pointed out that according to International Diabetes Federation, India boasts highest number of Type II Diabetics (40.9 million) currently. Diabetes is affecting major body organs like heart, kidney and retina this shortening the lives of people. Eating a lot of junk food and lack of exercises are increasing the level of Triglycerides and therefore the risk of heart attacks as well. Finally, cancer is the most killer disease of all in India as thousands of people die of lungs, skin and breast cancers every year.

Life insurers should play a vital role in improving the quality of life as both the customers and life insurers have a stake in the increasing longevity of the people. Online Yoga, Dieticians' Advices, Fitness Tracking Apps and preventive check-ups can all be in-built in insurance products. Customers will be thrilled to buy such products as they want to live with healthy life and value insurers who help them come out of wrong lifestyles.

Future customers will be willing to share personal data on current state of health in exchange of cheaper premiums. John Hancock's "Vitality" Programs[5] make customers earn "Vitality Points" by adopting a regime of exercising, getting annual check-ups and staying tobacco free. These activities are tracked real time during a whole year through smartphones and watches and improvements in health parameters entitle the customers to get up to 25% reduction in premium. Similar programs have to be launched in India, to make life insurance more wellness-oriented. Tech-enabled programs that help customers avert health related risks while also getting life insurance cover at lower price will make life insurance an extremely useful product.

Collaboration with InsurTech is a necessary condition for future progress. The funding growth in InsurTech space has been 37% CAGR in recent years. The world believes in the ability of Indian InsurTech to create values. Most innovations that happen through Sandbox are results of strategic partnerships between insurers and InsurTech companies. InsurTech firms use transformative technologies which have power to help insurers do things they can hardly do on their own. InsurTech start-ups are making use of Analytics and digital tools to make the products more flexible. Automation of core activities speed up processing of proposals and service requests of the customers resulting in saving of customer time and improving the operational efficiency of insurers resulting in reduction of costs and increase in profits. This happens because Robotic Process Automation and AI are very efficient in processing structured and unstructured data respectively. InsurTech firms are also in a position to help smaller companies getting market share in under-penetrated segments quite rapidly. IRDAI Chief believes that by making insurance products easily accessible through various tech enabled channels, it is possible to increase insurance penetration.

Estimates suggest that about 3% of business procured by insurers are fraudulent in nature. Advanced Fraud Analytics used by InsurTech firms help detect behavioural issues present in the proposers. Blockchain technology enables the insurers to share information securely, thereby reducing administrative costs and possibilities of frauds.

Equal emphasis has to be given on registering growths in new business and persistency. At this moment, most insurers are having 61-month persistency ratios less than 45%. That means, more than 55% of policies go off the books of insurers within 5 years from date of commencement. Insurance policies start contributing to surplus only if they are kept in force for a minimum of five to seven years.

Although IRDAI advised the insurers to make Pre-Issuance Verification Calls (PIVC) to 3% of the customers, to confirm that the customers have understood the salient features of the products, very few insurers are following this practice. So, the result is, mis-selling keeps on happening unabated and the customers lose interest in the policies not suitable to their needs. At this moment, maximum of mis-selling is happening in Bancassurance channel. The bank officials, in general, understand very little of life insurance and end up selling either wrong policies or selling policies by concealing important policy conditions. Therefore, the regulator should see to it that the insurers do follow PIVC practice religiously.

Customers should be encouraged by insurers and IRDAI to do their own research about the products. Intermediaries should be consulted at a later stage of the buying process. According to a study by LexisNexis Risk Solutions India[6], for 76% policyholders of the country, Agents/ Brokers are the only sources of information on life insurance. That makes the policyholders prone to risk of buying products without knowing anything about them. When an individual himself gathers information about insurers and products before consulting insurance intermediaries, there is a greater chance that he would buy right products keep his policies in force.

Since Smartphones have proliferated everywhere in the country, the insurers can use various Mobile Apps as a tool of better customer engagement. Some Apps are already very popular and used even by those who are not yet customers but will buy products after making an informed decision. This is also proving to be a more creative way to reach the masses. This can make customers understand the products better.

Considerable energy and time has to be spent on reassuring the customers that they have taken a very correct decision in life by buying life insurance policy. Since in life insurance, people keep on paying premiums for years before they can get the claim amounts, it is important to keep them engaged in a lively way. A wide variety of value-added services can be offered to them through some Apps, so that they get something very useful because of being a loyal customer. Needless to say, employees need to call up customers occasionally to check whether the customers remain loyal with the insurers.

All insurers have to step up their rural presence. 64% Indians (90 crores) live in the rural areas. Not more than 9 crores are insured by individual insurance products. This speaks volumes about why India is under-penetrated by life insurance and insurers find it difficult to improve profitability. Unless private insurers come out of the comfort zone of operating only in urban areas, they will always find it difficult to grow. Insuring the lives of rural people can not be the sole responsibility of LIC. All insurers together have to accomplish the mission of “Insure all by 2047". Rural people need life insurance even more, for the purpose of protection and savings.

Indian Rural people have very little savings to fall back on, in case of financial difficulties. All they possess is some ancestral property in the form of land, livestock and foodgrains. They have very little savings. While they understand the need for life insurance in their life, they also need to speak to the insurers' representatives and executives face to face and clear their doubts about the products and services. But, Instead of serving rural customers through brick-and-mortar offices, most private insurers are closing these offices in recent years, to focus on urban markets.

According to an NCAER data (analysed in a research paper), with the increase in rural infrastructures and rural credit facilities, the rural prosperity has been steadily increasing. Also according to a recent report by PRICE's (People's Research on India's Consumer Economy) ICE 360 Survey[7], rural Indians are now spending much less on food and much more on health, education and investment products. If insurers can not make use of this opportunity, they have only themselves to blame. Though considerable economic uncertainties still exist in rural India, total number of middle-class households in rural India is the same as in urban India. So, there is huge business opportunity for the insurers in rural India. Village Panchayats, Local Organisations, Anganwadi workers and Post Offices can act as business associates in remotest areas.

IRDAI has assigned one Indian state to each of the insurers, to develop rural markets. With the help of active co-operation of the state administrations, this can bring all Indians living in rural areas under the fold of insurance cover. But, onus is on the insurers to take up the responsibility and believe that they can grow further only by catering to the insurance needs of the rural India.

Roles of Insurance Intermediaries have to be redefined. Most Agents/ Brokers consider the occupation as a job of pushing insurance products and somehow selling high-ticket policies to the well-heeled of the society. The insurers have to invest time and resources in developing the skillsets and mindset of the intermediaries. The intermediaries today are hardly selling life insurance. Most of them are busy showing to people that return under the products is no less than other financial products. This is not then right way to sell life insurance. This product can be sold in its own merit and people selling them should learn how to do that.

Indian agents, corporate agents and brokers have to learn a lot more about life insurance, all types of life insurance products and other financial products in the market. There should be a "Learning and Certification" platform to enhance the knowledge, confidence and performance of insurance agents. That the agents have not learnt the trade well is vindicated by the fact that less than 1% of Indian agents qualify for MDRT while the corresponding figures in Asian countries like Hong Kong, Singapore and Philippines are 16%,8% and 4% respectively[8]. The scenario for Indian agents has to change.

Insurers can consider creating microsites within their official social media pages, to promote the brands of select agents. This will improve the status of well performing agents in the society. The dependable agents can also be empowered to underwrite proposals that do not require medical examinations.

Insurance@100

IRDAI has given a clarion call to life insurers to Insure all Indians by 2047 or Insure@100. I believe, it's not too tall an ask and can even be achieved much earlier if the insurers take the resolve to redeem themselves. Alongside insuring all lives of Indians, the industry has also to remain profitable. At the moment, 9 out of 24 life insurers are incurring losses. No new life insurance company has been set up in last ten years. FDI limit has been increased to 74% but foreign insurers are not interested in taking a plunge here. Nobody is interested in bringing capital to an industry that is not too profitable.

It is difficult to remain profitable in life insurance business unless an insurer scales up its operations significantly. Economies of scale are available only to the larger insurers. Again, it is not enough to sell policies; the policies have to remain in force for a long time. As we have seen earlier, none of the private insurers have at least one crore in-force policies in their books. In life insurance, larger the volume, higher is the profitability because law of average works better for the insurers in the long run. For this to happen, insurers need to deploy resources for setting up offices and distribution network in under-penetrated areas. The smaller insurers can now grow quickly by getting 25% of capital from a single PE fund more easily. In addition, they can raise subordinate debts and preference shares without seeking approval from IRDAI. The regulator's latest initiatives like Bima Sugam and Composite Licence should enhance usefulness of life insurance manifold. I find Composite Licensing more exciting for the industry because health insurance will go perfectly with life insurance. More than 70% agents of non-life insurers happen to be established life insurance agents working across the length and breadth of the country.

Insurance premium is not beyond the reach of Indians now as the country is no longer teeming with poor people. Per capita income is Rs. 1,97,000 now (per annum) and steadily rising. We have just 14% of the population living below the poverty line and this figure is all set to come below 5% by 2030. In some cases where affordability is still an issue, insurance can be made available through low-cost group insurance or government sponsored Pradhan Mantri Jeevan Jyoti Bima Yojona (PMJJBY). However, we would love to see Indians buying insurance products that would make money available under various contingencies other than just death of the policyholder. I think, Micro Insurance is a better option for people with modest means. Since IRDAI is going to lower capital requirements of micro insurers to Rs. 10-15 crores, there should be many such insurers operating in unpenetrated districts with InsurTech providing them solid tech support. Insurance can also be made in-built with various central/ state welfare schemes.

Finally, the insurance cover can really be made available to all, if the industry re-invents its business model, in the lines suggested in this paper. The prime objective should really be to adequately insure the lives of all insurable Indians. Special initiative has also to be taken to improve Policy persistency. That will automatically increase insurance penetration and density. If we simply focus on Insurance Penetration, the intermediaries will end up selling high ticket insurance to fewer individuals and still managing to grow and maintain an acceptable level of Insurance Penetration too.

But this strategy may not help us to bring all Indians under the fold of life insurance. So, my suggestion will be not to get too obsessed about Insurance Penetration at this moment. Insurance Penetration will automatically follow with the economic prosperity of people and making people better aware of the value of life insurance. It has been the experience of all countries to experience Insurance Penetration Ratio just above the growth rate of GDP. That means, if India manages to grow at the rate of 7 to 8 percent in the next ten years, Insurance Penetration should be at the level of Singapore, Taiwan, Japan, France and UK. But that will not happen automatically. That will happen only if the insurers make some basic changes in their business strategies and decide to grow by developing the insurance market of the country. TJ

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Are Transplants And Living Donors The New 'Pariahs'?

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Abstract

This article highlights the refusal of insurances or insurers to issue new medical policies to Transplants and Living donors. Transplants are donor organ transplant recipients and living donors are those who donate their kidney or part liver to the donee.

Insurers support the medical cost of those who had a policy before transplant, discriminate between people in the same category, and fail to accept the situation is similar. Their denial is direct or covert, as in the case of the author who was insured as a special case, subject to non-existing exclusions such as "Complications of benign and malignant disorders of breast and heart transplant." Insurances are violating the regulations of the IRDAI mindless of protecting the rights of the policyholder. The author has presented science-backed research of survival and good quality life among Transplants to contest insurance's stand. She wants underwriters to insure applicants objectively on the basis of their medical reports andresearch, and not out of bias born of lack of knowledge of new research and advances in medicine.

Keywords

Insurance, Rejecting medical policy, Organ Transplants, Living Donors, Research.

"Team India won 20 medals in the organ transplant category, 15 in the living donor category in the World Transplant Games 2023 which concluded in Australia's Perth this Friday." Times of India, 26 April. 2023.

Health insurances have studiedly denied new health policies to all Donor Organ Transplants and Living Donors. They give no reason for rejecting applications; so they only turn you away from their doors with subjective, illogical statements like:

"No insurance for you."

"You will never get an insurance."

If questioned, their only reply is "Rules." "What rules?" you ask. "Who made those rules?" "When were they made?" They have no answers.

It really surprised me when I first heard the above responses from four insurances after my heart transplant in 2018. How could they deny me an insurance, I felt, when I was a perfectly healthy human being after a transplant? I had fought breast cancer (2007- in remission since), and heart failure (2012-2018- a long side effect of chemotherapy) to be declared disease-free after a transplant, but they did reject me. Later, I discovered this rejection of medical policies has happened across all organ recipients and Living donors (of kidneys and livers), and the insurance industry has declined lakhs of organ Transplants in the country, on the basis of a new medical intervention authorized by the Government of India since 1994.

The IRDAI Resolution on Exclusions

Highly disturbed, I wrote to the then chairperson, IRDAI, Dr. SC Khuntia, asking if organ Transplants were eligible for medical insurance or not. I got the reply that their medical team was examining my query. After a month, I received a PDF copy of the IRDAI Resolution dated September 2019, to which all insurances are signatories. Some Insurance heads were part of the committee which drafted the resolution. The resolution was mandatory for insurances to accept.

The resolution states, "All existing health insurance products that are not in compliance with these Guidelines shall not be offered and promoted from 01st April, 2020 onwards." (6)

Nowhere in the resolution, titled, "Exposure Draft on Guidelines on Standardization of Exclusions in Health Insurance Contracts" or under its permanent exclusions are Organ Transplants and Living Donors identified for rejection. The resolution opens with a stern warning to insurers to stick to the exact wording of exclusions given by the IRDAI. Probably the reason for this resolution was the enactment of the Consumer Protection Act of 2019.

The governing body had studied the wordings of exclusions from the industry and, finding variations, had sought to give them a standardized classification/wording across the industry.

IRDAI had mandated:

1. "Insurers will incorporate the same wording in verbatim in the health insurance policy contracts." (6)

2. "Against each exclusion a code number is specified. Insurers are directed to put in place operational and system procedures to capture exclusion code specific claim repudiations for the purpose of deriving data/ information relating to exclusion wise repudiation of health insurance claims." (7) Chapter III of the document provides the detailed chart of codes for different diseases slated for exclusion (6-7).

3. "No Health Insurance Policy shall incorporate the following exclusions in the terms and conditions of the policy contract." The first of these is "Diseases contracted after taking the health insurance policy"(6).

4. The resolution adds, "In order to ensure that the policyholders of health insurance policies are not denied getting access to the technologically and medically advanced treatment procedures, Insurers shall not exclude the treatment procedures specified in Chapter IV." However, the resolution specifies Insurers may include "any other modern treatment methods subject to product design"(4).

I am the first heart transplant in the country to have gotten a new medical insurance in December, 2019. I fought for it based on my test reports and biopsy done one year post-transplant, and a letter from my Transplant surgeon, certifying good health and recommending a medical insurance.

In January, 2022, two of my cohorts got insured with the same insurance with my help, but nothing is right with our policy wording because of the non-existing exclusions imposed on us by the company's underwriters/ doctors without reason and in violation of the IRDAI resolution of September, 2019. We have been granted the policy on a case-to-case basis.

None of us has a pre-existing disease (PED), nor have we developed a chronic disease since transplantation, despite many myths that prevail among insurers. Yet, the insurance has listed the vague "complications" that we could get, in the Pre-existing column, thus violating an important clause in the IRDAI resolution, namely an insurance can not predict a disease and exclude a disease an applicant could get after getting insured.

I was transplanted 4.9 years ago at age 69. The other two recipients are a 48-year- old male transplant recipient transplanted 7.3 years ago, and the third is a 17-year-old girl transplanted 4.8 years ago.

Each one of us leads a normal life and has completely normal medical reports until now. The 48- year- old is a web designer, the 17-year- old is a student of standard 12 and this year became the Punjab champion in the Taekwondo (49-52 kg) tournament. She was in Visakhapatnam to represent Punjab in the national tournaments. I am a retired professor from IIT Bombay (1974-74) and a writer after my transplant.

At our own cost, we undergo regular blood tests check-ups and Echo-D with the local cardiologist, are on immune-suppressions to prevent the rejection of the donor organ by the body. We strictly follow the heart transplant regime of medication, diet, exercise and regular check-ups and tests given by our cardiac doctors to ensure excellent results. They also support us on phone and through personal visits by the cardiac team to our cities. Our post- transplant reports are probably better than those of many others the insurance may have insured.

Yet in the 'Details of 'Pre Existing Diseases relating to the above person" column in my insurance policy the underwriter has written **"Complications of benign and malignant disorders of breast and heart transplant"**. No code, as mandated by IRDAI, has been provided. Probably, they could not provide a code, because I did not have any disease at the time of applying for the policy, nor do I have one now. Mentioning an imaginary code would have gotten them into serious trouble with IRDAI. My "PEDs" were valid for two years after the policy, but they have continued in every renewed policy, including in the enhanced policy I took two years ago. Hence, recently, in the fourth year of my insurance, when I was hospitalized for viral flu and fever, the claims departments asked me for my Echo-D report, the latest OPD prescription from my cardiologist and in-patient hospital doctor notes! Surely, that's the limit of suspicion. Do they ask for these documents from all patients, one wonders?

The other two Transplants were compelled to accept the insurance policy on the condition that, since they were issued the policies as special cases, "all cardiac ailments will be excluded for life, after taking their latest ECG and Echo-D reports. The policy exclusions audaciously negate the facts of our current medical history. In each case, it was a 'take it or leave it' situation.

I wrote repeatedly to the insurer to remove these non- existent PEDs, telling them it was not right on their part to include entire categories of unpredictable diseases in our policies when our reports were absolutely normal. I got no reply which itself draws attention to what is not right but is being imposed forcibly on the Organ Transplant policy holder.

The cause of this high-handedness, regrettably, is the ignorance and low awareness among insurers of the latest research on Organ Transplant survival and well-being. This is happening across different Organ Transplant and Living Donor applicants and needs to be looked into and corrected by insurance-related bodies that oversee their functioning.

I do want to add that the insurer who has insured us has, at least shown the first step to give us a policy, even if the clauses are not right. I am using it as a case to present the reality of seeking a new medical policy as an Organ Transplant.

In denying us medical policies, Insurances are unbothered they are countering facts, regulations and the goal of the Government, the NOTTO, and eminent doctors who are trying to popularize the Gift of Life programs through organ donation and transplantation.

Research Studies in Organ Transplant

In 2020, Dr. KR Balakrishnan, KG Suresh Rao, R. Ravi Kumar et al published a study titled, "Medium term results following heart transplantation for end stage heart failure: A single center experience of 257 patients." The first major study of heart transplant survivors in India, it documents the short term and medium term survival in 257 heart transplant patients (176 males and 81 females between ages 3 months and 78 years) transplanted at one centre in Chennai from October 2012 to October 2019. It has identified the risk factors for unfavourable outcomes with subgroup analysis. The study focuses only on heart transplant recipients whose complete medical results were available.

"Although immunosuppressive agents significantly reduce acute and long-term rejection after heart transplant, rejection still happens in about 10-25%. Rejection can be cell-mediated or antibodies mediated"(4,) the researchers state.

Transplant doctors and their teams know how to manage early stage rejection in patients. Recently, two cohorts, eight years after heart transplant, suffered Grades 1 and 2 rejection respectively. The doctors have brought them out of their condition successfully, and they were discharged from hospital recently. One of them was insured before their transplant, so their three insurances paid the total bill of Rs. 14 lakhs in their case, which does not come to much per insurance. Every treatment has a pre-set limit in one's policy; so one does not understand the fear in insurances of the financial loss new Organ Transplants will cause them.

This example confirms the bias towards organ transplant recipients applying for new policies. Insurances *are* differentiating between Organ Transplant and Organ Transplant: those insured before the transplant and those who seek a policy after the operation.

"Exposure Draft Re Draft Guidelines on Wellness and Preventive Features/ Benefits" (Ref: IRDAI/HLT/REG/CIR/ XXX/ 10/2019 dated 7th November, 2019) had cautioned insurances in this matter:

"There shall be no discrimination in providing any of the wellness features/benefits offered to the same or similarly placed categories of policyholders of the underlying health insurance product."

Insurers deny Organ Transplants a new policy but do not have the honesty to declare this in their policy clauses or websites. Till recent, people with disabilities were disallowed health policies. The IRDAI has made it mandatory now. Surely one does not need the stick of IRDAI to get going in an inclusive direction for other 'marginalised' groups.

Doctors and underwriters working with insurances should read the Balakrishnan et al study for the results about survival and disease. The study places a median survival at 7years with better results in those younger than 18. (5). In a conversation, Dr. KR Balakrishnan, Director Cardiac Services and Transplant Surgeon at MGM Healthcare and first author of the study told me for this article that, "We have an excellent 10 year survival rate if the renal function was normal before the transplant."

The Balakrishnan study mentions recipients leading a good quality life with exercise. "A few patients have competed in transplant Olympic games and have won marathons." (7) His team has achieved this success in a developing country with limited resources (10). The results, the study concludes, are comparable to the data available from the International Society of Heart and Lung Transplantation (ISHLT). The study cited below affirms the researchers' claim.

Research from the Cleveland Clinic, USA concludes, "About half of all people who receive a heart transplant live more than 10 years after the procedure. Advances in medicine and transplant care mean more and more people live 20 to 30 years or more after their transplant."

The medical success of transplantation has not been translated into medical health benefits for Organ Transplants. Awareness of new research and advances alone can enable insurance doctors and underwriters to correct their perspective.

In "Going with the Tide—Risk Assessment in Life Insurance," published in The Journal by U. Jawaharlal, Editor IRDAI Journal *of the Institute of India* (December 2010), the author has categorically underlined two important points.

i. There is a need to assess life risk with complete objectivity. "There should be a higher emphasis on the applicant understanding all the questions he is being asked—along with the purpose for which they are being asked." He was focusing on the insurance achieving not only corporate goals but also on being fair to the policyholder (11). Bold mine.

ii. The paper describes the manner in which the underwriter mechanically notes every aspect of the applicant's medical history from the angle of a permanent exclusion. This happened in my case. I could have taken a policy online without exclusions; the salesperson was encouraging me to do that, but I went through the company honestly and found unknown diseases planted as Pre existing diseases exclusions in my policy (13).

Significantly, the author concludes the paper with the observation:

"In order to fulfil their role of achieving equitability from a given pool of risks. Underwriters should use all their resources exhaustively so that in the end, the successful survival of the pool is ensured." Insurances must not charge excessively or slap on adverse decisions on the applicant.

He adds, "Any methods of treating the applicant adversely have to be avoided." (13-14)

The December 2019 issue of IRDAI Journal is devoted to the "Protection of the Policy holder" under the Consumer Protection Act, 2019. Presenting the highlights of the Act in her article, "Highlights of Consumer Protection Act 2019," Anjali Jolly, Asstt. Manager, IRDAI observes, "Insurance Service Providers are duty bound to ensure that no harm is caused to the policyholder." She adds that violation can fetch compensation for the consumer under the "productliability action."(9)

Insurance is a socio-economic benefit and its intention should be to protect the interest and expectations of the insurance policyholders, she asserts.

There is vast difference between what members of IRDAI and the organization as a regulatory body is telling insurance companies, and the practices prevailing among insurers. To Jawaharlal's and Jolly's messages, I would like to add the weight of Mr. Pranab Mukherjee's words, who was Finance Minister when he inaugurated the new building of The Insurance Institute of India on 8 June, 2010. The Chief Guest had underlined the "need for continuous academic research for giving a scientific backing to the practice of insurance." He had further said, "The Institute should have a regular knowledge-cum-research wing for studying the common issues of the industry" (Editorial, Journal 2010).

The Way Forward

The way forward is informed, updated insurers with regular knowledge percolation so that those in charge of issuing health policies, do so in an objective and measurable manner. The need is to study new scientific research on chronic diseases and the impact of modern technologies and medical advances for a better quality of life for the people. They should focus more on facts than on problems likely to develop because problems can occur in any one's life after the policy. Knowledge accretion in insurance must happen continuously, as Mr. Mukherjee urged, so that autocratic decisions are not taken out of outdated perceptions. Science is a dynamic field, and the aim of scientists is invariably to relieve people of disease and take them toward wellness. Periodically, doctors and underwriters must be offered refresher courses in frontier areas of medicine because they are no longer in active practice.

When the policyholder knows and understands the yardstick used to evaluate them, they will know their insurance is giving them the best deal in a transparent manner and respect it. Doctors and underwriters need to step into the shoes of applicants and ask themselves, "Are we empathic and treating them as fellow humans beings in need of medical support, or were we trying our best to push them away in search of targets and profits?" Empathy means asking, "What if it happened to us or our dear ones?"

These days, applicants are aware of their rights and have plenty of knowledge in different fields. They can go to any lengths to wrench their rights, if they want to. But it would be so much more graceful if insurances take the first step to ensure they take informed decisions that convince customers that insurances are eager to protect their needs.

Insurances must offer applicants the medical policy, by involving them fully in the process of assessment. One-sided hasty decisions can smack of unfairness. If insurers offer people a policy in a helpful and collaborative, fearless spirit, and not with the intention of rejecting or excluding by design, they will prove up to their name as able initiators of a fair dispensation in the medical/social sector.

On our part, Organ Transplants and Living donors feel bewildered at being rejected and kept out of the pale of health insurances. We neither wish to feel like 'pariahs', nor do we like being treated as half-dead persons about to be lowered into the grave anytime. We are lively, breathing, healthy human beings enjoying our second life. Insure us respectfully.

We do understand that the medical insurance has its challenges and applicants may not always be honest. All the more, an open, informed and collaborative system of assessment and assigning risks could help insurance companies ride out of this impasse with a suitable offer/product.

TJ

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A suggested Framework to Digitalise the Insurance Products

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Abstract

InsurTech are technological solutions used by insurance companies to optimise the performance and improve customer experience. Numerous InsurTech applications are available for almost all functions of insurance product life cycle. Over 1500 InsurTech companies operate around the world and around 140 InsurTech companies operate in India. InsurTech applications provide number of benefits though, there are concerns with regards to technology, data accuracy, legal and regulatory framework with regards to how InsurTech application operate. The paper presents a review of InsurTech companies with respect to services offered by them, impact, benefits and concerns. A strategic model, is suggested to plan the development or deployment of InsurTech application, in order to address the concerns stated in the paper. The model can be useful to both the IT professional who develop the applications and insurance professional who deploy the applications.

Keywords

Insurance, InsurTech, Information, Communication, Transaction, Distribution, Digitalization.

Introduction

The financial services are undergoing transformation due to increasing use of digital technologies in carrying out operations such as payments, lending, insurance and wealth management. Fintech represents the software applications developed using modern technologies such as Big Data, Analytics, Internet of Thing, Artificial Intelligence, Blockchain, Machine Learning etc. to run the financial functions, in order to improve accessibility and quality of financial services (Meenu Gupta, 2022). In-short these applications signify, tech-enabled financial products which form the interface between finance systems and customers. Technologies such as mobile money, peer-to-peer (P2P) or marketplace lending, roboadvice, insurance technology (InsurTech), crypto-assets etc. are commonly used as financial technologies around the world. (Erik Feyen and et.al., 2021).

InsurTech is formed by combining two terms, “Insurance” and “Technology”. InsurTech is the subset of FinTech, which facilitate creating, distributing, buying, tracking of insurance products and provide improved up-to-date information services on a click of mouse.

The positive impact of COVID 19 pandemic was that, many businesses including insurance steadily shifted from manual to digital platforms, which turn out to be beneficial in terms of improving productivity of employees and customer satisfaction. Traditional hand holding and support to insurance customers provided by the intermediaries such as broker and agent, was eventually shifted over the digital applications, which were termed as InsurTech (Shama Lonare, December 2021).

InsurTech Applications

InsurTech are technological solutions used by insurance companies to optimise the performance and improve customer experience (Swapan Sarkar, 2021). Over 1500 Insurtech companies operate around the world. To name few are, AgentSync, Ethos, At-Bay Security Score card, BitSight Sidecar Health, Clearcover The Zebra, Coalition Wrapbook, CollectiveHealth HealthCare.com in USA and Bought By Many, Marshmallow Tractable Zego in UK and Alan, Shift Technology in France. There are more than 140 Insurtech companies offer different InsurTech products in India. Kruzr, Plum, eBaotech, Aureus Analytics, Riskcovry, Onsurity, Lumiq, Xceedance, Pazcare, Zopper, Policybazar, Acko and Digit are some of the Insurtech services available to serve customers (BCG, 2022). Hence a pool of Insurtech products are available in India and also all over the world. This demands for a review of Insurtech services, so as to provide clear reference to the customers about these products and their applications in Insurance sector.

Big Data and Artificial Intelligent (AI) can address the issues related to customer acquisition, slower process of underwriting, inefficient claims management and increasing fraud, if they are implemented with a clear focus on benefits to be achieved, legal boundaries, training the employees to use these tools as “tools” not the business targets (Yatender Kumar Sharma, December 2021). This paper presents a review of InsurTech applications focusing on the benefits, concerns and implication of InsurTech applications on the insurance business. It suggests a framework to be used as strategic plan to transfer the traditional business or services on technology platform. The framework is intended to address the concerns stated in the paper to a greater extent.

InsurTech Applications in India

Conventional insurance products in India are broadly of eight types. They are Life Insurance, Motor, Fire, Marine, Engineering Health, Travel, Property and liability, and newer insurance covers like Mobile insurance, Cycle insurance. Digital technology has enabled evolving innovative products in area of protection of electronic items, credit cards, Bite-size; such as Small tickets/backpacks/small injuries protection, mosquito-borne illness, Cab passenger insurance, insurance for cycle.

There are around 56 Insurance companies in India. Out of which around 24 companies offer life insurance and around 32 companies offer non-life and health insurance (digit.com). Each of these companies offer numerous insurance products. The InsurTech tools provide a platform to bring the insurance products offered by various companies on a single platform. As mentioned in the earlier section, there are around 140 companies provide such platform, offering numerous insurance products and information, communication, transaction and distribution services to customer, agent or broker. In addition to this some InsurTech platform provide support to evaluate, select and purchase the right product suitable for a customer’s need.

Impact of digital transformation on the structure of traditional Insurance business model

Traditionally insurance products were designed and offered by the companies. It was the saying in insurance industry that insurance is sold not bought. The product selection used to be done by intermediary on behalf of customer and intermediaries convince the customer to buy the products and due to lack of awareness customer used to buy these products. Most of the times customers would not get clear knowledge or understanding of the products. Digital intervention has re-engineered the traditional structure of insurance sector. The entire insurance business cycle is getting fragmented into separate processes resulting into improved business models adding value to customer satisfaction and their needs. The number of functions carried out by one insurance company are now offered as separate business model with the help of digital tools encouraging the start-ups. This has not only optimised the resources and processes of insurance sector, but also helped customers to acquire adequate knowledge of insurance and make decisions in selecting the right products. This change is shifting the value chain from traditional insurance products offered by insurers to customer driven, choice and need based and considering current environmental, pandemic, urban and rural challenges. Digital intervention has enabled the customers to customise their own insurance product, based on their short-term and long-term needs. This has also attracted the customers from all geographical locations (urban & rural) and from all sectors, resulting into broadening the customer base.

InsurTech offer innovative, simple to understand products and services, suitable to all stakeholders of insurance sector such as insurance companies, brokers, agents and customers. Some InsureTech companies connect the conventional insurance companies and their products to be offered to customers with improved services and can be named as **Virtual Brokers (VB)**. They can be compared to the **brokers** in traditional business. Some are newly established **private digital Insurance firms (DF)** which provide their products and services digitally. Other InsurTech firms offer **digitized solutions in training, licencing, and verification procedures for insurance agents (IA).** Some firms offer **subscription-based services (SS)** for Out Patients Department (OPD) & hospitalisation, dental work, skin & hair, scans, drugs etc. Another type of firms are **technology developers and implementors (TP)** which form the backbone of the InsurTech business model.

Benefits of InsurTech

Currently, InsurTech applications have proved beneficial to Insurance business in numbers of immeasurable efficiency gains, such as transparency, increased penetration of insurance products and services, reduced transaction cost, improved delivery services, improved data collection leading to better risk identification and mitigation measures, faster communication and payment processes, access to multiple products at the same time helping comparison and selection of products, providing more tailor-made financial services. InsurTech applications will continue to provide improvements in insurance operations such as product development, risk management, customer service, with the maturity of technologies such as cloud computing, big data, artificial intelligence, the Internet of Things (KPMG Advisory (China) Limited, 2019). The automated system can help insurers in risk-based underwriting, customize policies based on individual need and risk profile, claim adjudication, and payment integrity (Dr. Steward Doss et.al., 2022). However, this requires well studied data coding of diseases, procedures, and health care services. Demand for services to protect property, health and wealth is increasing with the growing middle-class population having different consumption behaviour. Innovative technology has enabled to fulfil the demand for diverse array of insurance products to address innovative consumption scenarios (KPMG Advisory (China) Limited, 2019). InsurTech applications facilitated developing innovative products and delivering them digitally at a lower cost than the traditional methods generating business opportunities for start-ups (Tanguy Catlin et.al., 2017).

Concerns of InsurTech

The concerns that come with the development of InsurTech applications are associated with technology risk, data accuracy, legal and regulatory framework (Lin Lin and Christopher Chen, 2019). The current Internet based technology is not strong enough to display the complex insurance products so that customers perceive the complexity in the right meaning as regards terms and conditions of the policy, exclusions under the policy. The technologies such as cloud computing and big data, may cause leakages of customers information, resulting to privacy and data protection issues (KPMG Advisory (China) Limited, 2019). InsurTech applications are innovative but may not fully compliant with current regulations and there is no way to control or debar the products marketed by InsurTech (George Pascal Osta, 2020). The algorithms developed to operate the insurance products can be based on the inappropriate assumptions and intentional. Hence regulators should have a means to assess the algorithm used to operate the insurance product (OECD, 2017). A systematic approach to monitor regulations is needed, to safeguard the welfare of insurance companies and insureds. There is a need to develop the regulatory technology or software which will proactively supervise or regulate the insurance operations.

ICDT Model to decide a digitalisation strategy in insurance business

Numerous InsurTech applications are available for almost all functions of insurance product life cycle. The concerns of InsurTech discussed in the above section, can be minimised, if a well thought strategic plan is prepared before developing the InsurTech application. The Information Communication Distribution and Transaction (ICDT) model can be used to clearly define the technology strategy to carry out business on Internet. ICDT model is used as a systematic approach to analyse the traditional products and services and re-design or innovate them in the light of internet and technology. ICDT model consists of four virtual spaces defined by new business opportunities offered by Internet (Albert Angehrn, 1997). These four virtual spaces are as follows.

1. The Virtual Information Space (VIS) provides information related to products and services
2. The Virtual Communication Space (VCS), facilitates not only business communications but also exchange of ideas, experiences and opinions, negotiate, engage in relationships and create different types of communities. VSC supports improving stakeholders (customers, business partners etc.) relationship and retention.
3. The Virtual Distribution Space (VDS) provides different types of distribution channels to distribute the products and services over Internet. The first type includes the products like e-books, digital music etc. which are digitised and transmitted (distributed) over internet network. The second type includes the non-physical products like text, voice, video-based consulting, training etc. which can be distributed real-time over Internet network. Third type includes the physical products like car, TV, mobile device etc. Such products are distributed on Internet in association or integration with the transportation or currier agents or services and after sale services are provided on Internet.
4. The Virtual Transaction Space (VTS) provides internet-based tools exchange formal business transactions such as orders, invoices and payment, receipt, acknowledgement etc. The VTS tools are deployed to perform within the legal and regulatory framework supported by the tools to secure data and business transactions.

Currently InsurTech applications provide information, transaction communication and distribution of insurance products and services on Internet network. However, they operate with the concerns discussed in the above section. Therefore, ICDT framework can be used to clearly define the digital transformation strategy for the insurance products or services before development and deployment of InsurTech applications. The framework can form the guideline to both, the InsurTech application developers as well the insurance companies willing to deploy the digital technology.

As shown in Figure 1, the ICDT model for Insurance business consists of the following.

1. The inner circle presents the market. The market here is constituted by all stakeholders such as end users of insurance

(insureds), technology providers, insurance companies, insurance agents, insurance brokers etc.

2. The circle around the inner circle presents four virtual spaces. The VIS provides information about the insurance companies and their products and services, advertisements and marketing tools, Life and Non-life insurance companies, details of insurance policies offered by them, tools to compare different products of same line of business viz; life, nonlife, health, etc. For e.g. in case of health insurance it is necessary to disclose the diseases covered under the contract, for pre-existing diseases whether they are covered or not, legal and regulatory norms, terms and conditions, procedures of claim, information of advisor, contact details for customers, case studies, success stories etc. VCS provides tools to connect with distribution channels like agents, brokers, to get more information, tools to calculate EMI based on requirements, provide views or feedback on claims settlement, turnaround time for services provided by the insurer etc. VTS facilitate submission of application and processing of proposal followed by payment of premium, approval by the insurer, policy receipts, payment acknowledgements, submission of claims and settlement. The next space is VDS, that provides tools to deliver the policy document, facilitate customers to track their policies, claims etc., establish the connect with agents, brokers to provide after sales services.

3. All the above virtual spaces work within the regulatory framework of common law, tax and government policies and insurance regulator. Hence the outer circle presents the boundary within which these applications should be developed and operate. The InsurTech applications need to be developed with a regulatory technology or software as their boundary in order to proactively monitor the operations of Insurance.

Conclusions

As discussed in the paper the InsurTech applications operate with certain concerns though have been benefited immensely. Addressing these concerns become very important in the interest of customer and insurance companies both. These applications must be developed and deployed by ensuring the regulations, data privacy, data protection and other technology concerns are well understood and incorporated. Hence the technology or software that would form a regulatory boundary, within which these applications can operate, must be developed. TJ

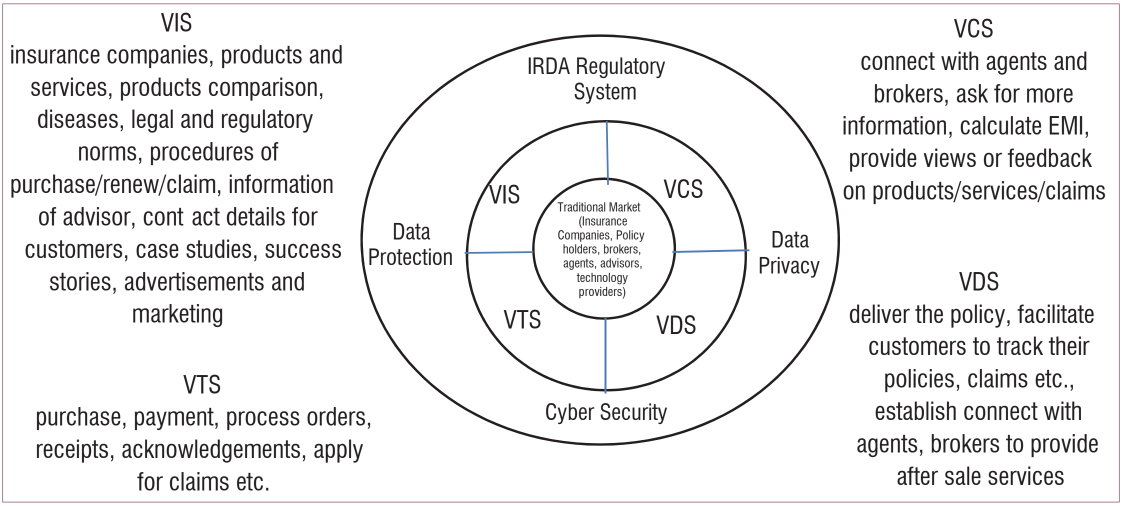

Fig 1: ICDT Model for Insurance Business

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Agricultural Insurance and risk management in Rice plantation: A Review

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Highlights

- ✓ Agricultural insurance is an important tool for managing risk and promoting resilience in rice farming.
- ✓ Yield-based and index-based crop insurance are two common types of insurance products used in rice farming, but their effectiveness depends on various factors such as weather conditions, data availability, and market conditions.
- ✓ Effective design and implementation of agricultural insurance products should be tailored to the needs of specific regions and farmer groups.
- ✓ Collaboration among stakeholders, including governments, private insurers, and community-based organizations, is essential to address the challenges of designing and implementing effective agricultural insurance schemes.
- ✓ Other key factors influencing the adoption and effectiveness of agricultural insurance include technology, communication and education campaigns, gender differences, and the impacts of climate change.
- ✓ Ongoing research and innovation will be necessary to ensure that agricultural insurance continues to meet the evolving needs of rice farmers and other stakeholders in the agriculture sector.
- ✓ By promoting the adoption of effective risk management strategies, agricultural insurance can contribute to the long-term sustainability and prosperity of rice farming communities around the world.
- ✓ Agricultural insurance can address the risks faced by rice farmers through weather index-based coverage for productivity loss, crop insurance against damage from floods, hail, frost, and wildlife, post-harvest coverage for storage loss, financial support for replanting and recovery, enhanced access to credit, and promotion of risk-mitigating practices, ultimately building resilience and promoting long-term sustainability in rice farming communities.

Abstract

This study examines the role of agricultural insurance in risk management in rice farming. Agricultural insurance has the potential to help farmers manage risk and promote resilience in the face of weather-related shocks and other external factors. The study draws on a review of the literature on agricultural insurance and risk management in rice farming, highlighting key issues and challenges related to the design and implementation of effective insurance products. The literature suggests that yield-based and index-based crop insurance are two common types of insurance products used in rice farming, but their effectiveness depends on various factors such as weather conditions, data availability, and market conditions. Other factors influencing the adoption and effectiveness of agricultural insurance include technology, communication and education

campaigns, collaboration among stakeholders, gender differences, and the impacts of climate change. The study concludes that ongoing research and innovation will be necessary to ensure that agricultural insurance continues to meet the evolving needs of rice farmers and other stakeholders in the agriculture sector. By promoting the adoption of effective risk management strategies, agricultural insurance can contribute to the long-term sustainability and prosperity of rice farming communities around the world.

Keywords

Agricultural Insurance, Risk Management, Rice Farming, Climate Change, Gender, Public-Private Partnerships, Data Analytics, Machine Learning.

Introduction

Agricultural insurance plays a crucial role in mitigating the financial risk faced by farmers due to various factors, such as natural disasters, pests, diseases, and market volatility. In the case of rice plantations, which are susceptible to weather-related risks, such as floods, droughts, storms, and typhoons, insurance can provide a safety net for farmers who rely on these crops for their livelihood.

Risk management strategies in rice plantation may involve both pre- and post-harvest measures. Pre-harvest measures may include selecting appropriate seed varieties, land preparation, water management, pest and disease control, and crop diversification. Post-harvest measures may involve proper storage and transport of the rice grains, as well as market information and price forecasting.

Agricultural insurance for rice plantations may cover different aspects of risk, including yield loss, crop damage, and revenue loss. Some insurance policies may also provide coverage for additional risks, such as fire, theft, and vandalism. Insurance premiums are typically based on factors such as crop yield, market price, and the level of coverage desired.

The study on agricultural insurance and risk management in rice plantation aims to explore the role of insurance in mitigating the financial risks faced by rice farmers due to various factors such as natural disasters, pests, diseases, and market volatility. The study also aims to identify the risk management strategies employed by rice farmers, including pre- and post-harvest measures, and the effectiveness of these measures in reducing risk.

The study will provide insights into the current state of agricultural insurance and risk management in rice plantations and the challenges faced by farmers in accessing these tools. It will also explore the potential benefits and limitations of different insurance products and risk management tools available to farmers.

The findings of the study will be useful for policymakers, insurance providers, and farmers in developing effective strategies for managing risk and promoting sustainable agriculture. Ultimately, the study will contribute to the goal of improving food security and rural livelihoods by providing a better understanding of the role of insurance in managing risk in rice plantations.

The study may also examine the current policies and regulatory frameworks that govern agricultural insurance and risk management in rice plantations. This may include an analysis of government subsidies, crop insurance schemes, and other support mechanisms that are in place to promote the use of insurance and risk management tools among farmers.

Furthermore, the study may explore the socio-economic factors that influence the adoption of agricultural insurance and risk management practices among rice farmers. This may include an examination of the barriers to accessing insurance, such as lack of awareness, affordability, and trust in insurance providers.

In addition to the above, the study may also examine the impact of climate change on the risks faced by rice farmers and the effectiveness of insurance and risk management tools in addressing these risks. Climate change is expected to increase the frequency and severity of extreme weather events, which can have a significant impact on rice production and the livelihoods of farmers. The study may also explore the role of technology in improving agricultural insurance and risk management in rice plantations. For example, the use of satellite imagery and other technologies can help to improve crop monitoring and reduce the time required to process insurance claims.

Finally, the study may also examine the potential for public-private partnerships in promoting agricultural insurance and risk management in rice plantations. Private sector insurance providers may have the expertise and resources to develop and deliver effective insurance products, while the government can provide regulatory support and financial incentives to encourage the uptake of these products.

Overall, the study aims to provide a holistic understanding of the role of agricultural insurance and risk management in promoting sustainable rice farming and supporting rural livelihoods. By examining the relationship between insurance and other financial services, exploring the potential of community-based insurance schemes, and assessing the impact of risk management practices on farmers' income and welfare, the study may provide insights into how to design effective policies and programs to promote sustainable agriculture and rural development.

Objectives of the study

The objectives of the study on agricultural insurance and risk management in rice plantation may include:

- To assess the current state of agricultural insurance and risk management practices in rice plantations, including the level of insurance coverage among rice farmers, the types of insurance products available, and the risk management strategies employed by farmers.
- To identify the main risks faced by rice farmers, including natural disasters, pests, diseases, and market volatility, and to assess the effectiveness of insurance and risk management tools in addressing these risks.
- To examine the socio-economic factors that influence the adoption of agricultural insurance and risk management practices among rice farmers, including the barriers to accessing insurance, such as lack of awareness, affordability, and trust in insurance providers.
- To analyse the impact of climate change on the risks faced by rice farmers and the potential for insurance and risk management tools to address these risks.
- To explore the potential for public-private partnerships in promoting agricultural insurance and risk management in rice plantations.
- To examine the relationship between agricultural insurance and other financial services, such as credit and savings, and the potential for bundled financial products to provide a more comprehensive risk management solution for farmers.
- To assess the impact of insurance and risk management practices on the income and welfare of rice farmers.
- To provide recommendations for policymakers, insurance providers, and farmers on how to improve agricultural insurance and risk management practices in rice plantations, with a focus on promoting sustainable agriculture and supporting rural livelihoods.
- To explore and assess the role of agricultural insurance in managing the risks faced by rice farmers, with a focus on productivity loss due to no/poor rainfall, damage to standing crops from floods, hail, frost, and wildlife, and storage loss due to natural or kindred perils.

Overall, the study aims to provide a comprehensive understanding of the challenges and opportunities in the agricultural insurance and risk management sector in rice plantations and to identify effective strategies for managing risk and promoting sustainable agriculture.

Methodology

The methodology used for the above study was a literature review. A systematic search of relevant academic databases and other sources was conducted to identify and review published articles, reports, and other sources of information on agricultural insurance and risk management in rice farming. The search was conducted using a range of keywords and subject headings related to the topic, including agricultural insurance, risk management, rice farming, yield-based insurance, index-based insurance, weather-related risks, climate change, gender, public-private partnerships, data analytics, and machine learning.

The inclusion and exclusion criteria were established to identify relevant studies, and the selected studies were screened and assessed for quality and relevance. Data from the selected studies were extracted and analysed, and the key findings were synthesized and presented in the literature review. The literature review was structured around the research objectives and included a critical analysis of the existing literature, highlighting the gaps and limitations of the research and identifying areas for further investigation.

Literature reviews

Assessing the current state of agricultural insurance and risk management practices in rice plantations:

A review of existing literature suggests that insurance coverage among smallholder farmers, including rice farmers, is generally low in many developing countries. Factors such as lack of awareness, affordability, and trust in insurance providers have been identified as major barriers to the adoption of insurance among smallholder farmers (Jensen and Mude, 2011; Karlan et al., 2014). However, there is evidence that agricultural insurance can be an effective tool for managing risk and improving the welfare of farmers, particularly when combined with other risk management strategies (World Bank, 2011; Carter and Barrett, 2006).

Identifying the main risks faced by rice farmers and assessing the effectiveness of insurance and risk management tools in addressing these risks:

Rice farmers face a range of risks, including natural disasters such as floods, droughts, and storms, as well as pests and diseases. There is evidence that insurance can be an effective tool for managing these risks, particularly when combined with other risk management strategies such as crop diversification and the use of improved technologies (Skees et al., 2006; Miranda and Farrin, 2012). However, the effectiveness of insurance depends on factors such as the design of the insurance product, the level of coverage, and the speed and efficiency of claims processing (World Bank, 2011).

Examining the socio-economic factors that influence the adoption of agricultural insurance and risk management practices among rice farmers:

Research suggests that socio-economic factors such as income level, education, and access to credit and extension services can influence the adoption of agricultural insurance among smallholder farmers (Jensen and Mude, 2011; Karlan et al., 2014). Lack of trust in insurance providers and a preference for informal risk-sharing mechanisms, such as social networks and community-based organizations, have also been identified as barriers to the adoption of formal insurance (Cole and Giné, 2014).

Analysing the impact of climate change on the risks faced by rice farmers and the potential for insurance and risk management tools to address these risks:

Climate change is expected to increase the frequency and severity of extreme weather events, which can have a significant impact on rice production and the livelihoods of farmers. Research suggests that insurance and risk management tools can play an important role in helping farmers to cope with the impacts of climate change, particularly when combined with other adaptation strategies (World Bank, 2011; Osgood et al., 2012).

Exploring the potential for public-private partnerships in promoting agricultural insurance and risk management in rice plantations:

Public-private partnerships can provide a mechanism for leveraging the expertise and resources of the private sector to promote the development of agricultural insurance markets. However, research suggests that the success of these partnerships depends on factors such as the regulatory environment, the level of government support, and the willingness of private sector actors to invest in the development of insurance products (Carter and Barrett, 2006; Boucher et al., 2011).

Examining the relationship between agricultural insurance and other financial services, such as credit and savings:

Research suggests that access to credit and savings can help farmers to manage their cash flow and invest in risk-reducing measures, such as crop diversification and the adoption of new technologies (Cole and Giné, 2014; Kurosaki and Fafchamps, 2002). Bundling insurance with other financial products, such as credit and savings, can provide a more comprehensive risk management solution for farmers, particularly in contexts where formal insurance products are not available or affordable (World Bank)

Assessing the current state of agricultural insurance and risk management practices in rice plantations:

A study by Srinivasan et al. (2012) in India found that crop insurance was not widely used by rice farmers due to high premiums and low awareness about the benefits of insurance. The study recommended that insurance companies and government agencies work together to design affordable and accessible insurance products for rice farmers.

Identifying the main risks faced by rice farmers and assessing the effectiveness of insurance and risk management tools in addressing these risks:

A study by Lybbert et al. (2011) in Thailand found that crop insurance was an effective tool for managing risk in rice farming, but that access to credit was also important for farmers to adopt risk-reducing technologies. The study suggested that bundling insurance with credit could help to promote the adoption of risk management strategies.

Examining the socio-economic factors that influence the adoption of agricultural insurance and risk management practices among rice farmers:

A study by Awondo et al. (2018) in Cameroon found that lack of trust in insurance companies and limited access to financial services were the main barriers to the adoption of agricultural insurance among rice farmers. The study recommended that insurance companies work with local organizations to build trust and awareness about the benefits of insurance.

Analysing the impact of climate change on the risks faced by rice farmers and the potential for insurance and risk management tools to address these risks:

A study by Rasmussen et al. (2018) in Vietnam found that climate change was likely to increase the frequency and severity of flooding, which is a major risk for rice farmers. The study recommended that insurance companies work with government agencies to design insurance products that cover losses due to flooding.

Exploring the potential for public-private partnerships in promoting agricultural insurance and risk management in rice plantations:

A study by Chantarat et al. (2013) in Thailand found that public-private partnerships were effective in promoting crop insurance among rice farmers, but that government support was crucial for the success of these partnerships. The study recommended that governments provide incentives for insurance companies to develop affordable and accessible insurance products.

Examining the relationship between agricultural insurance and other financial services, such as credit and savings:

A study by Carter et al. (2017) in Ghana found that bundling crop insurance with credit and savings increased the adoption of risk management strategies among smallholder farmers. The study recommended that insurance companies work with microfinance institutions to provide bundled insurance and financial services.

Examining the role of government policies in promoting agricultural insurance and risk management practices in rice plantations:

A study by Saha and Majumdar (2015) in India found that government policies played an important role in promoting crop insurance among rice farmers, but that the design and implementation of these policies needed to be improved. The study recommended that governments work with insurance companies and other stakeholders to design policies that are effective, efficient, and accessible to small farmers.

Investigating the potential for community-based insurance schemes to promote risk management practices among rice farmers:

A study by Bhattarai et al. (2014) in Nepal found that community-based insurance schemes were effective in promoting risk management practices among rice farmers, but that these schemes needed to be designed and implemented carefully to ensure their sustainability. The study recommended that insurance companies and community organizations work together to design and implement community-based insurance schemes that are tailored to the needs of local farmers.

Analyzing the impact of information and communication technologies (ICTs) on agricultural insurance and risk management practices in rice plantations:

A study by Abay and Kahsay (2018) in Ethiopia found that ICTs, such as mobile phone-based weather information systems and remote sensing technologies, were effective in promoting risk management practices among rice farmers. The study recommended that insurance companies and other stakeholders invest in ICTs to improve access to information and reduce transaction costs for small farmers.

Examining the potential for index-based insurance products to promote risk management practices among rice farmers:

A study by Diagne et al. (2013) in Senegal found that index-based insurance products, which use weather data or other indices to determine payouts, were effective in promoting risk management practices among rice farmers. The study recommended that insurance companies and governments work together to design and implement index-based insurance products that are affordable and accessible to small farmers.

Investigating the role of microinsurance in promoting agricultural insurance and risk management practices among rice farmers:

A study by Cole et al. (2017) in Cambodia found that microinsurance was effective in promoting risk management practices among small farmers, but that these products needed to be designed and implemented carefully to ensure their sustainability. The study recommended that insurance companies and microfinance institutions work together to design and implement microinsurance products that are tailored to the needs of local farmers.

Examining the impact of climate change on rice production and the need for agricultural insurance to promote risk management practices:

A study by Lobell and Burke (2010) found that climate change was likely to have a significant impact on rice production, particularly in vulnerable regions such as South Asia and sub-Saharan Africa. The study highlighted the need for agricultural insurance products to help farmers manage the risks associated with climate variability and extreme weather events.

Investigating the factors that influence farmers' decisions to adopt agricultural insurance and risk management practices in rice plantations:

A study by Adhikari and Bhattarai (2018) in Nepal found that farmers' decisions to adopt agricultural insurance were influenced by factors such as household income, education level, farm size, and access to credit. The study recommended that insurance companies and governments work together to design and implement insurance products that are affordable and accessible to small farmers.

Analyzing the potential for crop diversification to promote risk management practices among rice farmers:

A study by Arifin et al. (2015) in Indonesia found that crop diversification was an effective risk management strategy for rice farmers, particularly in areas prone to pests and diseases. The study recommended that farmers be encouraged to diversify their crops and that insurance products be developed to cover multiple crops.

Examining the potential for weather-based insurance to promote risk management practices among rice farmers:

A study by Xu et al. (2019) in China found that weather-based insurance was an effective risk management tool for rice farmers, particularly in areas prone to extreme weather events. The study recommended that insurance companies and governments work together to design and implement weather-based insurance products that are affordable and accessible to small farmers.

Investigating the potential for public-private partnerships to promote agricultural insurance and risk management practices in rice plantations:

A study by Kozicka et al. (2015) in Vietnam found that public-private partnerships were effective in promoting agricultural insurance and risk management practices among rice farmers. The study recommended that governments work with insurance companies and other stakeholders to design and implement public-private partnerships that are tailored to the needs of local farmers.

Investigating the impact of rice crop insurance on farmers' risk management practices and livelihoods:

A study by Takeshima et al. (2019) in Nigeria found that rice crop insurance improved farmers' access to credit, increased investment in inputs and technology, and improved their overall well-being. The study recommended that insurance companies and governments work together to design and implement insurance products that are tailored to the needs of local farmers.

Examining the role of social capital in promoting agricultural insurance and risk management practices among rice farmers:

A study by Wang et al. (2018) in China found that social capital played a significant role in farmers' decisions to adopt agricultural insurance and risk management practices. The study recommended that insurance companies and governments work together to design and implement insurance products that are tailored to the needs of local farmers and that leverage existing social networks.

Analyzing the effectiveness of index-based insurance in promoting risk management practices among rice farmers:

A study by Bele et al. (2018) in Ethiopia found that index-based insurance was an effective risk management tool for rice farmers, particularly in areas prone to drought and other weather-related risks. The study recommended that insurance companies and governments work together to design and implement index-based insurance products that are affordable and accessible to small farmers.

Investigating the potential for crop insurance to promote sustainable rice production practices:

A study by Kim et al. (2019) in South Korea found that crop insurance had a positive impact on the adoption of sustainable rice production practices, such as organic farming and integrated pest management. The study recommended that insurance companies and governments work together to design and implement insurance products that incentivize sustainable farming practices.

Examining the impact of agricultural insurance on food security and poverty reduction among rice farmers:

A study by Wossen et al. (2017) in Ethiopia found that agricultural insurance improved food security and reduced poverty among rice farmers, particularly those who were most vulnerable to weather-related risks. The study recommended that insurance companies and governments work together to design and implement insurance products that prioritize the needs of small farmers and vulnerable populations.

Investigating the potential of weather-based crop insurance in promoting risk management among rice farmers:

A study by Singh et al. (2018) in India found that weather-based crop insurance was an effective risk management tool for rice farmers, particularly in areas with high variability in rainfall. The study recommended that insurance companies and governments work together to design and implement weather-based insurance products that are affordable and accessible to small farmers.

Analyzing the impact of rice crop insurance on household income and welfare:

A study by Sarker et al. (2018) in Bangladesh found that rice crop insurance had a positive impact on household income and welfare, particularly for small farmers. The study recommended that insurance companies and governments work together to design and implement insurance products that prioritize the needs of small farmers and vulnerable populations.

Examining the role of government subsidies in promoting agricultural insurance among rice farmers:

A study by Rahman et al. (2019) in Indonesia found that government subsidies played a significant role in promoting the adoption of agricultural insurance among rice farmers. The study recommended that insurance companies and governments work together to design and implement insurance products that are affordable and accessible to small farmers, and that are supported by government subsidies and other incentives.

Investigating the impact of rice crop insurance on farmers' investment decisions:

A study by Liu et al. (2020) in China found that rice crop insurance had a positive impact on farmers' investment decisions, particularly in terms of investment in inputs and technology. The study recommended that insurance companies and governments work together to design and implement insurance products that incentivize farmers' investment in productivity-enhancing inputs and technology.

Examining the potential for rice crop insurance to promote sustainable land use practices:

A study by Drescher et al. (2018) in Vietnam found that rice crop insurance had the potential to promote sustainable land use practices, such as agroforestry and intercropping. The study recommended that insurance companies and governments work together to design and implement insurance products that incentivize sustainable land use practices.

Analyzing the impact of yield-based crop insurance on rice farmers in Thailand:

A study by Thantipanyavaraporn and Praneetvatakul (2018) in Thailand found that yield-based crop insurance was an effective tool for managing risk and increasing income among rice farmers. The study recommended that insurance companies and governments work together to design and implement insurance products that are tailored to the needs of specific regions and farmer groups.

Investigating the potential for index-based crop insurance to promote resilience among rice farmers in the face of climate change:

A study by Ngoc et al. (2019) in Vietnam found that index-based crop insurance had the potential to promote resilience among rice farmers in the face of climate change, particularly in areas with high variability in rainfall. The study recommended that insurance companies and governments work together to design and implement insurance products that prioritize the needs of vulnerable populations and promote climate resilience.

Examining the role of contract farming in promoting agricultural insurance among rice farmers:

A study by Suresh and Vijayabharathi (2019) in India found that contract farming played a significant role in promoting the adoption of agricultural insurance among rice farmers. The study recommended that insurance companies and governments work together to design and implement insurance products that are tailored to the needs of small farmers and vulnerable populations, and that are supported by contract farming arrangements.

Investigating the potential for parametric insurance to promote risk management among rice farmers in Indonesia:

A study by Kariyasa et al. (2020) in Indonesia found that parametric insurance had the potential to promote risk management among rice farmers, particularly in areas with high variability in weather and climate. The study recommended that insurance companies and governments work together to design and implement insurance products that are tailored to the needs of specific regions and farmer groups, and that are supported by government subsidies and other incentives.

Examining the impact of rice crop insurance on farmers' technology adoption decisions:

A study by Tariq et al. (2021) in Pakistan found that rice crop insurance had a positive impact on farmers' technology adoption decisions, particularly in terms of investment in machinery and irrigation. The study recommended that insurance companies and governments work together to design and implement insurance products that incentivize farmers' investment in productivity-enhancing technology.

Key findings from the literature reviews:

Based on the literature reviews presented above, the following key findings can be highlighted:

- Agricultural insurance, particularly crop insurance, is an important tool for managing risk and promoting resilience among rice farmers.
- Yield-based crop insurance and index-based crop insurance are two common types of crop insurance products that are used in rice farming. Both types have their strengths and weaknesses, and the choice between them depends on factors such as the level of risk, the variability in yield, and the availability of data.

- The design and implementation of agricultural insurance products should be tailored to the needs of specific regions and farmer groups, taking into account factors such as weather and climate, production conditions, and market conditions.
- Contract farming can play an important role in promoting the adoption of agricultural insurance among rice farmers, particularly small farmers and vulnerable populations.
- Government subsidies and other incentives can help to promote the adoption of agricultural insurance among rice farmers, particularly in areas where risk is high and access to financial services is limited.
- Agricultural insurance can have positive spillover effects, such as promoting investment in productivity-enhancing technology and increasing farmers' income and welfare.
- The use of technology, such as satellite imagery and remote sensing, can improve the accuracy and efficiency of crop insurance schemes, particularly index-based insurance products.
- Effective communication and education campaigns are critical to increasing awareness and understanding of agricultural insurance among rice farmers and other stakeholders, and to promoting the uptake of insurance products.
- Collaboration between governments, private insurers, and other stakeholders can help to address the challenges of designing and implementing effective agricultural insurance schemes, particularly in areas where there are market failures or other barriers to access.
- The effectiveness of agricultural insurance depends on a range of factors beyond the insurance product itself, including the availability of credit and other financial services, the strength of extension and advisory services, and the overall policy environment.
- The importance of social networks and community-based organizations in promoting the adoption of agricultural insurance and other risk management strategies among rice farmers should not be overlooked.
- There is a need for more rigorous evaluation of the impacts of agricultural insurance on farmers' welfare, productivity, and resilience, particularly in low- and middle-income countries.
- Risk perception and attitudes towards insurance are important determinants of farmers' decision to adopt agricultural insurance. Effective communication and education campaigns should be tailored to address these factors and to build trust among farmers.
- In some cases, agricultural insurance may not be the most appropriate risk management tool for rice farmers, particularly in areas where risk is low or where other risk management strategies are more effective.
- The design and implementation of agricultural insurance should take into account gender differences, as women farmers may face unique challenges in accessing and using insurance products.
- Public-private partnerships can be effective in promoting the adoption of agricultural insurance, particularly in areas where government resources are limited or where the private sector has greater expertise in risk management.
- The use of data analytics and machine learning can improve the accuracy and efficiency of agricultural insurance products, and can help to identify high-risk areas and vulnerable populations.
- While agricultural insurance can be effective in reducing farmers' vulnerability to weather-related risks, it is important to recognize that climate change is likely to increase the frequency and severity of extreme weather events, making risk management more challenging in the long term.

Overall, the literature suggests that agricultural insurance can be an effective tool for managing risk in rice farming, but that its success depends on a range of factors, including the design of the insurance product, the policy environment, and the availability of financial services and other support mechanisms. Ongoing research and innovation will be necessary to ensure that agricultural insurance continues to meet the evolving needs of rice farmers and other stakeholders in the agriculture sector.

The key findings from the literature review align with the objectives of the study as follows

- The literature review found that insurance coverage among smallholder farmers, including rice farmers, is generally low in many developing countries due to lack of awareness, affordability, and trust in insurance providers. This finding supports the objective of assessing the current state of agricultural insurance and risk management practices in rice plantations.
- The review identified the main risks faced by rice farmers, including natural disasters, pests, and diseases. It also found that insurance, when combined with other risk management strategies such as crop diversification and improved technologies, can be an effective tool for managing these risks. These findings align with the objective of identifying the main risks faced by rice farmers and assessing the effectiveness of insurance and risk management tools in addressing these risks.
- The literature review found that socio-economic factors such as income level, education, and access to credit and extension services can influence the adoption of agricultural insurance among smallholder farmers. It also identified lack of trust in insurance providers and a preference for informal risk-sharing mechanisms as barriers to the adoption of formal insurance. These findings support the objective of examining the socio-economic factors that influence the adoption of agricultural insurance and risk management practices among rice farmers.
- The review found that climate change is expected to increase the frequency and severity of extreme weather events, which can have a significant impact on rice production and the livelihoods of farmers. It also found that insurance and risk management tools can play an important role in helping farmers to cope with the impacts of climate change, particularly when combined with other adaptation strategies. These findings align with the objective of analyzing the impact of climate change on the risks faced by rice farmers and the potential for insurance and risk management tools to address these risks.
- The literature review found that public-private partnerships can provide a mechanism for leveraging the expertise and resources of the private sector to promote the development of agricultural insurance markets. However, the success of these partnerships depends on factors such as the regulatory environment, the level of government support, and the willingness of private sector actors to invest in the development of insurance products. These findings align with the objective of exploring the potential for public-private partnerships in promoting agricultural insurance and risk management in rice plantations.
- Finally, the review found that access to credit and savings can help farmers to manage their cash flow and invest in risk-reducing measures, and that bundling insurance with other financial products can provide a more comprehensive risk management solution for farmers. These findings align with the objective of examining the relationship between agricultural insurance and other financial services, such as credit and savings.
- In summary, the key findings from the literature review align with the objectives of the study, providing a comprehensive understanding of the current state of agricultural insurance and risk management practices in rice plantations, the main risks faced by rice farmers, the socio-economic factors influencing the adoption of insurance and risk management practices, the impact of climate change on rice farming, the potential for public-private partnerships in promoting insurance and risk management, and the relationship between insurance and other financial services.

In addition to the findings mentioned above, agricultural insurance serves as an effective tool to explore and assess its role in managing the risks confronted by rice farmers. It specifically targets the challenges of productivity loss caused by no/poor rainfall, damage to standing crops from floods, hail, frost, and wildlife, and storage loss due to natural or kindred perils. By offering financial protection, encouraging the adoption of risk-reducing practices, and providing crucial support during adversities, agricultural insurance plays a significant role in helping rice farmers cope with various risks and setbacks.

Agricultural insurance effectively tackles the diverse risks encountered by rice farmers through the following means

Productivity loss due to no/poor rainfall: Weather index-based insurance can provide coverage against poor or insufficient rainfall. This type of insurance uses historical weather data to determine pay-outs, and when rainfall falls below a certain threshold, farmers receive compensation to offset productivity losses. By providing financial support during droughts or dry spells, weather index-based insurance helps farmers maintain their income and reduce the impact of productivity losses.

Damage to standing crops from floods, hail, frost, and wildlife: Crop insurance can protect rice farmers against damage caused by various perils, including floods, hailstorms, frost, and wildlife. With crop insurance, farmers can receive compensation for the value of their damaged crops, allowing them to replant or recover financially after a crop loss. The insurance coverage can be tailored to specific risks prevalent in the region, offering protection against unpredictable events that could otherwise lead to significant financial losses.

Storage loss due to natural or kindred perils: In addition to crop insurance, agricultural insurance can also cover post-harvest risks such as storage loss due to natural disasters like floods, fire, or pests. This coverage helps rice farmers safeguard their stored produce and ensures they have financial support in case of any damage or loss that may occur during storage.

Financial support for replanting and recovery: Insurance can provide much-needed financial support to farmers for replanting crops after a loss event or recovering from a disaster. This support enables farmers to quickly resume agricultural activities, minimizing disruptions to food production and livelihoods.

Enhanced access to credit and financing: By having insurance coverage, rice farmers can often gain better access to credit and financing. Lenders are more willing to provide loans to farmers with insurance protection, as it reduces the risk of default in case of a crop failure or other covered risks. With improved access to credit, farmers can invest in better farming practices and technologies, further enhancing their resilience to risks.

Promoting adoption of risk-mitigating practices: Agricultural insurance can incentivize farmers to adopt risk-reducing practices such as improved irrigation systems, climate-smart agriculture techniques, and better crop management. Insurance acts as a safety net, encouraging farmers to take calculated risks to improve their yields and income without fearing potential catastrophic losses.

Building resilience and long-term sustainability: By mitigating the financial impact of risks, agricultural insurance contributes to building resilience among rice farmers and their communities. It helps stabilize incomes and food production, allowing farmers to recover and reinvest after a setback. In the long run, this stability supports sustainable agriculture practices and fosters economic growth in rural areas.

Summary

In summary, the literature reviews on agricultural insurance and risk management in rice farming highlight the potential benefits of crop insurance as a tool for managing risk and promoting resilience among rice farmers. Yield-based and index-based crop insurance are two common types of insurance products used in rice farming, but their effectiveness depends on various factors such as weather conditions, data availability, and market conditions. The design and implementation of agricultural insurance products should be tailored to the needs of specific regions and farmer groups. Other key factors influencing the adoption and effectiveness of agricultural insurance include technology, communication and education campaigns, collaboration among stakeholders, gender differences, and the impacts of climate change. Ongoing research and innovation will be necessary to ensure that agricultural insurance continues to meet the evolving needs of rice farmers and other stakeholders in the agriculture sector.

Conclusion

In conclusion, the study on agricultural insurance and risk management in rice plantations highlights the significant risks faced by rice farmers, including productivity loss due to poor rainfall, damage to standing crops from floods, hail, frost, and wildlife, as well as storage loss due to natural or kindred perils. These risks can have devastating impacts on farmers' livelihoods and food production. Agricultural insurance emerges as a crucial tool in mitigating these risks and promoting resilience in rice farming communities. The review of existing literature indicates that insurance coverage among smallholder farmers, including rice farmers, is generally low in many developing countries due to barriers such as lack of awareness, affordability, and trust in insurance providers. However, there is evidence that agricultural insurance can be effective in managing risk and improving the welfare of farmers when combined with other risk management strategies.

By addressing the risks associated with adverse weather events, pests, and post-harvest losses, agricultural insurance provides financial support to farmers, helping them recover from losses and maintain their income. Additionally, insurance can promote the adoption of risk-reducing practices and enable farmers to access credit and financing, supporting investments in better farming techniques and technologies. Furthermore, the study explores the potential for public-private partnerships to foster the development of agricultural insurance markets and identifies the importance of bundling insurance with other financial services like credit and savings to provide comprehensive risk management solutions.

Overall, agricultural insurance emerges as a valuable tool that can contribute to building resilience and promoting long-term sustainability in rice farming communities. By reducing the vulnerability of rice farmers to various risks, insurance fosters stable food production, enhances livelihoods, and supports economic growth in rural areas. The study underscores the need for further research and innovation to overcome barriers to insurance adoption and design effective insurance products that cater to the specific needs of rice farmers and the regions in which they operate. By embracing agricultural insurance as part of a holistic risk management strategy, rice farmers can better navigate the uncertainties of farming, ultimately leading to improved food security, poverty reduction, and overall development in the agricultural sector. TJ

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What the Courts Have Said

Motor Third Party Insurance (TP)- Accident and negligence of insured vehicle not disputed- Medical expenses reimbursed under medical insurance policy taken by father for victim son-Tribunal awards inclusive of medical reimbursement- Insurer appeals for exclusion of medical reimbursement – Hon'ble HC treats both as separate contracts and disallows appeal – TP victim gets amount inclusive of reimbursement

Reliance General Insurance Co. Ltd., vs Aman Sanjay Tak, and others, Bombay HC, 2022.

Brief Facts: The victim Sanjay Tak was Travelling in by when it was hit by a motor dumper being driven fast and in a rash and negligent manner.

The victim claimant has suffered 43.75% partial permanent disability of neurological nature.

Because of the disability, the claimant is having difficulty in walking memory loss and difficulty and maintaining a balance.

Medical treatment cost 12,17,592/-. This was reimbursed under a medical insurance policy taken by the victim's father on victim's behalf with a different insurer. The tribunal awarded a sum of rupees 14,44,314 /-. Including the medical expenditure.

The insurer, appealed against the order stating that since the medical expenses has already been reimbursed it should be excluded from the award amount.

Decision:

The honourable High Court dismissed the appeal and permitted the claimant to withdraw the deposited amount with accrued interest thereon.

The order reasoned that "in my view the father of claimant had taken insurance policy by paying separate premium for whole family. The contractual liability between father and other insurance Company is different, than the contractual liability between driver and owner of offending vehicle and Appellant / Insurance Company. The owner of offending vehicle had paid premium of insurance policy. Both contractual liability cannot be put on equal footing. The Appellant insurance company cannot claim deduction of the amount for which separate premium was paid by different person under different contractual liability. The Appellant/ insurance company is liable to indemnify the contractual liability between them and owner of offending vehicle. So the Amount received under contractual liability is different amount of medical reimbursement, it cannot be deducted from the amount which the appellants are liable to pay as compensation."

Some thoughts:

The liability under motor Third party liability is a strict liability. Insurance has the concept of indemnity that is restoring the person who has met with a loss to the same position he was before the loss. There can be no profit made out of insurance. However when it comes to human life it is considered to be invaluable and hence no amount could be fixed on it. But for the sake of operations and to bring about a certain conformity when it comes to ensuring human lives either under life insurance or under personal accident insurance certain guidelines on the extent to which any person seeking insurance can be covered are evolved by the companies.

By way of various judgements the method of compensation under motor Third party insurance has been laid out. However certain grey areas keep cropping up. The instant case also raises certain issues. Here it is about medical expenses reimbursement. Let us look at a few situations.

Medical expenses borne exclusively by the victim. Here it would only be just to expect that this should be reimbursed by the vehicle owner/ Insurance company.

Medical expenses reimbursed by the insurer- in a case where the insurer had paid the hospital ₹ 4,00,000 under a mediclaim policy, the Court held it to be part compensation and the victim could not claim again for it (TATA AIG Gen.Ins. Co. Ltd. Vs Kathamuthu, Saraswathi, Madras HC, 2022)

In United India Insurance Co. Ltd. vs Mrs. Patricia Jean Mahajan 2002 ACJ 1441 the Hon'ble Apex Court has held as follows:

"24.... it is clear that the deductions are admissible from the amount of compensation in case the Claimant receives the benefit as a consequence of injuries sustained, which otherwise he would not have been entitled to. It does not cover cases where the payment received is not dependent upon an injury sustained on meeting with an accident." This was one of the cases referred in the judgement of the Tata AIG case referred to above.

So here a distinction is drawn between payment received being dependent or independent upon an injury caused by an accident.

Medical expenses reimbursed under a medical insurance policy taken by the victims father, the court has in the instant case held that this constitutes a liability and has to be paid to the victim because of the fact that the amount was reimbursed from another insurance company under a different contract.

So we now have the following propositions:

1. Following an accident medical expenses borne by the victim will be the liability of the owner /insurer and has to be reimbursed.
2. Any amount which would have accrued to the victim even without the accident, cannot be claimed to be deducted by the owner / insurer.
3. The victim cannot claim medical reimbursement made by the insurer again as part of the award.

What is the implication of a claim under a medical policy on an individual-?

- Who has insured oneself under an individual policy,
- Who has been insured under an individual family policy
- Who has been insured under a group policy, say taken by an employer?

In these situations, the sum insured would get reduced by the amount of the claim. In the event of need for hospitalisation again, the amount available under the policy may prove to be insufficient and the individual would have to pay the difference.

When the policy comes up for renewal, at least in the first two situations, the insured could lose any no claim bonus which might have accrued. There could be also a revision in the premium to be paid. It is also possible that some conditions may be imposed if the individual desires to increase the sum insured.

It would be interesting to watch this space as the possibilities and variations are many and as and when the cases come up some clarity would emerge on its treatment.

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Guidelines for contributors of the Journal

Note to the Contributors:

"The Journal" quarterly publication of Insurance Institute of India, Mumbai. It is published in the month of Jan/ April/July/Oct every year. "The Journal" covers wide range of issues related to insurance and allied areas. The Journal welcomes original contributions from both academicians and practitioners in the form of articles. Authors whose papers are published will be given honorarium and two copies of the Journal.

Guidelines to the Contributors:

1. Manuscript submitted to the Editor must be typed in MS-Word. The length of the Manuscript should be 2500-5000 words.

2. General rules for formatting text:

   i. Page size : A4 (8.27" X 11.69")

   ii. Font: Times New Roman - Normal, black

   iii. Line spacing: Double

   iv. Font size: Title - 14, Sub-titles - 12, Body- 11 Normal, Diagrams/Tables/ Charts - 11 or 10.

3. The first page of the Manuscript should contain the following information of the Author(s) –

   (i) Title of the paper

   (ii) The name

   (iii) Email address

   (iv) Photo

   (v) Brief profile - The profile will include 2 to 3 lines about author's professional qualification and experience in the field.

4. **Abstract:** A concise abstract of maximum 150 words is required. The abstract should adequately highlight the key aspects or state the objectives, methodology and the results/major conclusions of analysis. The abstract should include only text.

5. **Keywords:** Immediately after the abstract, provide around 3-6 keywords or phrases.

6. **Tables and Figures:** Diagrams, Tables and Charts cited in the text must be serially numbered and source of the same should be mentioned clearly wherever necessary. All such tables and figures should be titled accurately and all titles should be placed on the top after the number. Example: Table 1: Growth Rate of Insurance Premium in India (1997-2010).

7. **References:** all the referred material (including those from authors own publication) in the text must be appropriately cited. All references must be listed in alphabetical order and sorted chronologically and must be placed at the end of the manuscript. The authors are advised to follow American Psychological Association (APA) style in referencing.

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     Example: Rogers, C. R. (1961). *On becoming a person.* Boston: Houghton Mifflin.

   - **Reference to a Journal publication:** Author(s). (Year). Title of the article/ paper. *Journal name*, volume (issue), page number(s).

     Example: Smith, L. V. (2000). Referencing articles in APA format. *APA Format Weekly, 34(1),* 4-10.

   - **Reference to a Web Source:** Author. (Date published if available; n.d.--no date—if not). Title of article. *Title of website*. Retrieved date. From URL.

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8. Usage of abbreviations in the text should be avoided as far as possible and if used should be appropriately expanded.

9. The Manuscript submitted must be original work and it should not have been published or submitted for publication elsewhere. The author(s) are required to submit a declaration to this extent in the format specified in Appendix 1, while submitting their Manuscript.

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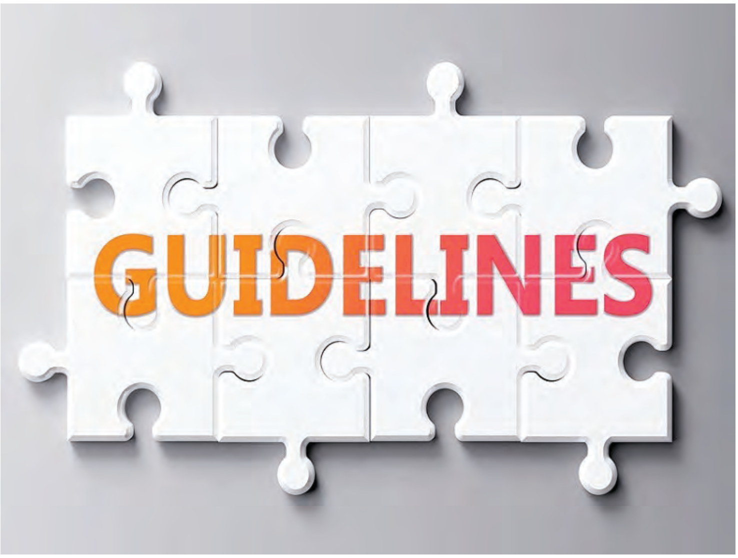

Appendix I

Declaration by Authors

I/we (Full Name of the Author(s)) .... hereby declare that I/we are the author(s) of the paper titles "..." (Title of the paper), which is our original work and not the intellectual property of anyone else. I/we further declare that this paper has been submitted only to the Journal of the Insurance Institute of India and that it has not been previously published nor submitted for publication elsewhere. I/we have duly acknowledged and referenced all the sources used for this paper. I/we further authorize the editors to make necessary changes in this paper to make it suitable for publication.

I/we undertake to accept full responsibility for any misstatement regarding ownership of this article.

……………………………. (Signature Author I)
Name:

……………………………. (Signature Author II)
Name:

Date:

Place:

College of Insurance Calendar Programs for the year 2023-2024 (Mumbai)

Sr. No	Programs Name	Program Start Date	Program End Date	Prog. Mode	Online	Fees for Residents	Fees for Non-Residents
1	Customer Service - Engagement - Retention & Customer Experience	03-Oct-23	04-Oct-23	Classroom Session		₹10000/- + G.S.T.	₹7200/- + G.S.T.
2	Reinsurance Treaty Designing	03-Oct-23	04-Oct-23	Classroom Session		₹10000/- + G.S.T.	₹7200/- + G.S.T.
3	Accounting Standards for Insurance Companies (Ind-AS)	05-Oct-23	06-Oct-23	Classroom Session		₹10000/- + G.S.T.	₹7200/- + G.S.T.
4	Equity Research and Valuation	06-Oct-23	06-Oct-23	Virtual Session	₹3000/- + G.S.T.		
5	Bankers Indemnity: Focus Cyber Security and Computer Crime	06-Oct-23	06-Oct-23	Virtual Session	₹1500/- + G.S.T.		
6	Crop Insurance - Focus: Horticulture, Floriculture, Plantations and Vegetable Insurance	09-Oct-23	10-Oct-23	Classroom Session		₹10000/- + G.S.T.	₹7200/- + G.S.T.
7	Environmental, Social, and Governance (ESG) in Life Insurance Companies	13-Oct-23	13-Oct-23	Virtual Session	₹1500/- + G.S.T.		
8	Risk Inspection & Management for Risk Engineers	26-Oct-23	27-Oct-23	Virtual Session	₹3000/- + G.S.T.		
9	Health Insurance: Medical Management and Fraud Control - CT Mumbai	26-Oct-23	27-Oct-23	Classroom Session		₹10000/- + G.S.T.	₹7200/- + G.S.T.
10	Insurtech and Digital Marketing	30-Oct-23	31-Oct-23	Classroom Session		₹10000/- + G.S.T.	₹7200/- + G.S.T.
11	Agriculture Insurance for Surveyors	03-Nov-23	03-Nov-23	Virtual Session	₹1500/- + G.S.T.		
12	Underwriting and Valuation Surplus in Life insurance Companies	06-Nov-23	07-Nov-23	Classroom Session		₹10000/- + G.S.T.	₹7200/- + G.S.T.
13	Challenges in Miscellaneous Insurances	06-Nov-23	07-Nov-23	Classroom Session		₹10000/- + G.S.T.	₹7200/- + G.S.T.
14	Challenges in Fighting Fraud - Motor OD Insurance	07-Nov-23	08-Nov-23	Classroom Session		₹10000/- + G.S.T.	₹7200/- + G.S.T.
15	Engineering Insurance: Focus Project Policies	22-Nov-23	23-Nov-23	Classroom Session		₹10000/- + G.S.T.	₹7200/- + G.S.T.
16	Certified Insurance Anti-Fraud Professional (CIAFP)	22-Nov-23	24-Nov-23	Virtual Session	₹7500 + 18% GST		
17	Crop Insurance: Focus- PM Fasal Bima Yojana	28-Nov-23	29-Nov-23	Classroom Session		₹10000/- + G.S.T.	₹7200/- + G.S.T.
18	Resource Building for Growth and Sustainability	01-Dec-23	02-Dec-23	Classroom Session		₹10000/- + G.S.T.	₹7200/- + G.S.T.
19	Basics of Aviation Insurance	01-Dec-23	02-Dec-23	Classroom Session		₹10000/- + G.S.T.	₹7200/- + G.S.T.
20	International Reinsurance Program	04-Dec-23	09-Dec-23	Classroom Session		$ 600 USD	

Sr. No	Programs Name	Program Start Date	Program End Date	Prog. Mode	Online	Fees for Residents	Fees for Non-Residents
21	Financial Reporting and Analysis (Life)	07-Dec-23	07-Dec-23	Virtual Session	₹1500/- + G.S.T.		
22	Retail Marketing for General Insurers	07-Dec-23	08-Dec-23	Classroom Session		₹10000/- + G.S.T.	₹7200/- + G.S.T.
23	Workshop on Communication & Presentation Skills (Life)	11-Dec-23	12-Dec-23	Classroom Session		₹10000/- + G.S.T.	₹7200/- + G.S.T.
24	Challenges in Travel Policy and PA Claims	12-Dec-23	12-Dec-23	Virtual Session	₹1500/- + G.S.T.		
25	Compliance Management for Principal Officers of Corporate Agents-Banks	14-Dec-23	14-Dec-23	Virtual Session	₹1500/- + G.S.T.		
26	Liability Insurance: Focus Cyber & Crime	18-Dec-23	19-Dec-23	Classroom Session		₹10000/- + G.S.T.	₹7200/- + G.S.T.
27	Life Insurance Claims Management, Legal and Regulatory Issues	18-Dec-23	19-Dec-23	Classroom Session		₹10000/- + G.S.T.	₹7200/- + G.S.T.
28	Compliance Governance and Risk Management (IRCC)	20-Dec-23	22-Dec-23	Virtual Session	₹7500 + 18% GST		

College of Insurance Calendar Programs for the year 2023-2024 (Kolkata)

Sr. No	Programs Name	Program Start Date	Program End Date	Prog. Mode	Online	Fees for Residents	Fees for Non-Residents
1	Managing Catastrophe Claims	03-Oct-23	03-Oct-23	Classroom Session		₹5000/- + G.S.T.	₹3600/- + G.S.T.
2	Managing Cyber Risk & Insurance	11-Oct-23	12-Oct-23	Classroom and Virtucal Session	₹6000/- + G.S.T.	₹10000/- + G.S.T.	₹7200/- + G.S.T.
3	Property Insu (Small, Medium and Large Risks): Fire & Spl Perils and Consequential Loss	18-Oct-23	19-Oct-23	Classroom and Virtucal Session	₹6000/- + G.S.T.	₹10000/- + G.S.T.	₹7200/- + G.S.T.
4	Handling cust. Grievance,Cases before Ombudsman,Consumer Cases, Mediation and Arbitration	03-Nov-23	03-Nov-23	Classroom and Virtual Session	₹3000/- + G.S.T.	₹5000/- + G.S.T.	₹3600/- + G.S.T.
5	Managing Marine Hull,Oil and Energy Insurance: Underwriting & Claims	20-Nov-23	21-Nov-23	Classroom and Virtucal Session	₹6000/- + G.S.T.	₹10000/- + G.S.T.	₹7200/- + G.S.T.
6	Package Policies for Business Insurance:For SMEs,Traders, Jewellers and Bankers	28-Nov-23	29-Noc-23	Classroom and Virtucal Session	₹6000/- + G.S.T.	₹10000/- + G.S.T.	₹7200/- + G.S.T.
7	Enterprise Risk Management (ERM) and Key Roles of the Risk Owners and CRO	19-Dec-23	20-Dec-23	Classroom and Virtucal Session	₹6000/- + G.S.T.	₹10000/- + G.S.T.	₹7200/- + G.S.T.

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April – June 2024

Open Theme - Any topic on insurance or allied areas.

Last Date of submission of papers/articles will be 31st January, 2024.

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Last Date of submission of papers/articles will be 30th April, 2024.

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