

Regulatory Role in Health Insurance Innovation Adoption and Rural Coverage Strategies: A Study in India

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Abstract

The healthcare industry in India is facing a range of challenges and opportunities that are driving the need for strategic interventions. In this paper, we examine the role of breakthrough innovations as part of strategic interventions in the health insurance industry. We begin by defining strategic interventions and discussing their importance in addressing challenges and opportunities faced by the health insurance sector in India. We then explore the role of breakthrough innovations in driving strategic interventions, including examples of how these innovations have been successfully implemented in the health insurance industry. Strategic interventions can lead to improved performance, increased efficiency, and enhanced customer satisfaction. This paper provides a comprehensive overview of the role of strategic interventions and breakthrough innovations in the health insurance industry and highlights the potential benefits of these interventions for industry stakeholders, the government, the healthcare sector, and consumers. Emerging technologies such as artificial intelligence, blockchain, telemedicine, and personalized health plans are expected to revolutionize the healthcare sector digitally and transform the design of health insurance covers. These advancements offer insights for insurance practitioners to leverage opportunities for reshaping the future of health insurance.

Keywords: Health Insurance, Innovation, Regulation, Sandbox

1. Introduction

India is facing a growing challenge of lifestyle diseases, and while these conditions are manageable, the rising medical expenses due to technological advancements have made health insurance indispensable. Health insurance provides benefits like continuous monitoring, cashless coverage, and access to quality healthcare facilities. Comprehensive policies cover critical illnesses, accidents, and pre-existing conditions. The COVID-19 pandemic has emphasized the significance of health insurance as hospitalization rates and medical costs have increased, leading to a heightened interest in coverage among the Indian population.

Strategic interventions are specific actions or decisions taken to address issues and achieve desired

outcomes within organizations. These interventions focus on long-term goals and aim to significantly impact the organization's overall direction and performance. Examples of strategic interventions in business include organizational restructuring, launching new products or services, entering new markets, or altering the business model (Expert, 2022). They are instrumental in helping organizations achieve their objectives, enhance performance, and stay competitive in a dynamic business environment.

India's insurance industry has seen a surge in strategic interventions in recent years, with insurance companies introducing new products and services to cater to evolving customer needs and remain competitive. The regulatory sandbox approach has also encouraged the introduction of new insurance covers. Some insurance companies

have expanded their distribution channels by partnering with banks and other financial institutions, as well as offering online and mobile sales channels. Investments in customer service and engagement have led to enhanced customer experiences and improved brand loyalty.

In addition, insurance companies have entered new markets through strategic alliances with insure-tech firms and implemented risk management practices using data analytics and actuarial science. Investments in modern technology infrastructure and digital capabilities have improved operational efficiency and customer service in the insurance sector. It is expected that blockchain technology will bring about a significant transformation in the insurance industry.

Given the large population of India, there is a need to increase the penetration of health insurance. This will require breakthrough innovations by health insurance providers to ensure more people are covered under insurance schemes. As of the financial year 2022, the health insurance penetration rate in India stood at 0.34 percentage points out of the overall 1 percentage point general insurance penetration.

2. Scope of the Study

The Indian insurance industry has witnessed a series of strategic interventions in recent times, including the introduction of new products and services, adoption of new business models, entry into new markets, and process improvements aimed at meeting customer needs more effectively. These strategic interventions are crucial for enhancing organizational performance and ensuring long-term sustainability. By implementing strategic interventions, organizations can enhance efficiency, reduce costs, and improve their financial performance.

This study focuses on providing a comprehensive overview of the role of strategic interventions and breakthrough innovations in the health insurance sector within the Indian healthcare context. It aims to address the challenges and opportunities faced by the industry, highlight the importance of strategic interventions, and showcase how breakthrough innovations can drive positive change.

3. Review of Literature

The history of modern health insurance traces back to the early 20th century, with Rome having a mutual aid

society providing health insurance by pooling resources from members. In the US, pre-paid health plans were common in the early 1900s, and the government's role in health insurance became more prominent in the 1960s (Murray, 2007). In India, early health insurance schemes were provided by the government or national insurance companies, such as the Employees' State Insurance Act in 1948 and the Central Government Health Insurance Scheme in 1954. However, these programs covered only a small fraction of the population.

Over time, various government schemes like the Central Government Health Scheme (CGHS), Rashtriya Swasthya Bima Yojana (RSBY), Pradhan Mantri Jan Arogya Yojana (PM-JAY), and Ayushman Bharat have been introduced to expand health insurance coverage. Private insurance companies started offering health insurance coverage after the sector opened up in 2000. Despite these efforts, health insurance coverage in India remains low.

The Indian insurance industry has seen significant growth and digital transformation, with an increasing preference for online modes for insurance needs. Government initiatives like PM-JAY have provided health assurance to millions of beneficiaries through a network of healthcare providers. The Ayushman Bharat scheme aims to provide universal health coverage to over 500 million Indians, covering a wide range of treatments and procedures.

Health insurance penetration in India remains low, with challenges like limited reach, lack of awareness, and education hindering widespread coverage. Efforts are being made to democratize health insurance and increase penetration to ensure financial protection against healthcare costs.

Private sector health insurance in India has seen growth, with outpatient coverage becoming an important trend. Outpatient coverage assists individuals in claiming expenses beyond hospitalization costs, although it is not yet fully integrated into health insurance offerings.

India is the second most populated country after China, with insurance penetration levels at a low 3.6%. The health insurance sector in India is valued at \$12.86 billion. In the Union Budget for 2023-24, the Ministry of Health and Family Welfare has been allocated a budget of Rs 89155 crore (Forbes.com).

The total written premium for the Indian health insurance industry surpassed INR 637 billion in 2021. Public sector health insurance providers collected

premiums totalling INR 272 billion, private sector health insurers contributed nearly INR 159 billion, and standalone health insurance companies recorded approximately INR 151 billion in premiums nationwide.

The Indian government has implemented various health insurance schemes like Pradhan Mantri Jan Arogya Yojana (PM-JAY) and Ayushman Bharat to provide coverage to millions of beneficiaries. Despite these initiatives, health insurance penetration in India remains low, highlighting the need for increased coverage to safeguard against healthcare costs.

Private sector health insurance in India has shown growth, with outpatient coverage emerging as a significant trend. While outpatient coverage extends beyond hospitalization costs, it is not yet fully integrated into health insurance offerings.

Data from the World Bank reveals that only around 30% of the Indian population possesses some form of health insurance coverage, leaving a significant portion vulnerable to substantial medical expenses and financial challenges during times of illness or injury. A report by Forbes in July 2023 highlighted that nearly 400 million Indians lack access to health insurance, while in 2021, 514 million individuals were covered under various health insurance schemes, representing just 37% of the Indian population.

As per the Economic Survey for the fiscal year 2022-23, the Indian government's healthcare expenditure accounted for approximately 2.1% of the Gross Domestic Product (GDP) in FY23, a slight decrease from 2.2% in FY22 but an increase from the previous fiscal year's 1.6% in FY21. The survey also indicates a growth in the allocation of expenditure towards healthcare services, rising from 21% in FY19 to 26% in FY23.

India experienced the highest medical inflation rate at 14%, surpassing China at 12%, Indonesia at 10%, and closely followed by Vietnam and the Philippines at 9%.

4. Health Insurance Landscape in India

Private health insurance in India primarily focuses on hospitalization coverage, with outpatient coverage emerging as an important trend. However, outpatient coverage is not yet comprehensive under health insurance, and major insurance companies are working on providing this coverage. The government plays a crucial role in addressing the limitations of private health

insurance schemes, especially in reaching rural and marginalized populations. Despite efforts to increase awareness about health insurance, India still faces a significant health protection gap, leaving over 40 crore individuals without health insurance due to factors like low penetration, coverage inadequacy, rising healthcare costs, lack of product understanding, high rates, and limited accessibility to customers. The National Health Protection Scheme (PM-JAY) aims to provide cashless secondary and tertiary care at private facilities for low-income households, but its success depends on various factors like demand, supply factors, service quality, and infrastructure availability.

While private health insurance plays a significant role in India's healthcare landscape, there are substantial gaps in coverage that the government needs to address to ensure equitable access to healthcare services for all segments of the population. Bundled insurance covers can be used for addressing gaps in health insurance coverage (HBS Working Knowledge Paper).

Health insurance in India serves as a vital risk protection tool, aiding individuals and families in managing medical expenses such as hospitalization and surgeries. The concerning reality of a large segment of the population lacking access to health insurance paints a grim picture. While private health insurance companies offer individual, family, and group plans, the premiums often remain unaffordable for the economically disadvantaged in India.

The neglect of rural and marginalized communities by existing health insurance schemes provided by the insurance industry underscores the critical role of the Government in addressing this disparity. Challenges such as a shortage of qualified staff in rural healthcare facilities,

Table 1. Gross health insurance premium in India

Fiscal Year	Gross Premium Collection (INR Crores)
FY15	20,096
FY16	24,498
FY17	30,392
FY18	37,029
FY19	45,532
FY20	50,752
FY21	58,237
FY 22	73,051
FY 23	89, 492

coupled with an imbalance between healthcare demand and supply, further compound the existing issues. Disparities in healthcare quality between government and private hospitals pose a challenge for the insurance industry in providing comprehensive coverage to all individuals.

From the perspective of insurers, challenges such as high claim ratios, low levels of consumer awareness, insufficient underwriting data in health insurance, rising healthcare costs, and the absence of a robust mechanism to address moral hazards in health insurance claims persist (Itumalla *et al.*, 2016). There is significant potential for introducing micro health insurance policies to offer insurance coverage to marginalized sections of the Indian population at affordable premiums. Additionally, there is an urgent need to enhance public health infrastructure in India in line with the population growth.

There is significant potential to introduce micro health insurance policies that offer affordable coverage to underserved segments of the Indian population. Additionally, there is a pressing requirement to enhance public health infrastructure in India to accommodate the growing population. Following the COVID-19 pandemic, there has been a notable increase in customer interest in acquiring health insurance policies, which is a favorable trend. Considering the challenges encountered by the health insurance sector in India, exploring regulatory interventions would be beneficial.

The Finance Ministry in India is advocating for the establishment of a healthcare sector regulator to enhance insurance coverage for all individuals. This move aims to standardize and regulate hospitals under the insurance program, addressing the need for a Health Regulator to achieve the goal of “insurance for all”. The proposal involves discussions between the Department of Financial Services, insurance players, and other relevant authorities to explore the feasibility of setting up a Health Regulator. The current lack of uniformity in health insurance costs and coverage highlights the necessity for such regulation to ensure fair practices and efficient utilization of health services.

The Insurance Regulatory and Development Authority Act of 1999 paved the way for private companies to enter the health insurance market in India, with private insurance now constituting a significant portion of total health expenditures. Various public and private insurance schemes offer different levels of coverage, with out-of-pocket payments remaining a primary means of funding

healthcare in the country. The launch of initiatives like the National Health Protection Scheme aims to mitigate high healthcare costs for lower-income households, but their success depends on factors like service quality, infrastructure, and hospital reimbursement mechanisms.

Overall, the push for a healthcare sector regulator in India reflects efforts to streamline health insurance practices, enhance coverage, and address disparities in healthcare costs and services across the country.

The Insurance Regulatory and Development Authority of India (IRDAI) oversees the health insurance sector in India, ensuring compliance with regulations. IRDAI mandates coverage of specific medical expenses and sets minimum sum insured levels. It also limits premium increases, requiring justifications from insurance companies. To protect policyholders, IRDAI enforces regulations on policy disclosure and claims handling. Additionally, IRDAI recommends a paperless KYC process with Aadhaar certification.

Recent discussions have highlighted the need for a Health Regulator to standardize and regulate hospitals under the insurance program for broader coverage. The IRDAI has been implementing changes to facilitate a 100% cashless payment system in health insurance, aiming for efficiency and cost reduction. The health insurance sector has seen significant growth post-pandemic, becoming a substantial part of the industry’s premium income.

IRDAI’s regulatory changes aim to expand insurance access in India, introducing reforms like risk-based capital requirements and composite licensing for insurers. These changes could lead to integrated insurer models offering bundled life and health solutions to customers. The proposed reforms also allow wider financial service offerings by distributors, enhancing customer loyalty and improving economics.

In a recent draft regulation, IRDAI proposed consolidating eight different regulations to enhance policyholders’ interests, including extending the free look period for life and health insurance policies (Mangla & Aggarwal, 2020)

Merely relying on regulatory measures is insufficient to tackle the challenges confronting the health insurance sector in India. There is an opportune moment to leverage groundbreaking innovations to enhance the sector’s outlook. Innovation should prioritize meeting consumer needs (Mangla & Aggarwal, 2020) through appropriate processes and structures, necessitating a clear vision and supportive organizational culture (Pozo, 2022).

Such efforts should encompass initiatives like enhancing healthcare literacy and introducing innovative insurance products and services (Binny & Gupta, 2017).

In emerging economies like India, there exists the challenge of harmonizing market-driven innovations with technology-driven ones (Zhou *et al.*, 2005). Factors such as heightened competition, supply-demand imbalances, and technological disruptions can drive the imperative for innovation (Mc Kinsey Report).

Healthcare expenses can weigh heavily on individuals and families, particularly when insurance coverage is lacking. Innovations in the health insurance industry, such as new payment models or creative cost reduction approaches, have the potential to broaden access to affordable healthcare for more people. Revolutionary progressions within health insurance could elevate the quality of healthcare services. These advancements might introduce new tools or technologies facilitating precise disease diagnosis and treatment, while also promoting evidence-based medicine and best practices. Moreover, breakthrough innovations may enhance healthcare accessibility, particularly in underserved regions or among specific demographic groups (Capponi *et al.*, 2022). For example, cutting-edge technologies or delivery methods could simplify remote healthcare access or extend coverage to areas with limited services.

Health insurance providers need to bolster their digital capabilities to meet consumer demands. Wearable technology can generate valuable data (Nayak *et al.*, 2019) (Mangla & Aggarwal, 2020), but it's crucial for insurers to educate consumers about cybersecurity protocols.

There's an urgent need to raise awareness about health insurance schemes among the Indian populace, with consideration for making employer-based schemes mandatory. Governmental support is essential for the insurance sector to enhance the quality of healthcare delivery systems in India (Keshri & Ghosh, 2019). As healthcare costs escalate, it becomes imperative to introduce affordable health insurance policies in India, potentially increasing insurance penetration in the country (Swathi & Anuradha, 2017).

The pandemic has underscored the importance of technological investment for the insurance industry. Collaboration among government entities, regulators, private healthcare institutions, and the insurance sector is crucial to leveraging opportunities in healthcare for mutual benefit.

The United Nations Sustainable Development Goals prioritize universal access to healthcare, emphasizing patients' receipt of necessary medical attention without financial strain. Sustaining healthcare financing for disadvantaged populations may pose challenges amid a disproportionate surge in demand for medical services. Future success in health insurance will depend on strategies focusing on health promotion and disease prevention interventions (Inkoom *et al.*, 2022).

5. Innovations in Health Insurance

Telemedicine facilitates remote access to healthcare through video or phone consultations, addressing the scarcity of medical professionals. Personalized health insurance plans tailored to the specific needs of individuals are emerging, providing cost-effective coverage. Predictive analytics plays a crucial role in anticipating and preventing health issues by identifying high-risk individuals for targeted interventions. Wearable devices gather health data, offering incentives such as discounts to policyholders who maintain healthy lifestyles. Health insurance companies take into account social determinants such as education and housing when determining premiums.

Mobile health clinics, often operated by insurers, extend healthcare services to underserved areas. Health Savings Accounts (HSAs) serve as tax-free savings options for medical expenses and are available with certain insurance plans. Blockchain technology enhances transparency, reduces fraud, and prevents collusion in the health insurance market by securely recording medical information (Park & Ryu, 2019).

6. Theoretical Framework

Innovation Diffusion Theory (Rogers, 2003) explains the spread of new insurance innovations among stakeholders, including health insurers, government, and consumers. Technology Adoption Models like TAM (Davis, 1989) and UTAUT analyze digital acceptance. Resource-Based View (RBV) (Barney, 1991) emphasizes leveraging unique resources for innovative product development. The Open Innovation Model (Chesbrough, 2003) and Disruptive Innovation Theory (Christensen, 1997) aid in managing breakthrough innovations. Risk-Pooling Theory elucidates insurance principles, while strategic frameworks like SWOT analysis and Balanced Scorecard

evaluate factors influencing health insurance strategies. These theories highlight the importance of embracing breakthrough innovations for the insurance industry's competitiveness and adaptability.

7. Research Gap

The Indian health insurance sector faces significant challenges such as low penetration and inadequate coverage for rural and marginalized groups, while also presenting opportunities for breakthrough innovations. However, the current literature lacks detailed strategies and interventions to effectively tackle these issues and foster the adoption of innovative solutions.

8. Research Objectives

- To analyze the role of regulatory and policy interventions, including those by the Insurance Regulatory and Development Authority of India (IRDAI), in promoting the adoption of breakthrough innovations in health insurance.
- To identify strategies for extending health insurance coverage to rural and marginalized populations in India.

9. Research Methodology

This study employs a conceptual research methodology utilizing secondary data sources. It extensively reviews various literature, such as academic papers, governmental reports, industry publications, and credible online sources. The analysis of secondary data will be systematic, aiming to extract insights and conclusions pertinent to the identified research objectives. The resulting conceptual framework will offer valuable insights for policymakers, industry players, and researchers engaged in the dynamic domain of health insurance in India. The themes derived



from the literature review will guide thematic mapping to produce meaningful outputs.

10. Analysis and Interpretation of Results

The most prominent terms in the thematic map are:

- Health insurance policies
- Challenges in health insurance
- Breakthrough Innovations
- Disparities in coverage

The discourse underscores the complexity and significance of health insurance, marked by challenges and opportunities. Affordability, access, and quality are pivotal concerns, as many struggle to afford coverage or access necessary care. Technological advancements offer avenues for more efficient healthcare delivery. Government policies and subsidies shape the insurance landscape, impacting coverage breadth and accessibility. Disparities in access and quality persist among various demographics. Emerging technologies and innovative insurance offerings aim to address diverse consumer needs, signaling potential progress in healthcare delivery.

11. Findings

The health insurance sector in India faces challenges alongside opportunities for improvement. While initiatives like Ayushman Bharat aim to expand coverage, low penetration rates persist, leaving many vulnerable to high medical costs. Breakthrough innovations such as telemedicine offer promise in revolutionizing healthcare accessibility. Bridging urban-rural healthcare disparities remains crucial, with rural areas often neglected in coverage and facing shortages of medical staff. Innovations must consider the unique needs of underserved communities to extend healthcare services effectively. Addressing this gap is vital for comprehensive coverage and equitable healthcare access across India's diverse population.

12. Discussion

The study reveals significant insights into the state of health insurance in India. Despite a long history, coverage remains limited, leaving many without adequate protection. Despite government schemes and sector opening in 2000, coverage remains inadequate, with a low

penetration rate of 3.6%. Initiatives like Ayushman Bharat aim to bridge this gap. Challenges persist, including high medical inflation and quality disparities. Government and regulatory bodies play vital roles, while breakthrough innovations like telemedicine and predictive analytics hold promise. Collaboration among stakeholders is crucial to harnessing technological advancements for better accessibility and affordability. Achieving universal healthcare access necessitates innovative strategies focused on health promotion and disease prevention, aligning with UN Sustainable Development Goals.

Technology is revolutionizing the health insurance sector in India, fostering accessibility, affordability, and efficiency for individuals and healthcare providers alike. Notably, data analytics plays a pivotal role in transforming the industry, with advanced tools analyzing historical claims and medical records to develop more accurate risk assessment models. This leads to precise pricing of insurance policies and enhances risk management strategies for insurers.

Moreover, Artificial Intelligence (AI) and machine learning algorithms are deployed to bolster fraud control efforts. By scrutinizing vast datasets, these algorithms can pinpoint patterns and anomalies indicative of fraudulent activities, enabling early detection and prevention of financial losses.

Telehealth services have emerged as a significant trend, allowing policyholders to consult medical professionals remotely, thereby enhancing convenience and affordability. Insurers are increasingly incorporating telehealth into their coverage plans, bolstering accessibility to medical expertise.

Integration of Hospital Information Systems (HIS) with insurance portals is another critical technological advancement. This integration streamlines the claims process by facilitating real-time sharing of patient information, treatment details, and billing data, thereby reducing paperwork, errors, and claim approval times. Consequently, patients experience smoother claims processing, while healthcare providers can dedicate more time to patient care rather than administrative tasks.

Auto claim adjudication is a cutting-edge technology revolutionizing the efficiency of insurance claim processing. By employing advanced algorithms and automation, it swiftly and accurately processes claims without manual intervention. This technology utilizes data analytics and AI to assess claims against predetermined criteria and policy terms, expediting processing while

ensuring consistency and reducing errors. Automation saves time and resources for insurance companies, enhancing customer satisfaction and operational efficiency.

Blockchain technology is also gaining prominence in the health insurance sector for its potential to bolster the security, transparency, and interoperability of health data. By securely storing and sharing patient records and claims data among authorized parties, blockchain minimizes data breach risks and ensures accurate information for claims processing, thereby enhancing transparency and security.

Furthermore, innovative advancements such as telemedicine, personalized insurance plans, predictive analytics, and wearable health technology address existing challenges in the sector. These breakthroughs not only expand health insurance coverage but also elevate healthcare service quality in India. By offering more affordable and accessible healthcare, improving service quality, and enhancing healthcare infrastructure, breakthrough innovations hold the key to revolutionizing health insurance in the country.

Addressing social determinants of health like education and housing in insurance policies is crucial for promoting equity. Technology plays a pivotal role in making health insurance more accessible, affordable, and efficient for both individuals and healthcare providers. Overall, these innovations have the potential to reshape the landscape of health insurance in India for the better.

13. Conclusion

The Indian health insurance sector confronts multifaceted challenges, including the urgent requirement for widespread coverage in a country where many individuals are susceptible to steep medical expenses and financial strain. Current circumstances, marked by restricted coverage and affordability barriers, are insufficient to adequately meet the healthcare demands of India's sizable population.

Regulatory interventions have introduced crucial guidelines and limitations, yet they are insufficient on their own to surmount the sector's intricate challenges. This underscores the necessity for a comprehensive strategy that amalgamates regulatory measures with innovative solutions.

Addressing the issue of limited coverage entails devising schemes that encompass a broader spectrum of healthcare services, ensuring that more individuals

have access to necessary treatments without incurring exorbitant costs. Moreover, enhancing affordability necessitates initiatives that make insurance premiums more manageable for the populace, particularly for lower-income groups.

Furthermore, efforts should be directed towards bolstering awareness about the importance of health insurance and its benefits, thereby encouraging greater uptake across various demographics. Additionally, leveraging technology can streamline administrative processes, reduce operational costs, and enhance the efficiency of claim processing, ultimately making health insurance more accessible and user-friendly.

Collaboration between government bodies, insurance providers, healthcare professionals, and other stakeholders is imperative to devise and implement effective strategies that address the sector's challenges comprehensively. By adopting a holistic approach that integrates regulatory reforms with innovative initiatives, the Indian health insurance sector can strive towards achieving more equitable and sustainable healthcare coverage for all its citizens.

The health insurance industry globally, including India, serves a pivotal role in healthcare accessibility, offering various plans such as employer-sponsored, individual, and government-funded schemes. In India, the industry faces challenges like low coverage, high premiums, and quality care issues. Breakthrough innovations hold promise in enhancing accessibility, affordability, and quality of care worldwide. Geographic differences influence demand for private insurance, with Italy and Spain preferring private solutions due to inadequate public coverage, contrasting with Switzerland's preference for state-financed options. Insurers must innovate to adapt to changing trends, focusing on affordability and consumer trust. Digital capabilities improve cost-efficiency and customer experience, extending coverage even to those with pre-existing conditions. In India, factors like medical inflation and digital accessibility drive the expected increase in health insurance uptake. Embracing innovation is critical to achieving universal healthcare coverage in India, aligning with Sustainable Development Goals. The study underscores the importance of innovation-driven solutions to enhance health insurance accessibility and quality in India.

14. Limitations of Study

While this research leverages secondary data sources to address the research problem and objectives, it is essential

to acknowledge certain limitations. The study does not incorporate primary data collection, which limits the ability to capture real-time insights and perspectives from key stakeholders. Furthermore, the rapidly evolving nature of the health insurance sector may result in some data being outdated or incomplete. Despite these limitations, this research provides valuable conceptual insights into the challenges and opportunities surrounding health insurance in India and serves as a foundation for future empirical studies in the field.

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