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Technology in Health Insurance in India

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***Abstract*--- This research report has tried to capture the current scenario of the health insurance sector in India. The latest technology used in the health insurance sector have been analysed and described extensively. The technology used in the process of underwriting is described and analysed. Pre-authorization and claims management are the processes that are inseparable from the health insurance sector. Health insurance sectors provided medical benefits including medical costs and medical expenses that might help the common people financially. Health insurances fraud, abuses and e waste- management processes were involved, however, still its effectiveness increased the importance of Health Insurance gradually.**

***Keywords*--- Fraud, Waste, Abuse, FAW Management, Health, Insurance, Technology, Underwriting, Pre-authorization, claims management, Artificial Intelligence, Customer relationship Management, Internet of Things, Risks, Third Party Agencies**

I. INTRODUCTION

In order to decrease the medical expenses, health insurance covers the risks of persons by providing full or a portion of the total cost of health services. Gradually, the reimbursement of medical expenditure to most of the Indian citizens is becoming more problematic in comparison to past years. More specifically, public health care may not be perfect due to inadequate financing, therefore, health insurance is essential for most of the people in India. Health insurance may protect the common people from financial loss that the common people in India may not afford individually due to disability, injury, illness and low purchasing power. In this research report, health insurance in India, latest technology for health insurance along with technologies used in underwriting and others will be discussed in brief.

II. CURRENT SCENARIO OF THE HEALTH INSURANCE SECTOR IN INDIA IN TERMS OF TECHNOLOGY USAGE

In terms of technology usage India is not lagging behind most of the countries as the insurance regulators have ensured that the insurance process may be digitalized. The insurance sector in India has adopted many technologies that are being fruitful and beneficial to the people of the country and also to the insurance companies. Digital technology in the health and insurance sector has taken a huge step with the digitalization of the processes of the insurance companies as the insurance companies have made the entire process paperless and hassle free. Analytics for risk management, cost optimizations for operations and enhancement of customer experience have been established with the adoption of new technologies (Nayak, 2019). The analytics for risk management is an important process to ensure that the insurance companies have tried to cover as many people as possible in the risk management class. Furthermore, it may be stated that the cost optimizations will make the process less expensive so that every person can be included in the health and insurance sector. The enhancement of customer experience has been made possible only by making the technologies available to many people so that every household may be brought under the health and insurance sector in order to manage the risk of life and health. The strategic choices related to the technology have helped the people of India to build a long lasting relation with the insurance sector in general and the insurance regulators in specific terms.

The insurance sector in India consists of about fifty seven insurance companies in which twenty four are life insurances and thirty three are non-life insurance companies. Health insurance importance may have increased after the spread of Corona Virus disease globally as the common people have suffered from financial crisis from absence of health insurances. Nowadays, markets of health insurance rises and several companies explore their business such as Star Health and Allied Insurance Company limited, Future General India Insurance Company Ltd, National Insurance Company Limited and New India Assurance Company Limited. On a contradictory note, it may be argued that existing health insurance customers have suffered insurance claim related difficulties similar to fraud cases and abuse. Policyholders

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provide fraud opportunities by providing wrong information and genuine claims to pre-diagnosis of existing customers for getting the underwriting in the company's favour. External fraud is claimed by the individuals or the policy holders, vendors and medical service providers against insurance companies whereas internal fraud is claimed by the managers, agents and executives against the policyholders or the insurance company.

56% of life insurers may state that 30% fraud cases in health insurance increased over the last two years, more specifically, fraudulent practices may have occurred to highlight the gaps of the current process and operational activities (Nandi, 2020). However, the occurrence of fraudulent cases may be prevented with the help of a proper rectification and document verification process. On the contrary, it may be stated that the customers are involved in fraud cases when a customer makes illegal claims where a customer is not entitled to their own name. Furthermore, the main strategy of health insurance is to provide best medical treatment without any distress and protect the insured clients' hard earned money from skyrocketing medical costs. It provides cashless claim benefits that mean hospitalization costs or expenses are settled between insurer and hospital which may be helpful for maximum people. On the contrary, it may be mentioned that few companies do not provide these facilities, as a result, common people at first pay hospitality expenses and then claim reimbursement for that expenditure with the help of Third Party Agencies or TPA. Moreover, health insurance provides tax benefits under section 80D of Income Tax Act, 1961 where it provides facility to the individuals and senior citizens (India, 2021). Due to the presence of Frauds, Abuse and Wastes or FAW, the health insurance sector in India may face huge risks and challenges in spite of the tremendous evolution in the Indian health insurance industry.

There are two types of risks which increase day by day that include investment risks and technical risks in which investment risks are a set of risks regarding the insurers' asset management while technical risks affect the liabilities of the customers' balance sheets. Health insurance businesses in India have been developed dynamically, however, Indian insurance market remains low in global levels as the insurance premium and density stand 3.69% and US$73 according to the FY 2018 (Prinja, 2017). These low density and penetration levels show the uninsured financial state of the large population in India as well as the presence of health insurance gaps. Therefore, it is necessary to take necessary actions to detect the risks or FAW regarding health insurance and reduce the risks through latest technologies. More specifically, it is highlighted that the e-waste management process may be good unless there is possibility to leak the personal details and documents of the customers.

III. LIMITATIONS OF THE TECHNOLOGIES

The limitations of the above technologies in the insurance sector are the digitalization of small insurance companies as the small insurance companies find it difficult to digitalize the company on a global platform. The technologies are really expensive that causes a hindrance in the digitalization of the insurance company specially the small insurance companies. The second limitation is the improving the quality of the analytical data which is of immense importance as the analytical data has to be shared on a cloud platform so that everyone may access the file. This causes the need of improving the quality of the analytical data.

Promises of the technologies

The above technologies promise to be potential to bring innovation in the insurance sector so that the insurance may be provided without any hassle. The insurance process has been simplified with the use of the above technologies as the technologies have been beneficial in removing the hindrance in the entire insurance process (Ahlin, 2016). Insurtech is the name used to denote the technologies which have gradually changed the insurance process.

IV. ADVANTAGES OF TECHNOLOGY FOR INSURANCE INDUSTRY, INSURANCE CUSTOMERS, INSURANCE COMPANIES AND INSURANCE REGULATORS

Implication of Technology in benefit of the insurance industry

The insurance industry will be benefited with the use of these new technologies as the pre-authorization and claims management will be simplified and also the other process involved gets easy and hassle free. The frauds, abuse and waste management will also be minimized with the use of the technologies in the insurance industry. The various people who are engaged in the insurance process can operate from any place and this is the biggest advantage of technology in the insurance industry.

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Implication of Technology in benefit of the insurance customers

The customers will be able to access their profile from anywhere remotely with the help of the technologies as the technologies are stored in the cloud and are easy to access. The customers may be brought under the insurance scheme which will cover their lives as well as their health. The technology will simplify the process of payment of insurance premium and to get the policy amount once it gets matured (Dang, 2021).

Implication of Technology in benefit of the insurance companies

The companies will be benefited by the innovation and the adoption of the technologies as the technologies will help the companies to provide risk management to the people so that in the country in which the people cannot avail health insurance may avail the insurance and health coverage.

Implication of Technology in helping the insurance regulators

The technology helps the insurance regulator by bringing the insurance and health coverage to all the households of India. India is a country where maximum people can not avail health insurance or health coverage so with the inclusion of the technologies insurance will be a household name. The insurance regulator may enjoy the benefit of inclusion of many customers in the health insurance scheme so that the protection may be provided for the risk management (Gnatzy, 2012).

V. LATEST TECHNOLOGY USED IN HEALTH INSURANCE SECTOR

In order to provide significant service by the health insurance sector in India, it is highly necessary to use the digital platform and advanced technologies through which the insurance company easily reduces the difficulties, fraud cases and abuses. Latest technologies similar to software and digital platforms such as Facebook, WhatsApp, Instagram and other social media facilitate better engagement with customers that enhances the global insurance business by reducing the possibilities of risks. Innovation of mobile technology provides the digital platform and data that may help to cooperate with the customers with the help of advanced mobile applications for settling claims or purchasing a health insurance policy. Digital switch is the digital platform in the health insurance industry that meets all the customers' requirements and demands by reducing operational costs and providing positive clients' experiences. On the other hand, digital switches may improve the transparency, simplicity, customer engagement, personalization and convenience which control the operational activities perfectly to explore global business. The advanced technologies are Block chain, Internet of Things (IoT), Artificial Intelligence (AI), Machine Learning (ML) and insurance management in which the Internet of Things (IoT) show the way the new data sources have been improved.

More specifically, it may be stated that the insurers utilize the IoT devices to understand the customers' needs by preventing losses through mitigating risks and claim related obstacles. The positive impact of IoT increased from 6.4 billion devices in 2016 to 20.8 billion in 2020 which has equally helped to decrease the risks regarding operational activities in the Indian health insurance industry. Machine Learning (ML) enhances the claim procedures as well as automates the whole procedures that help the digitized files for analysis (Morrow, 2020). On a contradictory note, it may be stated that this automated system provides more accuracy and improves processing speeds regarding the operational activities of health insurance. On the other hand, it may be mentioned that artificial intelligence is one of the most important advanced tools that plays an significant role in order to handle human insurance business effectively and efficiently. Artificial intelligence (AI) based applications and tools help the insurers by providing specific solutions for claim settlement and insurance operations. It also helps to detect the fraudulent activities and guides insurers to execute intelligent underwriting in the claim management process (Yadav, 2021). Furthermore, Block chain is a Distributed Ledger Technology which involves in speedy verification of the transactions and stores all transactions via computational power and cryptography (Park, 2019).

Block chain may allow the insurer to mitigate the risks, fraud as well as introducing new products for managing cost management. On the contrary, it may be mentioned that Chat bots may communicate with the customers about claim procedures and policy applications using Machine Learning (ML) and Artificial Intelligence (AI). Advanced Low Code Configuration tools allow business stakeholders to manage and update the applications utilizing an intuitive and user-friendly drag and drop functionality. Apart from this, the health insurance sector in India utilizes software to manage pre-authorisation. Software may assess all the cases determined by the Artificial Intelligence (AI) and

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health in the pre authorization for the services of the insurance company. Furthermore, the technologies deals with the CPT code, an integral part of medical billing procedures that help the reimbursement. Authorization Desk software approves electronically or manually requests and plays a significant role in the health insurance company.

VI. USAGE OF TECHNOLOGY IN UNDERWRITING

Medical underwriting

Medical underwriting refers to the process by which a health insurer utilizes a patient's medical history to decide whether to offer them a policy and the terms they need to incorporate into the health insurance policy documents. The various underwriting methods are classified as follows:-

Fully pooled

The underwriter, which is generally a health insurance company, takes all the risk and charges premium on the insurance provided. Under the pooled concept, the renewal of the health insurance will not be based on the length of the plan, however, the pool of customers the health insurance company has will be a determining factor. The technology which is generally used by the insurance company for underwriting is technology which is a cloud based solution which offers underwriting solutions and premium deciding solutions for the health insurance company (Bindhq, 2021).

Prospectively experience rated

The underwriter accepts the risk and uses information such as past claims and demographic factors to come to a conclusion to decide the premium rates for the health insurance plans. Medical insurance papers are generally prepared on an experience based approach. The claims under these benefits are small however are large in numbers. The software is helping the medical insurers to manage their billings and claims. Also past experience could be fed in the system so as to generate the medical insurance papers and its premium.

Retention Accounting

Retention accounting or Refund Accounting utilizes previous claims along with trend factors, demographic and inflation factors that help to estimate the future claims and reach at a premium. More specifically, if premium exceeds costs, as a result, surplus may be utilized for refunding the plans and if cost exceeds premium then loss may be collected through increased premium. The underwriter risks being left with loss while the policy may be terminated. Retention accounting team is based on experience as well as shared experience.

Administrative services only

A third party provides claims against the payment of services and the cost may be budgeted according to the volume of coverage. Furthermore, the service charges will be billed to the plan sponsor per month, however, it has several advantages such as long term disability and hospitals out of country are basically insured as claims for benefits may be substantial. The plan sponsor saves with Administrative Services Only (ASO) while claims are low as health benefit is generally self-insured.

Self-administered and Pooling limits

The plan sponsor determines all the administration functions which involve all the claims related payment by accepting all the risks. The claims fluctuations may be decreased as the group size increases, however, few large insurance companies may consider self-insuring long term disabilities. The risks regarding the non-recurring medical claims and out of country may managed by the pooling limits.

VII. USAGE OF TECHNOLOGY IN PRE-AUTHORIZATION AND CLAIMS MANAGEMENT

Pre-authorisation

Pre-authorisation means that a health insurer or insurance plan deems necessary that a health care service, treatment plan and prescription drug needs to be covered in an insurance plan. Prior approval or pre certification is needed from the insurance companies before the plan is received by the insured, except in an emergency. Pre-authorisation is a promise that the insurance plan will cover the medical cost of the insured. The pre-authorisation software which are generally used in the markets are classified as:-

The software helps to get faster approvals with artificial intelligence technology along with expert handling skills by the specialist. Pre-approval in hospitals is a difficult activity which requires quick decisions to be made. This is made possible by the software which deals with the current procedural terminology or CPT codes. CPT codes are an integral part of the medical billing process that ensures the items or services that will be reimbursed. The software has a vast array of medical teams which deals with the

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authorisation requirements. The prior authorisation software evaluates every step to determine which services should be automated by Artificial Intelligence (AI). All exceptions are managed by the prior authorization experts who are working with the software.

This software is used to simplify the authorisation workflow. The software approves the authorisation of the services to be offered in each case scenario whether the request is made manually or electronically. The patient's auth-status is maintained in the software and the health workers find it easy to locate and approve the authorisation request. This software saves the time and energy of the patient's relatives and provides them with the simplicity of asking for the request electronically and approval is made within a short span of time while ensuring client satisfaction.

Claims management

Claims management in health insurance is a vast domain however, the claims management deals with settling insurance claims. The time required to process a claim is a lengthy process and it involves several processes and procedures. Health insurance is benefited with the advancement of technology which helps in the simplification of claims management. The software used in claims management are classified as:-

This software is the most advanced and technologically driven software that helps in the process of claims management in health insurance companies. It has powerful automation capabilities and high visibility all across the online platform. Furthermore, this software has integrated technologies that help in management of customer relationships and simplifies the claim process.

This software helps in the overall management of the personnel, commercial and the worker's compensation insurance. In contrast, most of the working class population in India is devoid of medical insurance so this software tries to integrate the insurances of the working class so that they may get streamlined experience.

It is intuitive claim management software designed to help streamline and automate the tasks for claim and risk management services. Business intelligence tools and latest security technology are the benchmarks of this software. The health insurance policy related data can be stored and protected for a long period of time and will ease the process of claim management.

This software delivers the best health insurance claims management services globally as the technology, data and processes are outlined to improve the customer engagement and deliver real time benefits to over 40% clients in India. The client success rate is higher in this software and health insurance companies are using this software to improve the quality of claims management.

VIII. USAGE OF TECHNOLOGY IN FRAUD, ABUSE AND WASTE MANAGEMENT (FAW)

Healthcare Fraud

Healthcare fraud is more complex than normal fraud because it is more gruesome and more life threatening in many cases. Cases such as unscrupulous physicians might use patient information to bill them for the services that are not provided or cases where unnecessary procedures were performed to get higher profit have shown us that a proper technology should be there for the registering of grievance and reporting healthcare fraud (Waghade, 2018).

Improve security with Biometrics

The ways hospitals are fighting the healthcare frauds are by implementing biometrics in the vicinity of the hospital compound. Usually when a patient arrives at a verification point the biometrics capture the patient identity and in this way the personal information remains in the software and cannot be misused by the other people.

Detect fraud 24x7 with AI

A wide range of hospitals use Artificial Intelligence (AI) to prevent time, money and resource frauds as the AI can learn and adapt the ways the frauds are made and helps in the timely prevention of the health insurance frauds. Coding and billing errors are found within a fraction of second and timely measures are implemented for the mitigation of the frauds 24x7.

Healthcare Abuse

Abuse is the practice and methods that are not consistent and result in unnecessary increase of cost and services that fail to meet the standards when a patient arrives in a healthcare facility. The cases of abuse are charging excessively for the medical bills or billing for the services that were not provided to the patient in a healthcare facility.

Micro chipped cards

One way to mitigate healthcare abuse is by introducing micro chipped cards in the healthcare facilities. These cards have a microcomputer chip and inside that health

insurance policy related data are stored which may identify patient information. Additionally, the information is encrypted to avoid misuse and abuse in healthcare facilities. Smart cards are used to avoid healthcare abuse by the staff and the practitioners of medicines.

Use of block chain to track data

Block chain or transactional ledgers are revolutionary tools to reduce healthcare abuse. Most fraudulent practices initiate the manipulation or destruction of data. On the contrary, block chain allows for detailed tracking of resources as this transparency could be useful for the patients who are getting admitted to the healthcare centres.

Healthcare Data Waste Management or FAW management

Data waste management involves the practice to preserve the data which has been stored for a long period of time in the archives of the server and the proper disposal of the data which has become useless for the healthcare facilities (Khan, 2019). Data waste management system or FAW management is important for the implementation of the remedial measures which are classified as follows:-

Use of Artificial Intelligence (AI)

Artificial Intelligence (AI) is a tool which has simplified the work process and the generation of data waste is minimal in the course of running a health insurance company on AI as a part of FAW management. Artificial intelligence has a huge server base which stores the varied kinds of insurance related data and hence, prevents data leakage or data theft.

Use of customer relationship management (CRM)

The customer relationship management (CRM) manages the customer's data and helps in the storage and safety of the client data and information which may be evident in the process of claims management. Every CRM has a unique way of executing the database by which the data wastage is minimum while large data are stored which has confidentiality of data in order to ensure privacy regarding amount insured, insured person or group, tenure of policy along with other relevant details.

IX. CONCLUSION

It may be hereby concluded that the health insurance sector in India is a vast sector that encompasses all the activities that help in the insurance of the patient and reimbursements of claims made by the patient. Due to the vastness of the sector there may be problems related to the pre-authorization and claims management which are being mitigated by the use of technology that helps in the health insurance process. Frauds, abuse and waste management or FAW are the areas which constantly need attention and technological advancements have paved the way for the timely rendition of the services without any complications. FAW management has been benefited by the use of AI and CRM which are the need of the hour to mitigate the FAW components.

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