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DISCUSSION PAPER

Overview of the Indian Insurance Sector and Opportunities in InsurTech

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1. Introduction

Following the nationalisation of insurance firms in 1956 and 1972 to form the Life Insurance Corporation of India (LIC) and General Insurance Corporation of India (GIC) respectively, the insurance sector in India had become a state monopoly. The modern foundations for the Indian insurance sector were laid by the recommendations of the R N Malhotra committee, formed in 1993.¹ The recommendations were submitted in 1994 and broadly focused on allowing the entry of private firms in the industry, the entry of foreign firms in joint ventures with Indian firms and the setting up of an autonomous insurance sector regulator.

The recommendations materialised and in 1999, The Insurance Regulatory and Development Authority (IRDA) was constituted as an autonomous body to regulate and develop the insurance industry.² The official IRDA mission statement states, among other things, that it aims 'to bring about speedy and orderly growth of the insurance industry...for the benefit of the common man, and to provide long term funds for accelerating growth (sic) of the economy'. It also aims 'to set, promote, monitor and enforce high standards of integrity, financial soundness, fair dealing and competence of those it regulates'.³

Simultaneously, the insurance industry was opened up to private firms in 1999, ending the hegemony of LIC and GIC. Initially, a cap of 26 per cent was fixed on foreign direct investment (FDI) in the industry, but this was later revised to 49 per cent in December 2014.

Following the deregulation in 1999, the number of private players in the life insurance sector has increased to 24 as of December 2016, while the number of non-life insurers has increased to 33. GIC had a monopoly on the reinsurance industry until 2016; a change in legislation, however, has now made it easy for foreign players to enter the market. Foreign firms no longer need to tie up with an Indian firm as a minority partner, but can function via branches in a manner similar to foreign banks.⁴ Following this, a slew of companies have made a beeline for the Indian reinsurance market. While there were just 2 firms in this segment as of January 2017, at least six were granted a final licence by the IRDA in 2016.

The performance and outreach of a country's insurance industry is often characterised by the two key parameters of insurance penetration and density. While penetration is the total premium as a percentage of GDP, density

¹ R N Malhotra was the RBI Governor from 1985 to 1990.

² IRDA was incorporated as a statutory body in April, 2000.

³https://www.irdai.gov.in/ADMINCMS/cms/NormalData_Layout.aspx?page=PageNo133_2&mid=1.9. Accessed on 14 November 2017.

⁴<https://timesofindia.indiatimes.com/business/industry/Five-reinsurers-get-final-licence/articleshow/56263994.cms>. Accessed on 14 November 2017.



measures the per capita premium. Figure 1 depicts India's insurance penetration levels since 2001, juxtaposed with those of other countries. While the developing world seems to be doing no better than India (Figure 1.a), the now developed countries have a considerable lead (Figure 1.b). Another observation from Figure 1.b is that insurance penetration levels around the world have been falling since the turn of the century and may point to flaws plaguing the insurance industry at the global level. This may further complicate issues on the Indian context with 49 per cent FDI now allowed in the sector and may even make the Indian insurance industry more prone to the inconsistencies of globalisation. This, however, is a subject for another day.

Figure 1.a

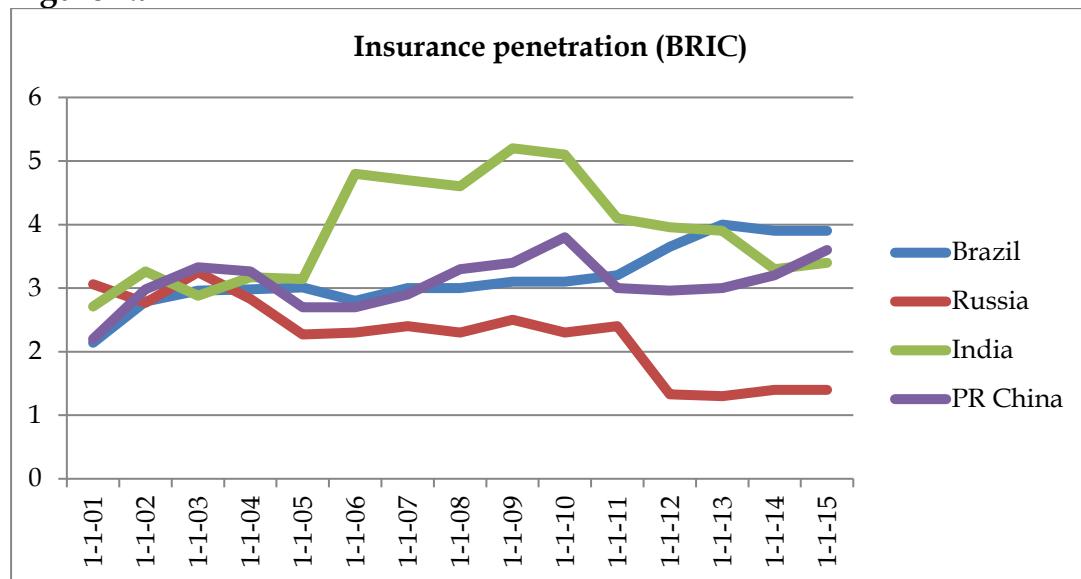
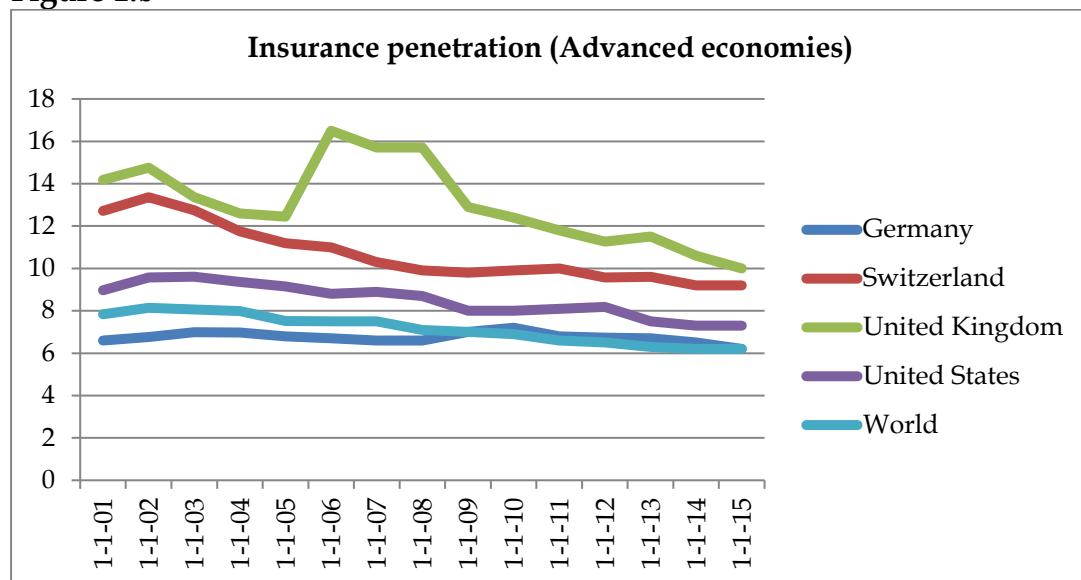


Figure 1.b



Source: IRDA



2. Trends in Indian insurance space

2.1 Life insurance

Both penetration and density increased after the insurance space was initially opened up to the private sector. Penetration and density increased from dismal levels in FY 2001-02 (2001 hereon), where they measured 2.15 per cent and USD 9.1 respectively, to reach their peaks during the first decade, following the 2000 liberalisation. While the penetration levels peaked in 2009 at 4.6 per cent (Figure 2.a), the density levels were highest in 2011 at USD 55.7 (Figure 2.b).

Figure 2.a

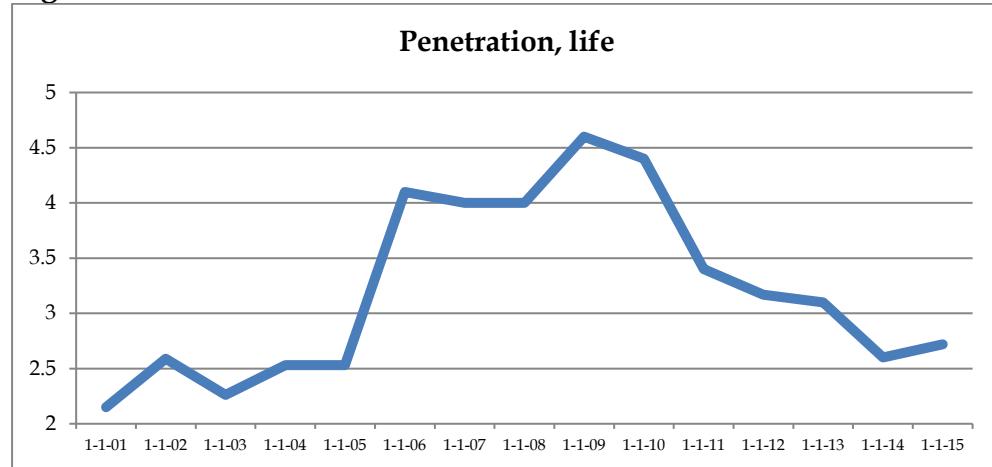
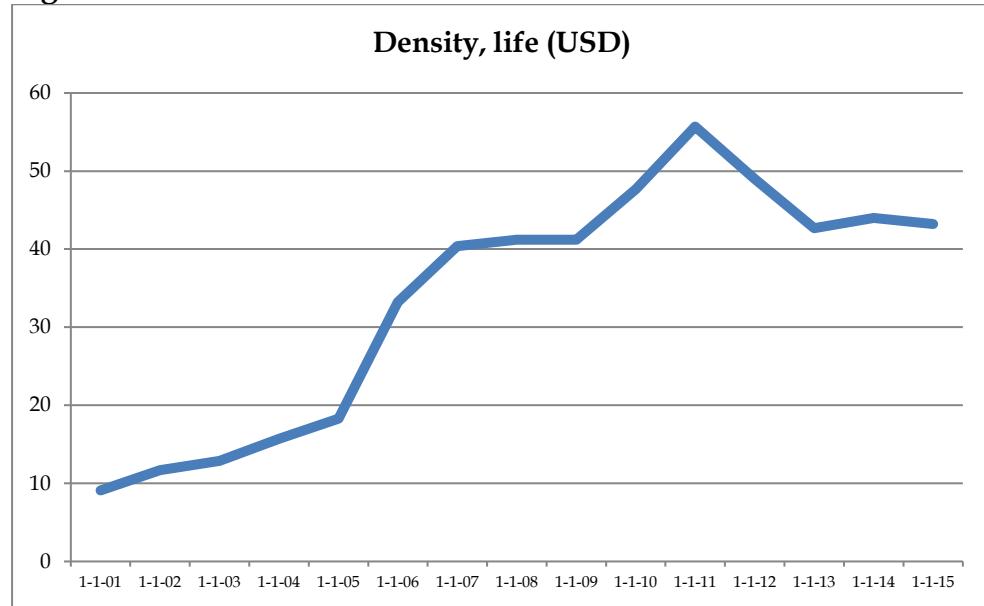


Figure 2.b



Source: IRDA

Following this honeymoon phase of sorts, which lasted for close to a decade after the deregulation of the insurance sector, there was an almost secular drop in penetration levels as it fell to 2.76 per cent by 2015, and while insurance density has been much more resilient, the overall downward trend in the life



insurance sector is as discernible and ominous as the black sails of Theseus' ship to King Aegeus. Only this time around, the black sails are the constantly declining company branches, agents, etc. The number of branches of life insurance firms has virtually stagnated at around 11000 since 2010 (Figure 3.a) and the number of individual agents has fallen from around 28 lakh in 2009 to around 20 lakh in 2015 (Figure 3.b). The fate of corporate agents is no better.

Figure 3.a

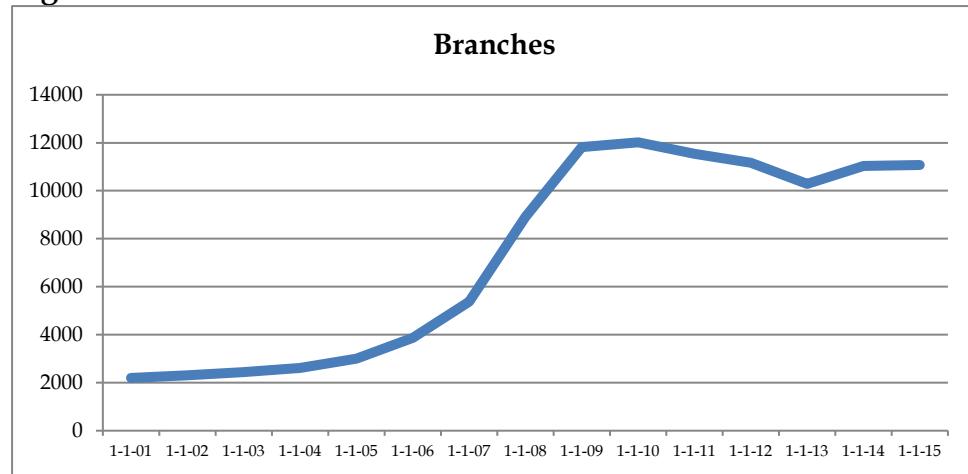
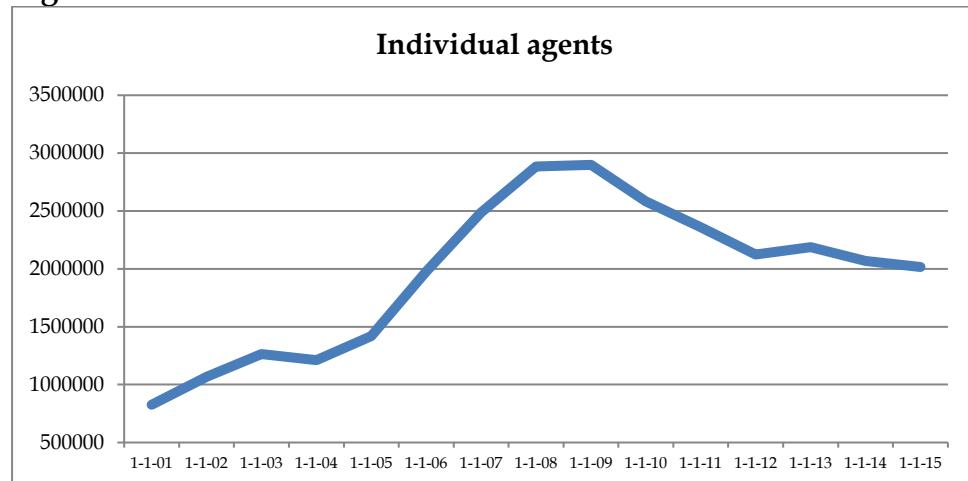


Figure 3.b

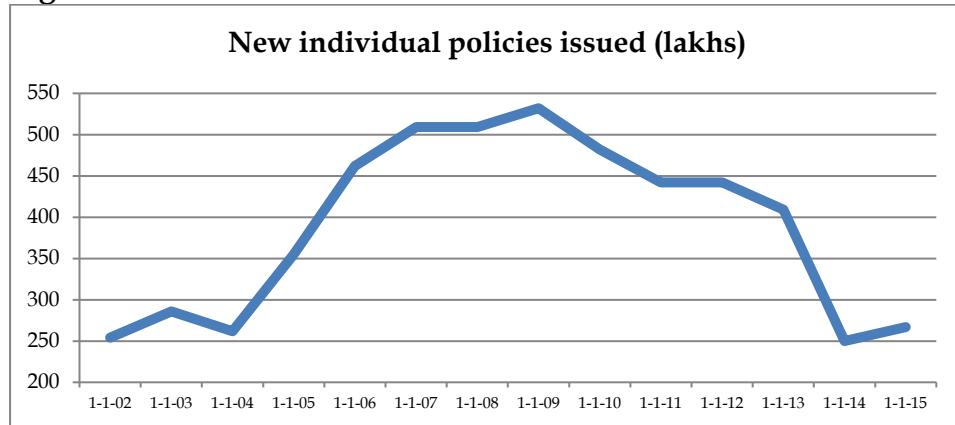


Source: IRDA

One major reason for this downward trend seems to be the inability of the industry to keep pace with the growing population and sell adequate new policies, possibly but not entirely due to the reduction in both human resources and physical infrastructure. A mere 267 lakh new individual life insurance policies were issued in 2015 as compared to 532 lakh new individual policies issued in 2009 (Figure 4). The dilapidation of infrastructure can both be a cause as well as an effect of the decline in penetration and density, but it is unlikely that it will be an effect of the decrease in demand for life insurance products, since, from data, a decrease in penetration or density has never preceded a decline in infrastructure.



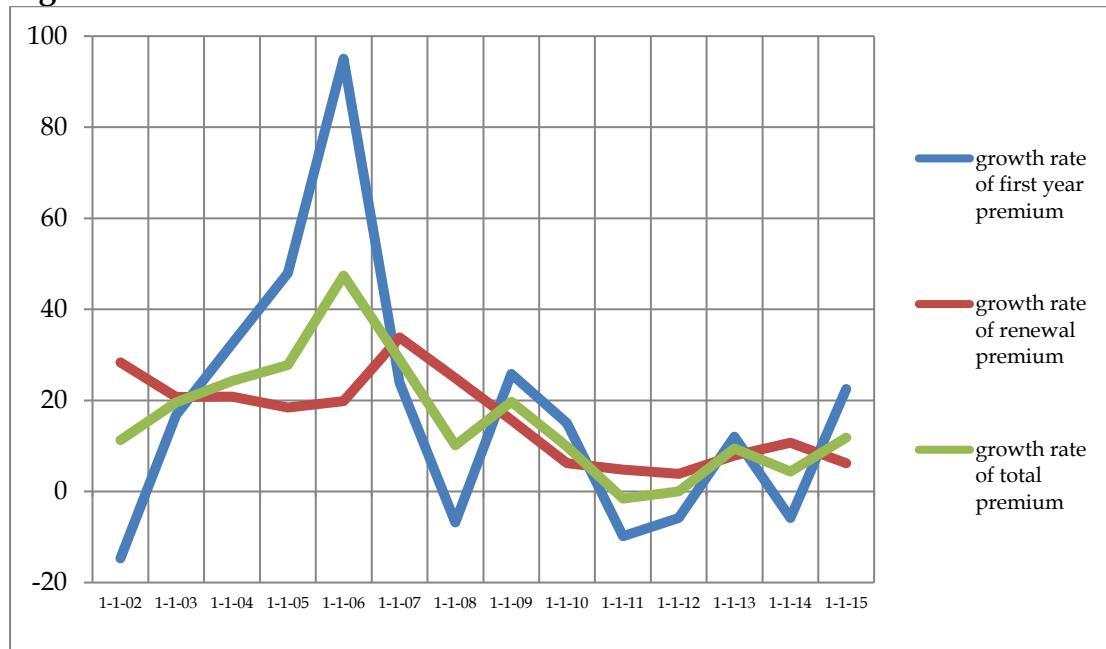
Figure 4



Source: IRDA

In the initial few years after deregulation, first year premiums have consistently accounted for a major chunk of total premiums in the life insurance industry. At their peak in 2006, they accounted for almost 48 per cent of total premiums and even as recently as 2015, they made up approximately 38 per cent of the total premiums. Further, upon juxtaposition, we see that growth in first year premiums is a major driver of the growth in total premiums, unlike growth in renewal premium (Figure 5). Even the correlation between the former two variables is 0.92, while it is 0.57 for the latter two variables.

Figure 5

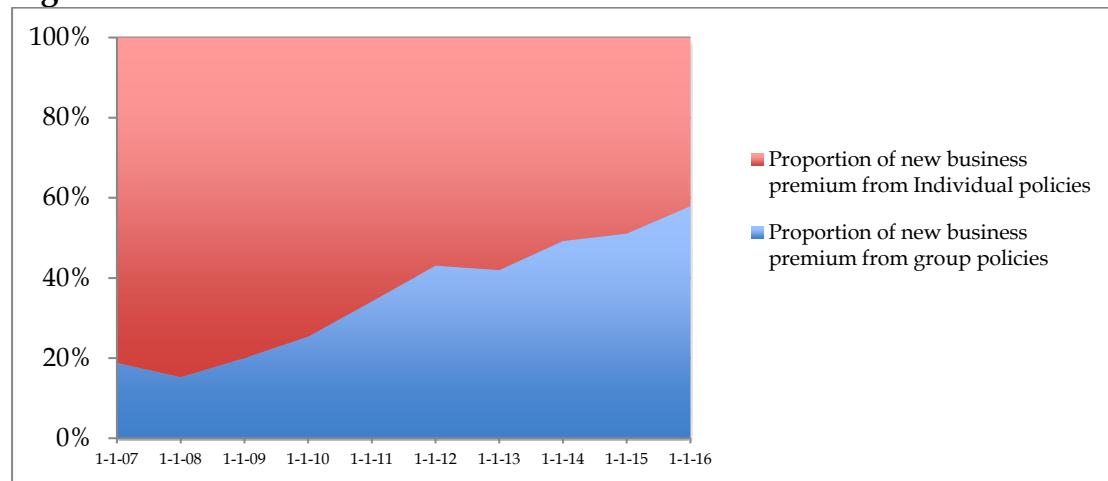


Data: IRDA, Author's calculation

Now, what seems to be a very possible reason for the dilapidation of the insurance infrastructure of traditional means of distribution is its decreasing viability vis-à-vis other distribution routes. From Figure 6 we see that starting from 2006, the new business premium accruing from individual policy has gradually given way to group policy premium. Group policy new business

premium accounted for 57 per cent of the total premium in 2015, a steep increase from 18 per cent in 2006. Also, as depicted in Table 1, more than 85 per cent of the group new business premium is consistently derived from direct selling and majority of the new individual premium from individual agents. Further, the share of individual agents in individual policy premium is on a decline, having fallen from 83 per cent in 2007 to 68 per cent in 2015. This trend, seen in tandem with figure 6, allows us to figure out the decreasing relative importance of individual agents.

Figure 6



Data: IRDA, Author's calculation

Table 1: Channel Wise New Business Performance

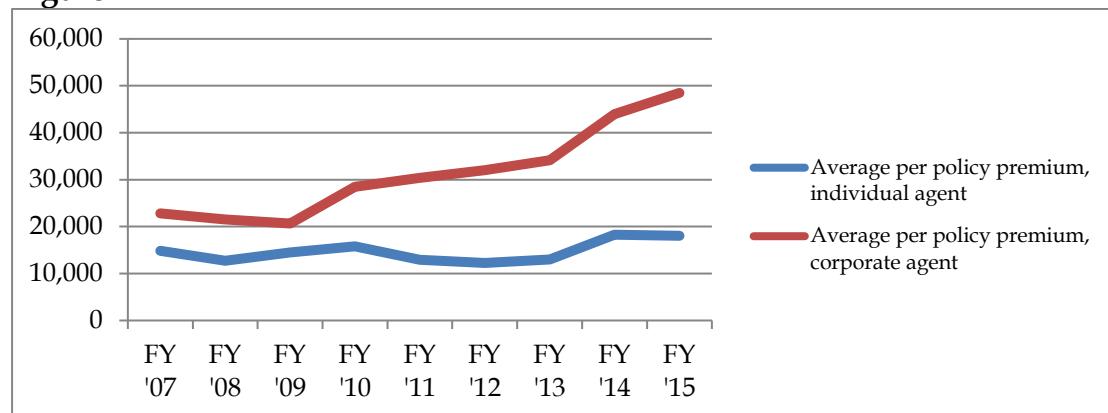
Year	Group Policy		Individual Policy	
	Individual	Direct Selling	Individual	Bancassurance
FY '16	1.69	95.03	68.27	23.82
FY '15	2.9	93.05	71.42	20.84
FY '14	1.76	93.91	78.39	15.62
FY '13	3.34	90.66	77.53	16.18
FY '12	4.36	87.46	78.69	14.96
FY '11	5.63	90.06	78.94	13.3
FY '10	5.81	89.34	79.61	10.59
FY '09	8.96	86.53	79.57	9.68
FY '08	7.68	87.88	83.74	7.96

Source: IRDA

Both these broad trends might be benign on their own, but when complemented by the other, they point to the larger issue of inefficiency creeping in the sector's utilisation of its traditional distribution channels. Figure 7 presents another aspect of the same story by showing the minimal increase in average premium per policy accruing to individual agents juxtaposed with almost doubling of the same parameter for corporate agents between 2007 and 2015 (from close to INR 22000 to more than INR 48000). Hence, not only have

the individual agents lost their efficacy at the macro level, but they are also struggling at the, individual level.

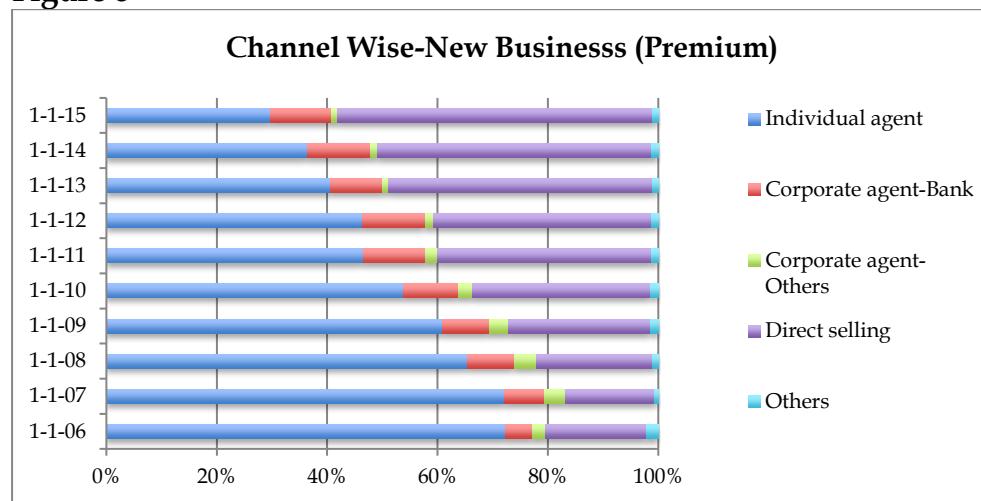
Figure 7



Data: IRDA

Figure 8 depicts the cumulative effect of individual agents losing their ability, to garner additional business for the insurance industry, vis-à-vis other channels. Individual agents, once responsible for bringing in more than 70 per cent of new business (group and individual, combined), have had their share squeezed to 30 per cent in 2015. The proportion of new business coming from direct selling registered the most impressive increase and now accounts for close to 60 per cent of new business. Major part of this increase is owed to its performance in, group policy space. In its totality, direct selling has grown three times in less than a decade, starting from 2006. New business originating from banks has similarly increased and from being less than 5 per cent of the total business, now accounts for more than 10 per cent, mostly driven by their impressive performance in individual policy sector. Corporate agents, other than banks, have merely been a blip throughout and are more so today than ever before.

Figure 8



Data: IRDA, Author's calculation



Hence, a decline in the profitability of traditional channels of distribution has in all likelihood caused the industry to scale them back. This scaling back has led to a decline in the sale of new policies, as the new channels of distribution only partially filled the gap left by individual agents. This incomplete takeover by new channels of distribution, like direct selling and bancassurance, is ultimately reflected in the declining penetration and density levels of insurance in the country. This chain of events seems to be quite plausible given the data supporting the analysis. A way to reverse it or break it, may also improve insurance coverage and depth in the country.

Apart from the declining penetration and density levels, another disturbing trend in the life insurance sector is the issue of under-coverage. Even when an individual is covered under life insurance, the insured amount is often found to be inadequate given the living standards of the concerned individual's dependents. The 2015 Swiss Re report on Mortality Protection Gap (MPG) defined MPG as the difference between the resources required and the resources available to the dependents following the death of a working family member. It provides some damning evidence on this. The report shows that India has an aggregate MPG of USD 8555 billion and an average MPG per working person with dependents of USD 35181. Even more disturbing is the continuous upward trend in both the parameters (see Table 2). While the exact cause of this trend cannot be ascertained accurately, it nevertheless remains an issue, and may play spoilsport in any future attempts at insurance propagation.

Table 2: Mortality Protection Gap

Year	Aggregate MPG (USD Bn.)	MPG per working person* (USD)
2014	8,555	35,181
2013	7,951	33,045
2012	7,694	32,595
2011	7,820	33,290
2010	7,027	30,135
2009	5,551	23,778
2008	5,379	23,076
2007	4,998	21,450
2006	3,950	16,973
2005	3,612	15,552
2004	3,067	13,573

* Working person with dependents

Source: Swiss Re MPG Report, 2015

These were the broad trends that have developed in the life insurance industry since it was deregulated in 2000. They elucidate the current state of the sector and the changes that it has gone through. An analysis of these trends makes it clear that the traditional distribution channel of individual agents is making



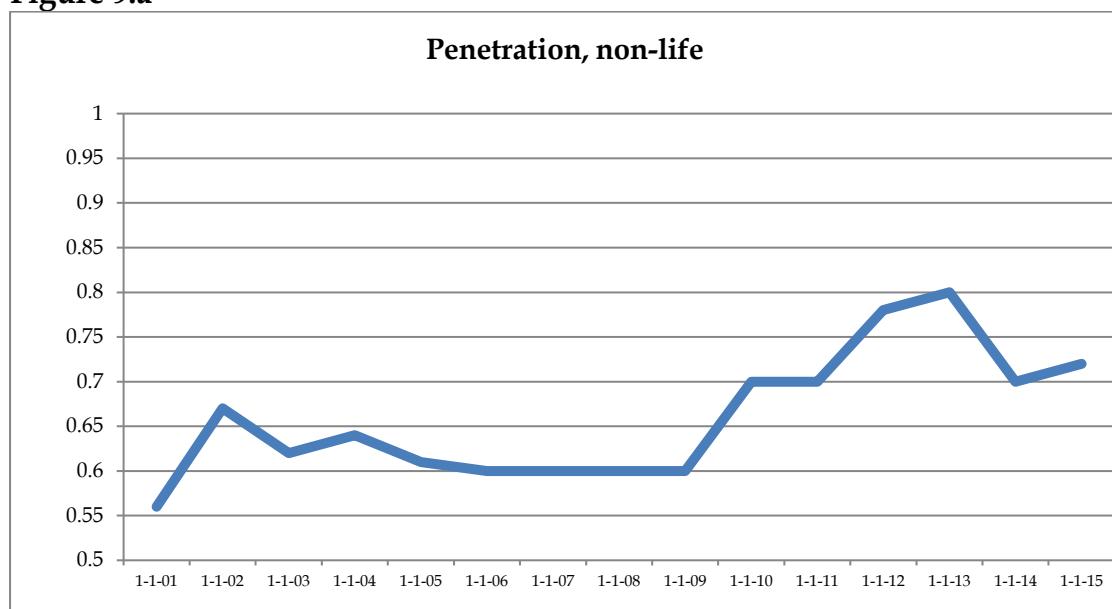
way for other more efficient ways. In order to ensure that insurance coverage does not get affected in this transition, which has been the case so far, comprehensive digitalisation of the sector can prove to be a very effective tool.

2.2 Non-life insurance

The situation in the non-life insurance sector is even worse than in the life insurance sector, as elaborated below. Penetration levels for the non-life insurance industry are not just abysmally low but have stayed that way since 2000. Penetration, which was a mere 0.56 in 2001, increased only marginally to reach 0.72 by 2015 (Figure 9.a). The same has been the case with non-life insurance density and, given the pitiable penetration levels, it should come as no surprise. Insurance density merely rose from a negligible level of USD 2.4 in 2001 to USD 11.5 in 2015 (Figure 9.b). Both these indicators are almost one-fourth of their counterparts in life insurance, which were not very encouraging to begin with.

The penetration and density levels are even lower if we subtract from them the premium accruing to the motor insurance sector. Motor insurance for vehicles is mandatory under Indian regulations and hence, it does not suffer from issues rampant in other branches of the insurance industry.⁵ Motor insurance gross premiums have accounted for more than 40 per cent of total non-life gross premium constantly since 2001. When this is taken into account, the penetration and density levels fall another 40 per cent, in the least.

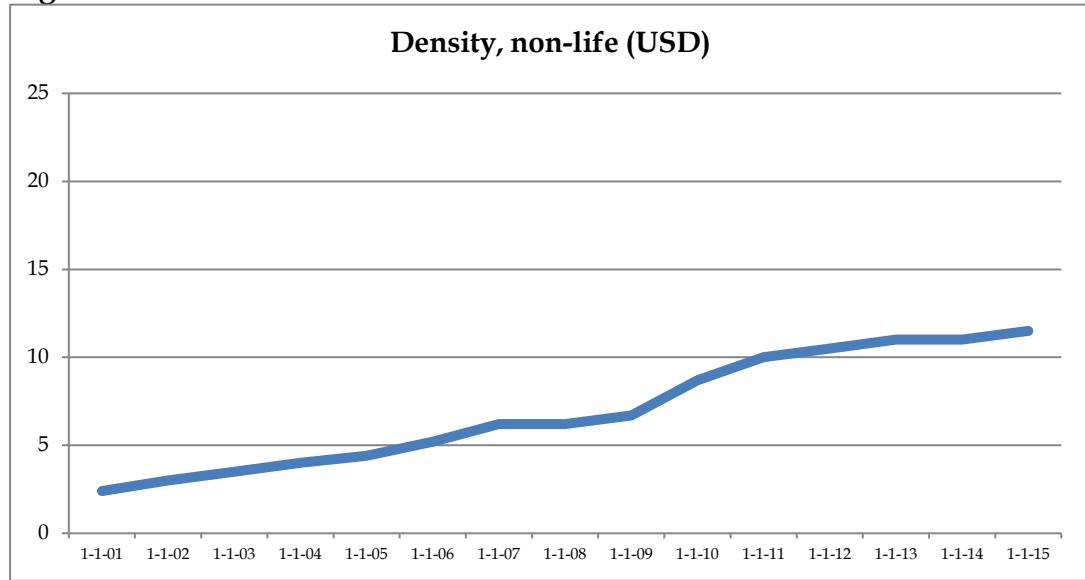
Figure 9.a



⁵ Motor Vehicles Act, 1988, mandates (under section 146) that every vehicle should be compulsorily insured for third party risk.



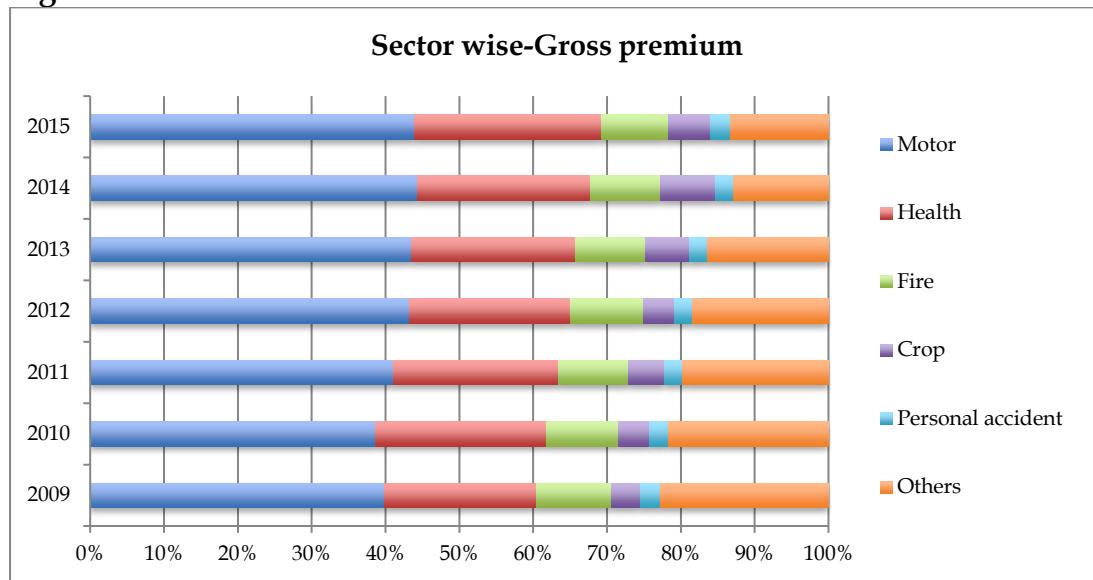
Figure 9.b



Source: IRDA

Figure 10 below indicates that health insurance has had the most impressive growth among all other sectors of the non-life industry. As a result, it has increased its share, premium wise, in the non-life insurance industry from approximately 11 per cent in 2005 (not shown in Figure 10) to 25 per cent in 2015. Crop insurance has also increased its share from 4 per cent in 2009 to almost 6 per cent in 2015. The other major sectors shown in Figure 10, viz. motor, fire, personal accident have more or less contributed consistently to total gross premium of non-life insurance, and account for approximately 40 per cent, 9 per cent and 2.5 per cent, respectively, of the total gross premium.

Figure 10



Data: IRDA, Author's calculation

Health insurance hence seems to be a major driving force of the non-life insurance sector. Further, the health insurance push is majorly due to the sale



of group health policies, a trend similar to life insurance sector (see Table 3). Between 2011 and 2015, while almost 50 per cent of the increase in gross premium of health insurance⁶ came from group insurance policies, less than 20 per cent of the increase was due to single policies.

The same is the case with personal accident insurance and overseas travel insurance; group policies account for 65 per cent and 48 per cent of the increase in gross premium, respectively. Group policies have also increased their share in total gross premium (between 2011 and 2015) in all the three non-life sectors discussed in Table 3. While the share of group policies has increased slightly from 45 per cent to 47 per cent in health and from 58 per cent to 61 per cent in the personal accident sector, the overseas travel sector saw the share of group policies reach 28 per cent in 2015 from 16 per cent in 2011. This increase is often at the expense of individual policies. Why this is a matter of concern and how it can be addressed is discussed in the next section.

Table 3: Gross Premium, Policy wise

	Group Policy (A)	Individual Policy	Total (B)	A/B*	Premium , group policy**
Health Insurance					
FY '16	1162052	571573	2444754	47.5	49.8
FY '12	594816	350750	1306973	45.5	
Personal Accident					
FY '16	161361	93119	261025	61.8	65.8
FY '12	80898	48136	138847	58.2	
Overseas Travel					
FY '16	14925	36584	53584	27.8	48.3
FY '12	5541	28414	34177	16.2	

In INR lakh

* Group policy premium as a proportion of total premium, in per cent

** Increase in total premium accounted for by increase in group policy premium, between FY '12 and FY '16, in per cent

Source: IRDA

3. Digitalising the insurance sector

The trend of group insurance policies accounting for a chunk of the increase in insurance premium, both life and non-life is a matter of concern. First, this trend points to the dismal performance of the industry in reaching out to the masses, because of its inability to sell individual policies. Secondly, it suggests that most of the insurance coverage is concentrated in the formal sector, since most group policies are sold to the formal sector. This implies that the people

⁶ Health insurance premium (excluding travel, personal accident insurance)



most susceptible to the vagaries of life, i.e., those working in the informal sector are still largely uncovered by insurance. Lastly, it implies that the traditional channels of insurance disbursement are proving ineffective in increasing its depth.

We should also take into consideration the fact that in recent years, the government has taken up the mantle of increasing insurance coverage by administering insurance schemes relating to crop, accident, and life insurance. And even though these schemes involve certain private players, it is clear that without the government push, the dismay regarding insurance coverage would have been even higher.

Traditional distribution channels have proved less than sufficient in achieving desired levels of insurance coverage. While the shortfall in coverage cannot be entirely attributed to the poor functioning of distribution channels, they have a major part to play, especially when we consider the industry maxim that insurance is sold and not bought.

Industry insiders are aware of the fact that traditional distribution networks are unable to penetrate tier two and three cities effectively (BCG-FICCI report). The viability of the brick-and-mortar model does not hold in the absence of sufficient demand, as we mentioned in our analysis of the life insurance sector. In addition the people are also wary of dealing with the red-tapism involved in availing financial instruments. Mowl and Boudot (2016) (as cited in RBI's 2017 report on household finances) found that on an average, the total cost involved in opening a bank account was equivalent to their earnings for a day. They point out that bottlenecks like these add to the cognitive and psychological costs of participating in the formal financial system' and 'some of these issues may most easily be addressed through technological solutions' (RBI report on household finances, pg 97, 2017).

All the factors mentioned call for a renewed and comprehensive approach to the whole insurance mechanism. A digital route at all levels of policy issuance, starting from its development and going all the way up to the claims stage, should be adopted. Below we elaborate piecewise on all the stages that can be and need to be digitalised to further the original purpose of insurance.

3.1 Product Development

The insurance industry is marked by lack of customer specific policies, largely because they use data for assessing the risk faced by a potential customer. Insurers usually charge premiums by drawing insights from an insurance customer's history, a not very accurate way to evaluate customer risk. History profiling is problematic because more often than not, data is lacking in quantity and quality, forcing firms to resort to make shift and inaccurate proxies. Because of such dearth of quality data, firms are forced to use a 'one shoe fits



all' approach, since the resources for customisation of policies are simply not available.

But with advent of the Internet of Things (IoT), Big Data analytics and external data sources, insurer's have at their disposal, not just the required data but also the tools to derive insights from that data. They can tailor fit policies for a large variety of needs, as and when the need arises.

3.2 Marketing and Distribution

We see that traditional distribution networks are not only economically unviable for insurance firms but are also cumbersome from a customer perspective. Now, with the number of people having access to Internet in India having increased from 5.1 per cent in 2009 to 26 per cent in 2015 (World Bank data), the vastly untapped transmission channel of the Internet has greatly widened. The Internet allows policy makers and industry players to increase the spread of insurance in a more rapid and cost effective manner vis-à-vis the normal route. Additionally, it has the potential to allow would-be customers to navigate through the complex web of financial intricacies consisting of related jargon and bureaucracy, by allowing them access to simplified alternative digital routes and resources required for understanding the products, they require.

Marketing and distribution in today's day and age require having an omni-channel presence. The millennials have come to expect 24x7 service availability. They want to have policy comparisons, quotes and policy terms and conditions made available to them in a device agnostic online platform, at a place of their choosing. An online distribution channel is a low hanging fruit, which also leads to the most coveted commodity of them all, consumer data. Since this segment of digitalisation has already seen considerable disruptor activity, any lapses in capitalising on it can prove detrimental to an insurance firm.

3.3 Pricing/Underwriting

With improved availability of data, and customised insurance policies, the premiums charged will be more realistic and will reflect the risk assessment more accurately. Customers, consequently, will find premiums to be more justified, equitable and, most importantly, affordable, which is important in the context of RBI's 2017 Report on Household Finances (RBI report from hereon) finding that 51 per cent of the people surveyed lacked an insurance cover because of unaffordability.

The oft-cited trust deficit barrier between insurers and their customers is a big impediment when it comes to propagating insurance. Aptly priced policies will go a long way in bridging this gap and are likely to crowd in customers. Further,



the ensuing influx of customers is likely to enhance the viability of traditional sources of distribution, which is never a bad thing.

3.4 Servicing and Claims

IoT devices, which track changes in the ambient environment of the insured entity, can allow the industry to make a transition from reactive compensation to proactive prevention. The customer can take corrective measures suggested by the insurer based on real-time data transmitted by IoT devices, and consequently have his premium reduced. Such a proactive approach can save the insurance company huge insurance claim amounts. An E&Y study found that such an approach could lead to better profit margins through reduced expense ratios (see Section 4.3).

The IoT devices can even be programmed to raise automatic claims as and when required and to renew the policy based on previous performance record. This is a definite improvement over the traditional ways of dealing with policy renewal and claim settlement and will help in leading to better customer retention and satisfaction.

These are but some of the areas of the insurance business where the digitalisation approach can have the maximum impact. The next section elaborates further on their implementation and the tools available for the job.

4. Tools of Digitalisation

4.1 Digitalising sale

Digitalising the whole spectrum of policy related services from information, sale, application, claims and settlement process will make insurance policies accessible even in hitherto inaccessible areas across the country, an advantage in an industry like insurance, which is characterised by economies of scale. The RBI report found that 33 per cent of the people lacked insurance cover either because they 'have not heard of it', 'do not think they need it' or 'do not understand it (how/where to get it, how it works)'. The digital medium can demystify insurance jargon, via information in the form of videos, FAQs and even gamified interactive sessions, made available in local languages. The digital medium, when backed by call centre support, will be a comprehensive alternative to the contemporary brick and mortar channels of information disbursement.

Sale of policies is another area, which has its reach greatly increased through the World Wide Web. Government initiatives like Pradhan Mantri Jan Dhan Yojana (PMJDY), e-KYC, Digilocker, National Insurance Repository (NIR), etc., in the direction of digitalising various services is a commendable effort but their full potential can be achieved only when they are implemented in tandem



and the insurance industry presents an opportunity for such an implementation (see Section 6.1).

The next step in the quest for digitalisation would focus on the claims process. Although it is not as straightforward as the remainder of the process, it can still be initiated on the digitalisation road. For example, firms like AXA and Zurich have developed apps, which allow customers to raise, track automobile insurance claims and later submit related evidence (BCG-Google report, 2014).

Lessons from international competitors can be leveraged to great effect in the quest for digitalisation. GEICO, the second largest auto insurer in the USA, has embraced the digital sales platform with much success. Its points of sales consists of a primary online and phone network; an auxiliary, ground agents network (they have 3 agents in New York) and a highly successful referral system, wherein existing customers earn rewards for successful referrals (BCG-Google report, 2014). In India, where 25 per cent of the individuals seek financial advice from family, friends and neighbours (RBI report), a refined referral network can be used to overcome the constantly declining ground force of agents by incorporating a simple incentive structure.

Hence, we observe that the required digital infrastructure is, more or less, in place; it is the implementation, which needs to be made robust by placing sufficient checks and balances.

4.2 Internet of things

Xia et.al (2012) define Internet of Things (IoT) as ‘the networked interconnection of everyday objects, which are often equipped with ubiquitous intelligence’; they further say that ‘IoT will increase the ubiquity of the Internet by integrating every object for interaction via embedded systems, which leads to a highly distributed network of devices communicating with human beings as well as other devices’. Jacob Morgan, in his piece for Forbes, further simplifies IoT as ‘the concept of basically connecting any device with an on and off switch to the Internet (and/or to each other)’⁷.

IoT in the insurance space consists of technology such as fitness wearables, thermostat sensors, heart sensors, telematics, aerial surveillance and other equipment capable of tracking and then transmitting, changes in the insured entity and its surroundings, be it a human or a machine. IoT will have its use in the insurance industry for making a better assessment of the risks and damages faced by the insured entity and consequently on claims servicing.

IoT can be utilised to automatically raise claims following a mishap. The claims raised in such a fashion will be better received due to the transparent nature of

⁷<https://www.forbes.com/sites/jacobmorgan/2014/05/13/simple-explanation-internet-things-that-anyone-can-understand/> - 430506561d09. Accessed on 14 November 2017.



damage assessment and will reduce the case of fraudulent claims. An example already being implemented in the auto insurance industry is that of 'Pay as You Drive' and 'Pay How You Drive' insurance, where the premium is based on the distance driven and the drive quality respectively (BCG-FICCI report).

IoT improves the quality of insurance claims and helps in expediting the process of raising claims, in cases, which are traditionally considered tricky. For example, property damage in remote areas due to a natural calamity can be assayed using aerial surveillance by drones. This is just one of the many ways in which IoT can be utilised to increase insurance coverage for the segments of society otherwise lying out of the insurance radar.

Humana, an American health insurer, is able to remotely monitor its Medicare clients with congestive heart conditions, using interactive early warning devices, capable of timely detection of issues. The information received from such devices is used to advise patients about the corrective measures required and has resulted in clinical visits coming down by 50 per cent, a considerable cost reduction by any measure (BCG-Google report). IoT, with its inherent pervasive nature, not only offers great opportunities for the insurance industry ranging from streamlining of the claims process to customer crowding in, it is also a feeder for the Big Data analytics network, discussed next.

4.3 Big Data

With the advent of IoT and increased computing powers, advanced computation techniques can be made available at the insurance firm's beck and call. Big data is the melting pot where all the data from wearables, heart sensors, vehicle telematics, drone surveillance, photo assessment of damages, etc., comes in. It makes sense of the loads of data and derives useful information from it. The end goal of a customised policy for every individual or a small group of individuals is hence made that much easier.

Big data reduces cross subsidisation of insurance premiums, since it helps in sifting out the low risk customers from high risk ones, and the one shoe fits all approach makes way for informed categorisation. Not only do the customers get a better bang for their buck by being at the receiving end of big data analysis, the firms are also able to improve underwriting gains. It is very effective in tackling the age-old problem of adverse selection, wherein, individuals most willing to buy the insurance are the ones most likely to be at risk. McKinsey found that property and casualty (P&C) insurers, in the top quartile for digital performance⁸ amongst all North American companies, saw their revenue grow at twice the growth rate of their less digitally advanced peers, leading to better profitability via lower expenses.⁹

⁸ Top quartile of digital quotient

⁹<https://www.mckinsey.com/business-functions/digital-mckinsey/our-insights/making-digital-strategy-a-reality-in-insurance>. Accessed on 14 November 2017.



The efficacy of all the solutions mentioned above to usher the insurance sector into the digital age will increase manifold when utilised in tandem with each other. For instance, the data bit in big data comes majorly from IoT devices, often installed in the customer's premises, and at times, their bodies. A case in point is that of crop insurer, Climate Corporation of USA, which has analysed crop yield for 60 years and soil type data for every two square miles in the USA. In addition, they have daily weather measurement statistics. So, once the client enters into its website the range of temperature and rainfall he wants protection from for a specified time, the company provides a real time quote (BCG-FICCI report). This shows how all the three digital solutions of access, IoT and big data have been synergised to derive a truly digitalised experience for both parties to an insurance contract.

4.4 Blockchain

Don and Alex Tapscott, authors of the 2016 book 'Blockchain Revolution' define blockchain as 'an incorruptible digital ledger of economic transactions that can be programmed to record not just financial transactions but virtually everything of value.' More precisely, it is a network of online systems, such that each of the systems has a record of all the transactions (a block), which the blockchain database/ledger contains, and they all get regularly updated to record new data entering the database.

The two obvious benefits of a blockchain-based system due to its non-centralised nature are its transparency and immunity to hackers.¹⁰ Let us elaborate on the two advantages. First, since several parties in the blockchain verify every transaction entering the blockchain ledger, the need for the participants to maintain separate and at times varying record histories is eliminated since they can now just refer to the blockchain database. This not only saves on cost but also improves the trust quotient between the parties since now they do not refer to individual records, marred with inconsistencies. Secondly, any illicit attempt to alter the database would require making the alterations to the particular block on all systems of the blockchain, followed by alterations in all the blocks, which have followed the initial block. This would, without a doubt, be a herculean task requiring massive computational power. Hence a blockchain database is, for all practical purposes, immutable.

Blockchain is still a technology in its nascent stages and its applicability in the insurance space is still being explored by initiatives like B3i (see Section 5); a few uses are nevertheless straightforward. Smart contracts, i.e., agreements whose clauses get initiated when certain pre-requisites are met, can be bundled with blockchain to great effect. For example, the claim process can be initiated automatically via smart contracts, once the damage reports are received in the

¹⁰<https://blockgeeks.com/guides/what-is-blockchain-technology/>. Accessed on 14 November 2017.



blockchain database through trusted sources like IoT sensors or fellow insurees suffering from similar loss, for example due to a natural calamity (E&Y report). Additionally, the blockchain database can greatly improve the portability of policies and customer records across insurers, and even expedite the renewal process, given the easy access to credible customer history and other related records.

Blockchain has great promise as a technology for the insurance sector, but its nature is such that it requires a concerted effort from participants across the board in the insurance sector. Only when insurers, insurees, damage assayers, agents, etc., participate in a blockchain initiative, can its full potential be achieved. However, a blockchain initiative involving just the insurance industry firms (like B3i) is a good point to begin with.

5. International Experience

Lessons from international competitors can be leveraged to great effect in the quest for digitalisation of the Indian insurance space. The international Fintech software and services market is expected to have a CAGR of 7.1 per cent and is estimated to be worth USD 45 billion by 2020. The sheer size and growth of the market implies that it is going to be ripe with innovations and strategic insights, which can be utilised in the Indian Fintech software market, which itself is forecast to grow to USD 2.4 billion in 2020, from USD 1.2 billion in 2016 (KPMG, 'Fintech in India' report, 2016).

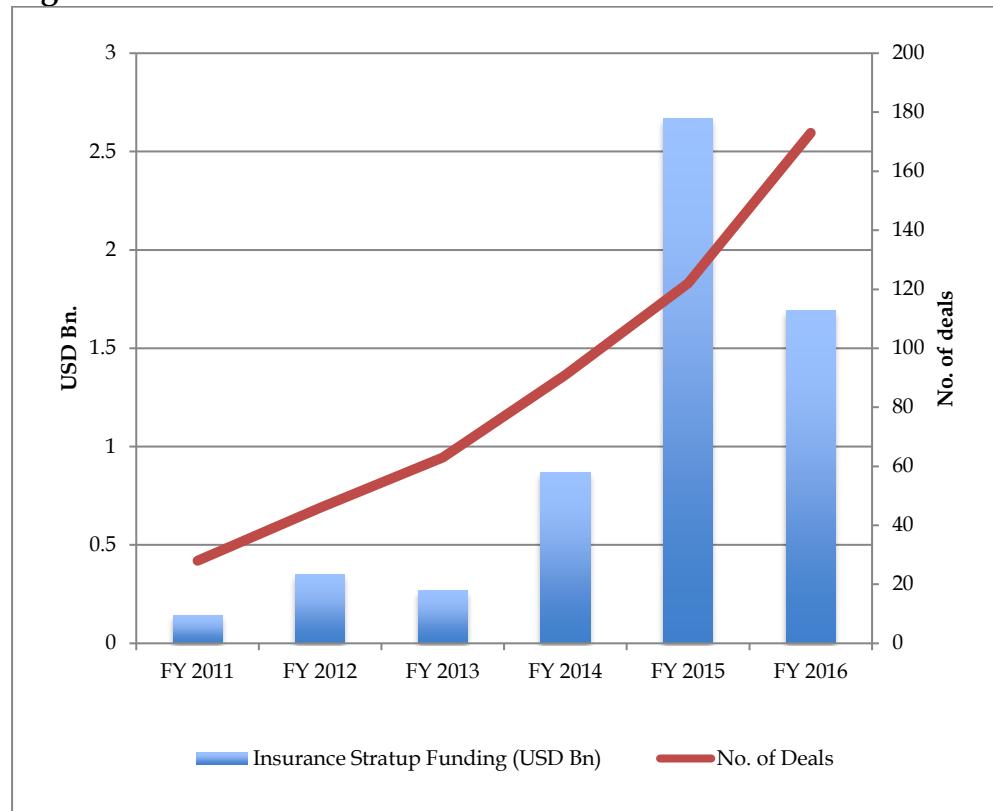
The global interest in InsurTech, as discernible from the InsurTech start-up funding statistics, is on a rise (see Figure 11). The 2017 Q2 round of InsurTech funding has fetched an estimated USD 985 million, a 148 per cent Y-o-Y increase from 2016. More than three fourths of the InsurTech funding since 2012 has been directed towards firms in the developed world, with the USA accounting for 65 per cent, UK for 6 per cent and Germany for 5 per cent of the total funding (see Figure 12).

Emerging markets like India and China, however, have not been crowded out from this race as they also account for 4 and 5 per cent, respectively of the InsurTech funding during the same period.

Given the low levels of insurance penetration and density, the vast size of their markets is definitely a strong reason why India and China have garnered a considerable slice of the InsurTech funding. This inflow of InsurTech funding is also suggestive of digitalisation's potential in increasing insurance coverage in a country like India.

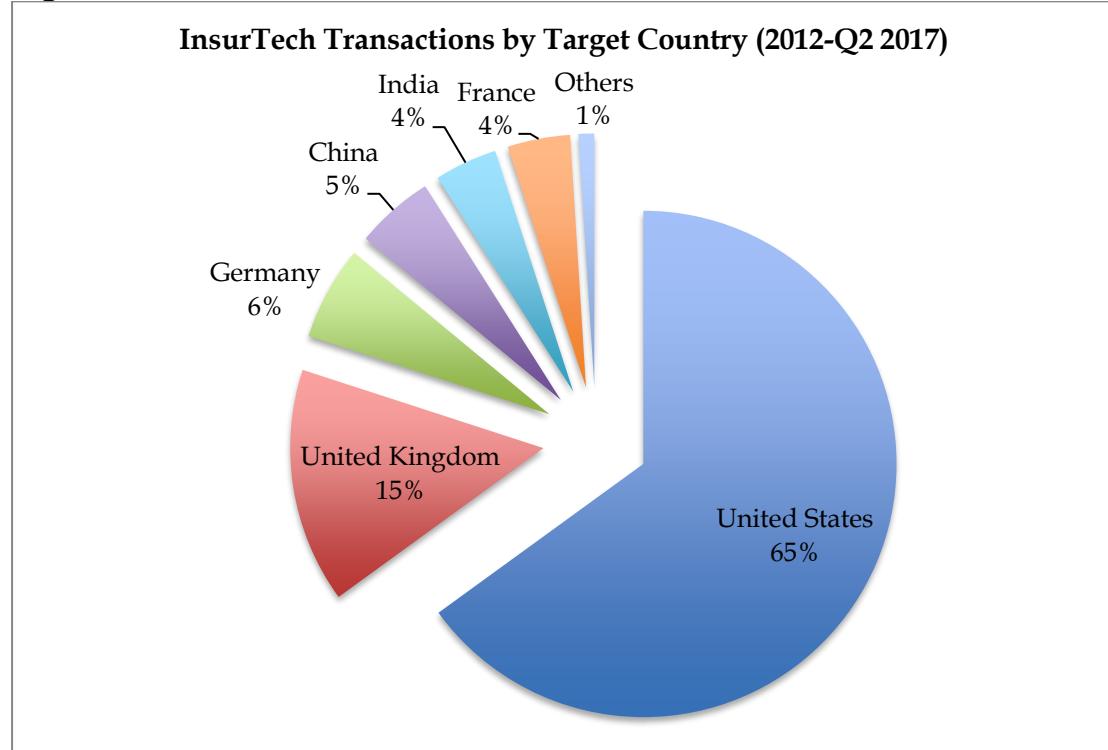


Figure 11



Source: CBinsights

Figure 12



Source: Willis Towers Watson Securities



Till recently, the Indian InsurTech start-ups like PolicyBazaar, Coverfox, Easypolicy, etc., were involved in merely providing policy comparison and distribution platforms. But this has changed with the entry of Acko, a start-up set to operate from a digital platform as an independent general insurance company. Acko will create its own policy products, which are personalised based on customer behaviour patterns.¹¹ It was one of the start-ups to have secured funding, of USD 30 million, in 2017 Q2. The firm will start by providing motor insurance and has already received its R1 licence and can be found as a registered general insurance provider on IRDA's website.

Even though Indian InsurTech space has quite a few start-ups, the quality of innovation emanating from them is very restricted. The start-ups have their businesses largely restricted to the policy comparison and distribution space, a far cry from what their overseas peers are involved in. For example, Brolly, a London-based start-up, makes use of AI technology to provide its clients, via its app, a locker for policy storage, an advisor, and a shop for policy purchase. It is in the midst of building its database and training its algorithms to allow its app interface calculate the optimal insurance cover for the customer and consequently make better policy suggestion, based on market surveillance.

Even the more ambitious applications of technology, like Blockchain and Regulatory Sandbox (See Section 6.4), which require industry wide collaboration and co-ordination with public authorities, are being experimented with. At least eight sandboxes have sprouted during the last two years, following the first one, which was established in 2015 in the UK.

On the blockchain front, five European insurance firms launched The Blockchain Insurance Industry Initiative or B3i consortium, in October 2016. The consortium, which had reached 15 members by February 2017 (and has grown further since then), aims to explore the potential of distributed ledger technologies in an attempt to build an efficient industry platform where market participants from across the world can easily cede, handle and trade risks. However, in the short run, the B3i's focus is on handling reinsurance contracts. B3i, since January 2017, has researched how blockchain and smart contracts can simplify and improve reinsurance transactions and claims processes. Its working reinsurance blockchain prototype was launched in September 2017.¹²

Even the Indian incumbent market players are playing catch up to their international peers, and are aware of the disruptive potential of InsurTech.¹³ Max Bupa Health Insurance is amongst the few firms that have led the digitalisation initiative in India. The firm recently launched an operating system agnostic app, which automates the policy issuance for its bank and non-

¹¹<https://inc42.com/buzz/acko-insurance-30mn-varun/>. Accessed on 14 November 2017.

¹² <http://www.ibtimes.co.uk/blockchain-insurance-collective-b3i-launches-reinsurance-beta-monte-carlo-1638889>. Accessed on 14 November 2017.

¹³See BCG-FICCI, March 2017 report



bank partners. It has also developed an OTC app, InstaInsure, claimed to be one of the fastest policy dispensing platforms in the industry. PNB MetLife Insurance and Bajaj Allianz are the other firms that have made some headway in the direction of digitalisation. While the former launched ConVRse, a novel virtual reality based customer service platform, the latter has set the ball rolling in the usage based insurance segment with its telematics based Drive Smart motor insurance. The majority of the industry incumbents, however, are still in the initial stages of digitalising their services.

While global investment in the digital medium is rising, the Indian insurance industry is lagging both in its digitalisation efforts and in its ability to monetise those efforts (CII-PwC report). Digitalisation has great potential in Indian markets and the government has realised that, but the incumbent insurance market players seem to have been rather slow so far in picking up the aforementioned in-built incentives of digitalisation. What transpires in insurance markets in the near future will depend to a great extent on how the incumbents react to the disruptions of InsurTech.

6. Recommendations

6.1 Alternative channels of distribution

The recently released RBI's report on household finances indicates that people often regard debt from informal institutes and insurance products as substitutes. A major factor for this behaviour is their perception of the onerous bureaucratic requirements, the paperwork, coupled with their lack of understanding of terms and conditions involved in getting a policy.

Given these findings, a digitalisation approach, should focus on reducing, the bureaucratic bottlenecks and implicit cost involved in getting an insurance policy. The aim of the said policy should be to establish a scalable and sustainable policy environment.

A possible digitalised version of the entire insurance sale process would start with customers comparing policies on online platforms like PolicyBazaar.com. After zeroing in on a policy, they will be able to fill policy related paperwork online and furnish the required documents to the insurer through their Digilocker account. The policy once issued will be transferred to the NIR account of the customer. Further, with the advent of fingerprint sensors on smartphones, individuals should be able to complete the biometric based e-KYC, which is considered more secure than the OTP based e-KYC, from a place of their choosing. The entire process will require minimum, if any, physical presence of the applicant at the insurer's office.

Additionally, Bancassurance norms were recently tweaked, to let banks have tie-ups with multiple insurance firms. This, if capitalised on by insurance firms, will allow much better utilisation of the banking infrastructure of



approximately 87000 branches in non-urban areas. Finally, given the cost efficacy advantages of group policies, non-governmental organisations (NGO); micro finance institutions (MFI); self help groups (SHG); etc. should be utilised extensively to penetrate the rural market using such policies. These organisations are favourably placed amongst the rural populace and are familiar with them. This places the organisations in a position from where they command trust and can identify the insurance needs of their members. A proper insurance enrolment approach via such organisation can greatly counter the problem of lagging rural insurance.

6.2 Financial literacy

The way forward for propagation of insurance in hitherto untapped markets involves, first and foremost a financial literacy programme to educate the populace en masse. The three aforementioned issues of, unawareness, presumed non-requirement, and non-understanding of insurance can be mitigated, in one fell swoop by ensuring that the people are adequately equipped with financial literacy.

The National Centre for Financial Education's (NCFE) 2014 financial inclusion survey found a mere 15% financial literacy in rural areas. The current NCFE efforts to address adult financial literacy are clearly inadequate and lack a focused approach, so much so, that they do not even have a specific programme to address it. Hence there is an immediate need for a programme catering to the issue of adult financial literacy. Such a programme would be demand side measure and needs to be complemented by supply side initiatives in order for both of them to be optimal.

6.3 Product development

Given the paucity of non-urban specific products and difficulty in viably penetrating such markets with traditional channels of distribution, insurance products specifically crafted for such geographies and demographics should be brought in. Sane and Thomas (2015) found that nearly 50 per cent of the customers studied were not able to contribute the required INR 1000 over a period of 12 months, even though they were willing, as discernible from the fact that they continued to make smaller contributions. Hence, products with flexible contributions and other flexible features are required to meet the needs of individuals employed in informal and rural industries and having irregular income.

The recommendations of Expert Committee on Health Insurance are a step in the right direction in addressing the above issue. The recommendations have led to granting of permission to General Insurers and Health Insurers to

"launch pilot products for a period not exceeding five years with a view to giving scope to innovation for covering risks that have not been offered hitherto or stand excluded in



the extant products. At the end of the five-year period from the date of launch, the pilot product shall be either continued as a regular product or shall be withdrawn." (pg 46, IRDA annual report, 2016-17).

The guidelines are pleasantly surprising and farsighted in that they balance innovation with consumer protection, as can be seen from the following excerpts,

"As extending health insurance coverage to hitherto uncovered risks may require an analytical study of available data, it was envisaged that the industry may (sic) leverage on this specific facilitation to enhance the Health Insurance penetration." (pg 46, IRDA annual report, 2016-17)

and

"Enhanced disclosure norms are prescribed so that the policyholders have an informed choice before taking a decision whether or not to buy a pilot health insurance product." (ibid.)

Such regulations are always an encouraging development and similar provisions should be extended to the life insurance sector as well.

6.4 Regulatory sandbox

Innovations more often than not require a receptive regulatory ecosystem, which is able to keep pace with the changing dynamics of the industry. It is often the case, that the industry's entrepreneurial skills are sacrificed at the altar of archaic regulations. The following an excerpt from RBI's report (pg 110) provides an example

"We had a product that falls under three different regulators, including the telecom regulator. No one wants to be the first to go-ahead. We did not know who (sic) to approach. No way for regulator to say you must proceed, test, and check with us again after 6 months. Sandbox would have given the clarity we needed." -Micro-insurance start-up

A regulatory sandbox is a controlled environment where the regulators introduce various financial innovations and measure their performance across a slew of parameters. The sandbox can be used to relax regulations; implement new rules (including amendments) and perform various other simulations, without disturbing the status quo at large, on a miniaturised model and consequently gauge the performance of such alterations. The results, from such a facility, allows the fine tuning of policies and takes care of the regulator's concern regarding any possible fallout from the new innovation.

Mooted in RBI's report, the sandbox will allow the regulators to modify the legacy regulations to suit the present digital environment and provide a safe



space for testing of financial innovations. The sandbox can be used to test the viability of an insurance product sans the regulatory burden, allowing for increased innovation by reducing the compliance costs in the interim (RBI report). The evidence-based regulations, emanating from insights received from the regulatory sandbox exercises, will be better balanced in their objectives of protecting the stakeholders and promoting the growth of the industry.

Regulatory sandbox is a tool that will allow the industry overseers to match pace with industry innovation and come out of their perennial catch up mode. Hence, it is an enabler not just for InsurTech firms but also for the larger start-up environment.

6.5 Utility records for tracking and appraisal

According to the RBI report, nearly half of the people lacking insurance attributed it to non-affordability. A major reason for the same is their absence of financial transactions history, which allows insurers to track their credit worthiness and underwrite the policy accordingly. In absence of such a history, the premiums charged to the economically weaker sections for insurance policies, often, automatically crowds them out. To resolve this issue, utility payments records (gas, electricity, water, etc.) with the government agencies could be used, as a proxy measure to assay their credit worthiness and hence should be made available to the insurers for the same.

A central government repository, which includes data regarding the utility payments of individuals, especially those from economically weaker and rural parts of the country, would greatly enhance the appraisal process and help in increasing the affordability of insurance schemes.



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