Analysis of the Digital Direct-to-Customer channel in Insurance

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Submitted to the System Design and Management
Program in Partial Fulfillment of the Requirements for
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ABSTRACT

Over the last few years, continued environmental, operational, and technological changes have led to the development of multiple distribution channels in the insurance industry. As competition in insurance markets is intensifying, cost savings and customer retention has become critical, forcing insurers to look for ways to drive sales and customer convenience while keeping costs low and maintaining profitability. These factors are leading to the emergence of additional channels to reach directly to customers via call centers, mobile, and the web. The market is experiencing growth in this industry with startups competing to seize the opportunities.

Digital Direct-to-customer opportunities have huge potential to improve business performance. It is imperative that the strategy for incumbents and startups in this space to consider the changing landscape to make key decisions regarding their strategy towards the direct-to-customer channel for insurance.

This thesis provides a framework to navigate opportunities in this channel. The framework will guide a business professional from an established insurance company to navigate the insurance landscape of insurance, understand the existing business models and use the recommended solution approach for their business model.

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1. INTRODUCTION

Technology is quickly changing the landscape for many industries, and insurance is no exception. Technology is creating new benchmarks for customer experience, response and cost and making it easier for customers to judge and compare competitors and other industries. For the companies, new digital tools and platforms combined with powerful data analytics are enabling them to directly engage with customers, improve experience and gain valuable data along the way. Digital platforms and tools are empowering companies to open new channels and broaden their customer reach – driving increased revenue streams, profits, and financial performance.

1.1 SHIFTING PARADIGM IN THE INSURANCE WORLD

Technology in the direct-to-customer channel is interesting to study now as the insurance carriers are evolving and new players – InsurTech companies are getting into the fray. But the business strategy and models that each of these players is different based on the channels and relationships that currently exist in the insurance ecosystem.

InsurTech is the application of technology to address the long list of problems that currently faces the Insurance industry. InsurTech companies, are "companies creating new underwriting, claims, distribution and brokerage platforms, enhanced customer experience offerings, and software as a service to help insurers deal with legacy IT issues." Per Investopedia, it refers to the use of technology innovations designed to squeeze out savings and efficiency from the current insurance industry model. Pulse of Fintech[1] report notes that 2015 is the year that "InsurTech came into its own," characterizing the jump to $2.5 billion as a "massive leap" compared to the previous four years. The report also notes that InsurTech investment in 2016 so far includes "tremendous activity by many traditional insurers that are increasingly creating their own venture capital funds."

1.2 RECENT DEVELOPMENTS IN CHANNEL DISRUPTION

Over the last decade, there has been a shift in consumer spending and behavior. As competition in insurance markets is intensifying, cost savings and customer retention has become critical, forcing insurers to look for ways to drive sales and customer convenience while keeping costs low and maintaining profitability. These factors are leading to the emergence of additional channels such as call centers, mobile, and web. Changes in customer behavior and preferences around products, distribution channels, and processes are also acting as catalysts for the development of alternative channels. With advancements, in technology, insurers have started exploring ways to develop newer distribution channels in the online space. As customers continue to integrate the use of the internet in their daily lives, this has become an attractive medium through which firms can advertise and distribute insurance products. We are already witnessing a gradual change in the buying habits of customer's as they make use of the internet in the decision making and product buying process. The changes are spurring many insurers to consider augmenting or changing their adviser or broker channels.

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[1] Quarterly global update on Fintech VC trends published jointly by KPMG International and CB Insights, Q3 2016

To go digital direct to consumer, the challenges for traditional insurance companies can often be hampered by slow and unwieldy legacy systems and traditional ways of working. The US Department of Labor Fiduciary Standard has significant impact on how insurance is sold and the fees customers pay.

Another challenge is the channel conflict. All the existing traditional insurers have their billions of dollars of premium tied up in traditional agents that for them to break ranks and launch an online direct-to-consumer business would not be an easy shift.

This thesis will help understand the various players and their current business models. A recommended business model for an established insurance company, that tackles the channel disruption will be illustrated with a case study.

1.3 THESIS MOTIVATION

The motivation for this thesis is to analyze the digital direct-to-customer distribution channel in the insurance industry. Today, technology is pushing the boundaries of how and when business is conducted. However, the insurance industry's customer journey over the last 100+ years has not changed much from its basic business model of brokers and agents being the primary channel for insurance companies to market and sell their products. Given the insurance industry's stability and profitability over time using the broker-based business model there had been little incentive in the past to alter this business model. Today, however, insurance distribution is ripe for technological disruption, and carriers that ignore this trend are doing so at their own peril. The magnitude of technological availability and shifting demographics in the U.S. has the potential to disrupt and reorganize the insurance customer journey. In the Property and Casualty (P&C) insurance segment, although direct to market has penetrated the auto and home owners' insurance (e.g. Progressive and GEICO, which use direct channels quite successfully), there is very little direct to customer channel in other insurance products like commercial insurance.

Independent agents and brokers dominate commercial insurance sales, accounting for 67 percent of net premiums written in 2013, per A.M. Best, which classifies such writers as "agency writers". The rest of commercial insurance is written by "direct writers". However, "direct writers" dominate auto and homeowners' insurance sales, accounting for about 73 and 69 percent, respectively, of net premiums written in 2013, per A.M. Best[2].

This thesis will provide a framework to navigate opportunities in the digital direct-to-customer channel. The framework will guide a business professional in an established insurance company to navigate the complex landscape of insurance and use the recommended solution approach for their business model, as applicable.

The thesis will categorize the business models that various companies use to enter and disrupt this space. To that end, this thesis will approach it holistically beginning with understanding the insurance ecosystem and putting the digital direct to customer channel under the lens using system thinking frameworks. It will analyze what the blockers are to get into this channel and what the possible paths forward are for the insurance companies that play in this space. A framework that's based on Prof. Stuart Madnick class on disruption in

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[2] Insurance information Institute, "Buying Insurance: Evolving Distribution Channels", August 2016

the insurance industry due to technological advancements in the course "Digital Evolution: Managing Web 3.0" to categorize business models used by these companies is employed in the analysis.

What are the business models that are in the direct-to-customer insurance market? What strategies should Insurance firms adopt to capture value from direct-to-customer products? What are the questions to consider for established insurance firms that heavily rely on agency distribution models to enter the market via this new delivery channel?

This thesis answers the above questions to guide the business professional by explaining the relevant technology and industry trends, with examples and strategy consideration for businesses in the digital direct-to-customer space by using system thinking concepts such as System Dynamics, Holistic framework, and Technology Strategy framework. These are accomplished through literature review and interviews. Insurance industry specific product disruption and technology trends and strategies are identified through stakeholder interviews conducted with an entrepreneur, 3 Vice President level professionals of leading Insurance firms and 6 Director level IT professionals. Based on literature review and thesis writer's industry experience, the thesis proposes strategies within this framework to align with their business vision.

1.4 THESIS STATEMENT & OBJECTIVE

At a time when technology -driven innovations are giving consumers more insights into and control over their purchases, insurers cannot afford to be left behind. Consumers are demanding more choices, competitive prices, better service and different ways of doing business. To meet these demands, insurers should carefully chart their future strategy and aggressively build a business model with sales and delivery that allows them to compete and grow in a mature market.

The objective of this thesis is to understand the business models that leverage technologies that insurers need to build so they can compete in a market that has shifted its priorities toward the digital direct-to-customer channel. It aims to develop a framework to navigate opportunities in this channel. The framework will guide a business professional to navigate the complex landscape of insurance and arrive at a solution approach for their business model.

This thesis will discuss the technology trends, insurance product disruption and changes in the structure of distribution channels that are pertinent to the evolution of the digital presence of direct to customer channel in the insurance industry. The market analysis and business strategies for direct to customer products of insurance firms will be discussed. The chapter describing the technology trajectory of the enabling technologies while viewing insurance firms as a system within a larger, more complex ecosystem, understanding the various stakeholders, their needs and interactions satisfies the engineering requirements. The Market Analysis and the business Strategy part of the thesis satisfies the management requirements of the thesis.

This thesis will use tools and frameworks learned from integrating System Engineering, Marketing management and Digital Evolution to analyze technology and business strategies. Literature review and industry reports, material from MIT's library resources will be used to

gather and analyze the relevant information. The Professional Liability and small business product lines will be used to illustrate that there are insurance products that are amenable for a straight through sale of liability policies that can be underwritten and sold without the use of intermediary brokers or agents or managing general agents if other barriers to direct-to-customer channel are addressed.

The thesis is organized as follows:

Chapter 2 introduces the insurance landscape, the industry ecosystem that includes the laws and regulations, the advances in technology and the distribution channels leading up to an understanding of how the direct to customer distribution channel can create, capture and deliver value.

Chapter 3 applies system thinking by using System Dynamics and a Holistic framework to analyze the direct-to-customer distribution ecosystem and a Technology strategy framework to analyze the technology-based business strategies. Advances in technology, insurance product disruption, product analysis and business structure are discussed in this framework.

Chapter 4 introduces the business models in a framework to segment the business landscape in the direct to customer channel. The framework uses examples of companies across the quadrants highlighting their business objectives.

Chapter 5 describes the key elements of an e-business model in a digital direct to customer business model. The information flow, and the revenue model are discussed in detail.

Chapter 6 hones in on a recommendation for a business model that can be used by a business professional in an established insurance company, with a sample analysis.

Chapter 7 concludes with considerations in evaluating the opportunities and challenges in charting out the digital strategy to compete in digital direct to customer markets, based on the above classification and technology strategy models discussed in previous chapters.

2. THE INSURANCE LANDSCAPE

2.1 HOW INSURANCE WORKS

Insurance is a form of risk management in which the insured individual transfers the cost of potential loss to another entity in exchange for monetary compensation known as the premium. The central concept to the business of insurance is sharing or pooling of risk. This means a large group of people who want to insure against a loss pay premiums into an insurance bucket, or pool. Risks (chances of loss) are divided among the members of a group, so that a crushing loss for one can be made bearable for all. Because the number of insured individuals is so large, insurance companies can use statistical analysis to project what their actual losses will be within the given class. They know that not all insured individuals will suffer losses at the same time. This allows the insurance companies to operate profitably and at the same time pay for claims that may arise.

The primary activities of an insurance firm, as shown in figure 1, are:

- Product/Service development which includes underwriting; creating new insurance products; managing product offering; delivery channel; pricing and product research, risk prevention and mitigation.
- Marketing and Sales which includes promotion of the insurance products; cross selling; upselling; target markets for new and existing customers.
- Policy administration includes transaction processing and payments.
- Claims management which includes claims submissions, claims settlement, payments and fraud.
- Asset management which includes Portfolio Management, Risk Analysis and Asset-Liability Management.

Product/Service development	Marketing and Sales	Policy administration	Claims Mangement	Asset Management
•Underwriting •New products •managing product offerings •pricing •research •risk prevention and mitigation	•Promotion •Cross Selling •Upselling •Target Markets	•Transaction processing •Payments	•Claims Submission •Claims Settlement •Payments •Fraud	•Portfolio Management •Risk Analysis •Asset-Liability Management

Figure 1: The Primary Activities of an Insurance company

By increasing the value at each stage by using technology the benefits can be directly passed on to the customer.

2.2 CLASSIFICATION OF THE INSURANCE INDUSTRY

The major classification of the insurance industry is by Life (Life and Health), and Non-Life (Property and Casualty). Life and Health (L&H) insurers accounting for 55 percent and

premiums by Property and Casualty (P&C) insurers accounting for 45 percent, per S&P Global Market Intelligence.[3]

As shown in figure 2, The Life and Health (L&H) insurance sector consists primarily of annuities and life insurance. Life insurance was initially designed to protect the income of families, particularly young families, in the event of the head of household's death. Health insurance is a type of insurance that pays for medical expenses in exchange for premiums and is generally considered separate. This sector includes private health insurance companies as well as government programs.

Property and Casualty (P&C) insurance consists primarily of property, casualty to cover liabilities like personal lines, and commercial insurance. Property insurance is insurance that protects against property losses to businesses, home or car and/or against legal liability that may result from injury or damage to the property of others. Casualty insurance is a broad category of coverage against loss of property, damage or other liabilities. Casualty insurance includes vehicle insurance, home insurance, liability insurance, theft insurance, elevator insurance. It also includes specialty insurance which covers the more difficult and unusual risks are written like terrorism insurance, employment practices liability, excess liability insurance (which provides protection from infrequent catastrophic accidents or occurrences), cyber insurance, M&A insurance, business interruption insurance.

Insurance carriers could be one of these three:
L&H: Organizations primarily providing life, disability, indemnity, or supplemental health insurance. This excludes managed care companies in the managed health care subindustry.
P&C: Organizations primarily providing property and casualty insurance.
Multi-line: Organizations with diversified interests in L&H and P&C insurance.

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[3] Insurance Information Institute, Insurance Handbook, Insurance Industry at a Glance, 2016

2.3 INSURANCE INDUSTRY AT A GLANCE
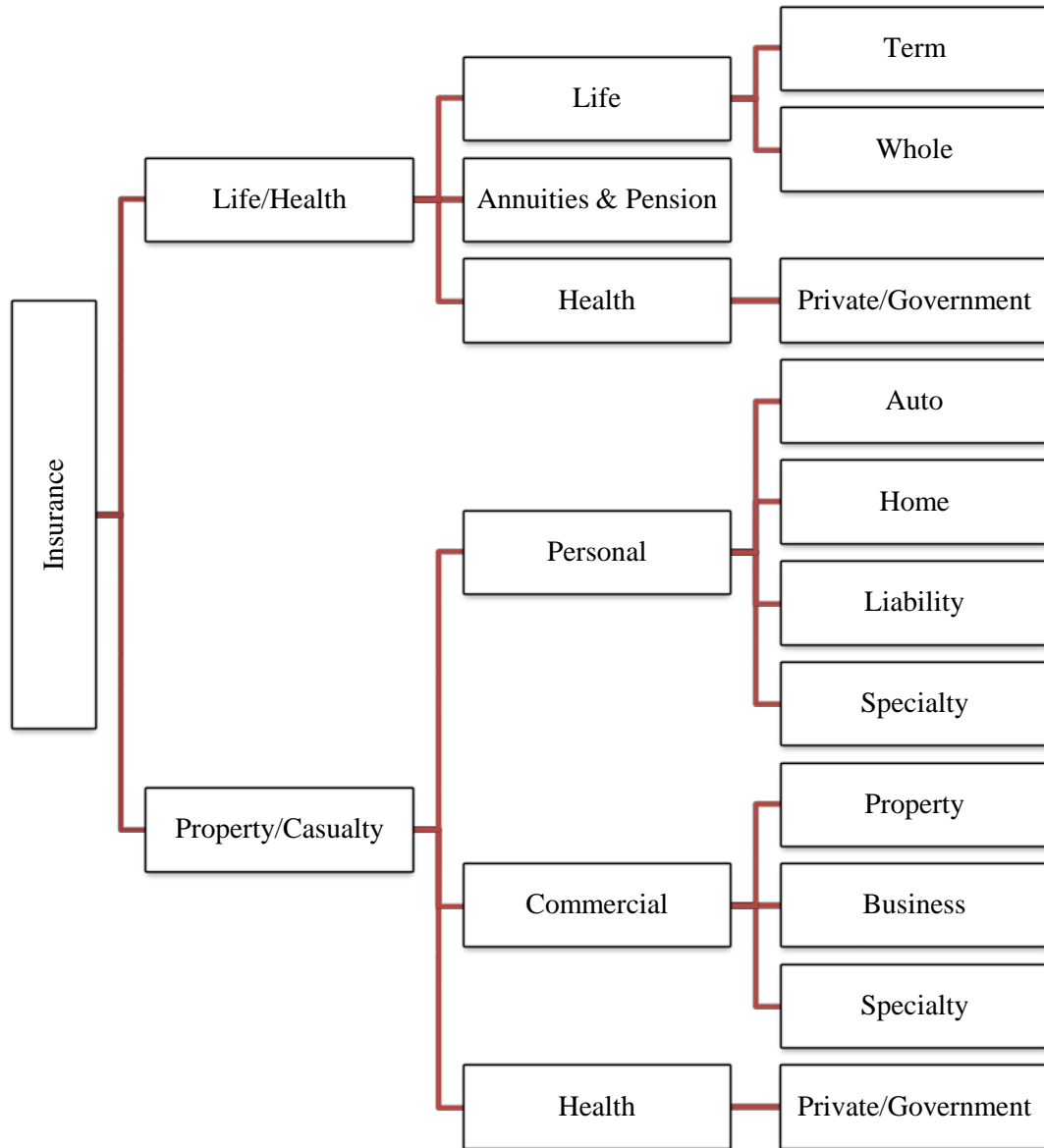
Figure 2: Classification of Insurance coverages

- The U.S. insurance industry's net premiums written totaled $1.2 trillion in 2015, with premiums recorded by Life and Health (L&H) insurers accounting for 55 percent and premiums by Property and Casualty (P&C) insurers accounting for 45 percent, per S&P Global Market Intelligence[3]. as shown in figure 3.
- P/C insurance consists primarily of auto, home, and commercial insurance. Net premiums written for the sector totaled $519.8 billion in 2015[3].
- The L/H insurance sector consists primarily of annuities and life insurance. Net premiums written for the sector totaled $635.6 billion in 2015[3].
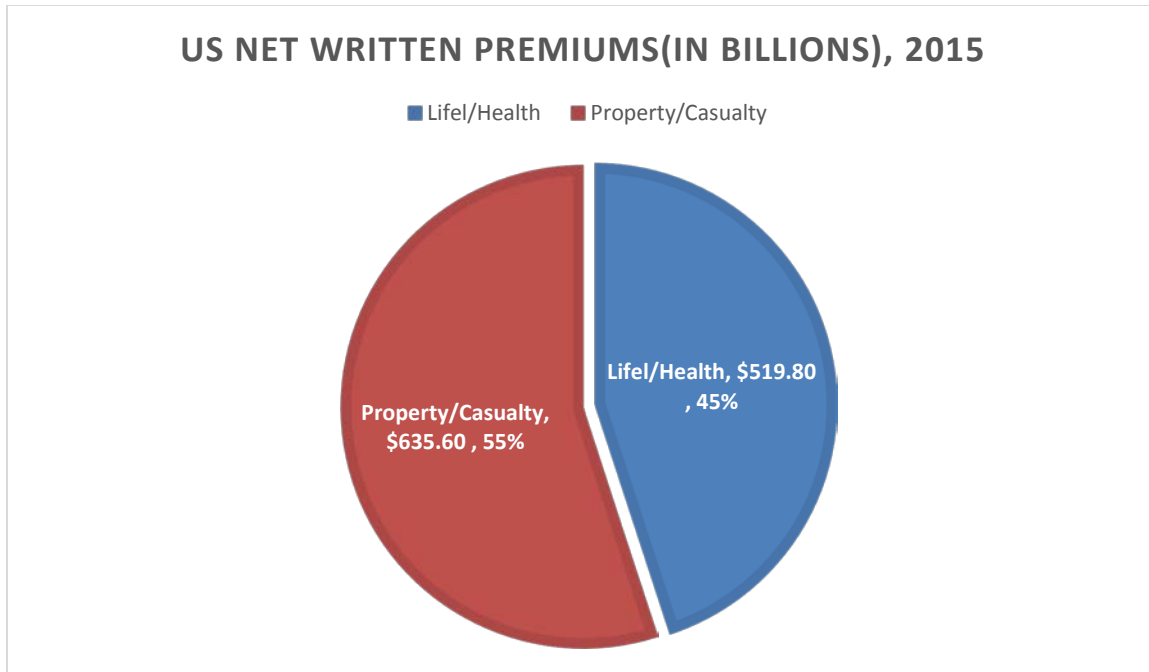
Figure 3: US Net written premium by Life & Health and Property & Casualty Classification

- There were 5,926 insurance companies in 2015 in the United States (including territories), including P&C (2,544), life/annuities (872), health (859), fraternal (85), title (56), risk retention groups (239) and other companies (1,261), per the National Association of Insurance Commissioners[3].
- The top 10 (by US Net written premium) Life & Health and Property & Casualty carriers in the US are shown in table 1 and 2 along with their direct written premium and market share illustrating how the top 10 carriers own a large portion of the market share.
- Insurance carriers and related activities contributed $450.3 billion, or 2.6 percent, of U.S. gross domestic product in 2014, per the U.S. Bureau of Economic Analysis.
- The U.S. insurance industry employed 2.5 million people in 2015, per the U.S. Department of Labor. Of those, 1.5 million worked for insurance companies, including life and health insurers (851,100 workers), P&C insurers (599,700 workers) and reinsurers (25,100 workers). The remaining 1.1 million people worked for insurance agencies, brokers and other insurance-related enterprises[3].
- Total P&C cash and invested assets were $1.5 trillion in 2015, per S&P Global Market Intelligence. L&H cash and invested assets totaled $3.7 trillion in 2015. The total of cash and invested assets for both sectors was $5.2 trillion. Most these assets were in bonds (62 percent of P&C assets and 74 percent of L&H assets) [3].
- P&C and L&H insurance companies paid $19.2 billion in premium taxes in 2015, or $60 for every person living in the United States, per the U.S. Department of Commerce[3].

Table 1:Top 10 Writers of Life & Health Insurance/Annuities, 2015($000)[4]

Rank	Group/company	Direct premiums written (1)	Market share %(2)
1	MetLife Inc.	$102,487,074	16.4
2	Prudential Financial Inc.	43,134,670	6.9
3	New York Life Insurance Group	29,647,519	4.8
4	Jackson National Life Group	27,457,195	4.4
5	AEGON	24,983,201	4.0
6	American International Group (AIG)	24,976,781	4.0
7	Principal Financial Group Inc.	23,416,059	3.8
8	Massachusetts Mutual Life Insurance Co.	23,117,904	3.7
9	Lincoln National Corp.	22,676,916	3.6
10	AXA	19,478,236	3.1

(1) Includes life insurance, annuity considerations, deposit-type contract funds and other considerations; excludes accident and health insurance. Before reinsurance transactions.
(2) Based on U.S. total, includes territories.

Table 2: Top 10 Writers of Property & Casualty Insurance, 2015 ($000)[4]

Rank	Group/company	Direct premiums written (1)	Market share (2)
1	State Farm Mutual Automobile Insurance	$59,361,685	10.0
2	Allstate Corp.	30,180,756	5.1
3	Berkshire Hathaway Inc.*	29,967,354	5.1
4	Liberty Mutual	29,848,412	5.1
5	Travelers Companies Inc.	23,200,304	3.9

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[4] Swiss Tropical and Public Health Institute (TPH), Don De Savigny, "Social Health Insurance: from a Systems Thinking Perspective"

6	Progressive Corp.	21,346,246	3.6
7	Chubb Ltd. (3)	20,671,147	3.5
8	Nationwide Mutual Group	19,577,849	3.3
9	American International Group (AIG)	19,066,161	3.2
10	Farmers Insurance Group of Companies (4)	19,050,733	3.2

(1) *A diversified company with major interest in GEICO, life insurance, annuity sales and sales of jewelry.
(2) Before reinsurance transactions, includes state funds.
(3) Based on U.S. total, includes territories.
(4) Chubb Ltd. data reflect the 2015 merger with Ace Ltd.
(5) Data for Farmers Insurance Group of Companies and Zurich Financial Group (which owns Farmers' management company) are reported separately by S&P Global Market Intelligence[2].

2.4 INSURANCE ECOSYSTEM

To understand the impact of other players and stakeholders, regulatory environment, and culture, here is an overview of the industry's ecosystem.

2.4.1 Laws and Regulation

Individual States regulate the insurance business. Insurance agents and brokers must be licensed to do business in the state in which they conduct business. The number of industry supervisory bodies and their scope has increased. Solvency II, International Financial Reporting Standards, the Markets in Financial Directive and the Dodd-Frank Act are among the regulations that have been updated and will be implemented in 2016[4].

The insurance industry traditionally has been highly regulated, but after the 2008 recession, the complexity of insurance regulations increased tremendously. The number of industry supervisory bodies and their scope has increased. This increased companies' compliance costs and makes it difficult to adhere to regulations. Solvency II, International Financial Reporting Standards, the Markets in Financial Directive ad the Dodd-Frank Act are among the regulations that have been updated and will be implemented in 2016, applicable to US and European subsidiaries of US companies.

Implications for the US insurance industry

- Capital Adequacy: Insurance carriers that cannot adhere to the increase in capital requirements might have to sell their business or systemic risk units.
- IT infrastructure Investments: An increase in information reporting or data disclosure requirements might force insurers to invest in huge IT infrastructure which might not be possible for many small to mid-sized insurers and result in industry consolidation.

- Reserve Cycles: Studies suggest that reserve cycles last for over 30 years. This coupled with increased capital requirements is expected to pressure insurers that do not have adequate reserves to sell their business units.
- Cost Burden: Slow GDP growth and low interest rates have put tremendous pressure on industry revenue. It is important to adapt to new distribution channels and invest in Big Data analytics and better risk management software, but this increases capital expenditure. Stricter regulations and capital management requirements have also increased operational cost burdens. The industry must control costs to ensure sustained profitability.

- Low Interest rates: Continued low interest rates have reduced investment yields over the last 5 years. However, it is expected that interest rates will rise based on Federal reserve's inflation target of 2%. If Interest rates normalize by 2017, insurance companies must readjust their portfolios to ensure asset liability matching and greater investment yields after 2017.

2.4.2 Channel Distribution

Many insurance companies use several different channels to distribute their products. Insurance is bought directly through an insurance company (through its captive agents, the web or other direct channels) or through independent agents and commercial brokers who provide access to the products of several insurers. A.M. Best organizes insurance into two main distribution channels: agency writers and direct writers as shown in figure 4.
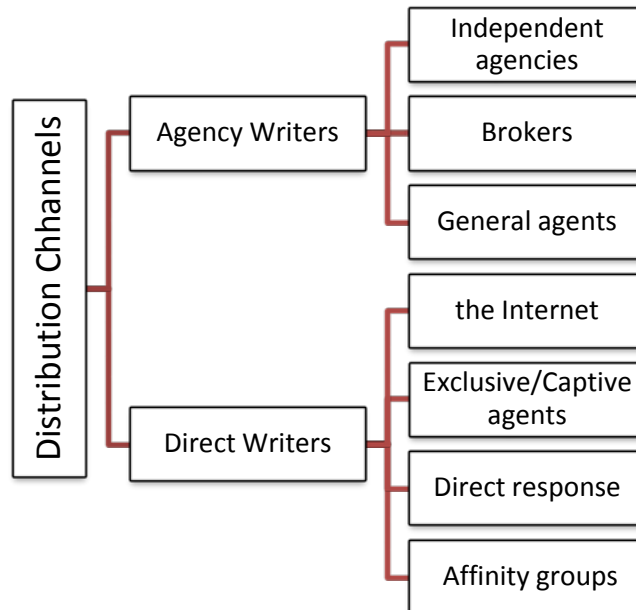
Figure 4:Channel distribution

Agency Writers: The "Agency writers" category includes insurance companies that distribute through independent agencies, brokers, general agents and managing general agents. Independent agent, work for several companies. Captive/Exclusive agents are

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insurance agents who only works for one insurance company. While agents usually represent insurers, brokers represent clients who were buying insurance.

Brokers may be retail or wholesale. Wholesalers act as intermediaries between retail brokers or agents and insurance company underwriters. To work with surplus lines companies, wholesale brokers must be licensed as surplus lines brokers in the state where the policyholder or the risk to be insured is located. Wholesale brokers may also work with other wholesale brokers to secure coverage.

Wholesale brokers may also be managing general agents(MGAs), who are given authority by insurers to underwrite and "bind" insurance provide temporary coverage until an insurance policy can be issued.

Managing general agents(MGAs), who have a close relationship with the insurance companies they work with, may also handle claims, and even help in the placement of reinsurance contracts. Managing general agents may also arrange so-called "program" business, which is specialty insurance for homogeneous groups of policyholders, such as members of a specific industry. These programs, often offered and endorsed by trade associations, may provide coverage at lower prices.

Direct Writers: The agency distribution channels (captive agents, independent agents, and brokers) have always existed in the insurance industry. But with the development of information technology, which provided faster access to company representatives and made the exchange of information for
 underwriting purposes much easier, alternative distribution channels sprang up, including direct sales by telephone, mail and the Internet. The "direct writers" category includes insurers that distribute through the internet, exclusive/captive agents, direct response from customers and affinity groups. An affinity group is any organization or group formed around a common interest or for a specified purpose. This includes businesses, clubs, fraternities and sororities, or other groups that exist for a common purpose such as AARP, AAA, and others. Affinity groups are used for distribution by providing discounts.

The term "direct writer" also applies to any company using captive or exclusive agents, as well as companies selling directly to consumers through the mail, Internet or through telephone solicitations. GEICO, one of the largest auto insurance companies that today markets directly to consumers, started in 1936 as the Government Employees Insurance Company, selling to government employees and some military personnel.

One major difference between captive and independent agents is that the independent agent rather than the insurer legally owns access to policy renewals. Captive insurance agents may be employees of the company or independent contractors.

In addition, insurance companies are using other types of outlets, such as banks, workplaces, associations, financial planners, workplaces, associations, car dealers, real estate brokers, pet shops, and travel agents to access potential policyholders. Figure 5 and 6 is the channel distribution break up for Life & Health and Property & Casualty sectors.

LIFE INSURANCE CHANNEL DISTRIBUTION 2013
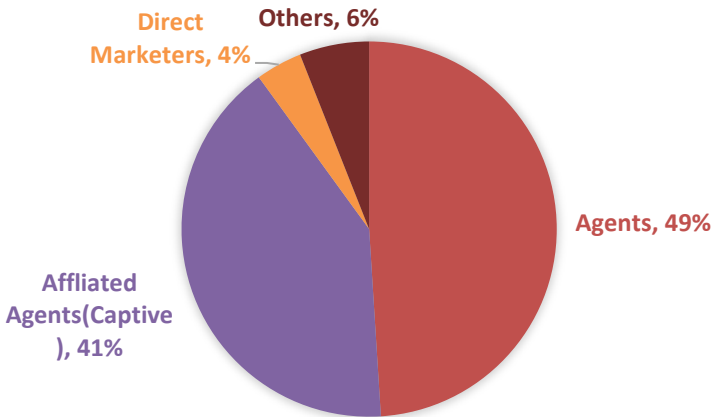
Figure 5: Distribution Channel by Insurance Classification -Life & Health

PROPERTY & CASUALTY CHANNEL DISTRIBUTION 2013
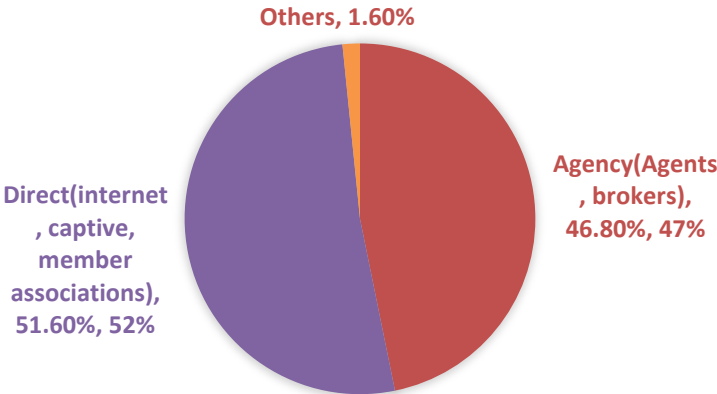

Figure 6:Distribution Channel by Insurance Classification -Property & Casualty

Life: LIMRA's *U.S. Individual Life Insurance Sales Survey* and LIMRA estimates. P&C: A.M. Best

Online Insurance purchase trends

Majority of shoppers are doing so online and securing multiple quotes. The number of consumers who shopped for auto insurance in 2015 held steady at 46 percent, consistent with

2014. Of those consumers who shopped in 2014, 71 percent of them did so online, up from 67 percent in 2013, per a 2014 comScore report[5].

The following table 3 shows the trend of US online auto insurance shoppers in 2015

Table 3:Online Auto Insurance purchase trend

Have you shopped for insurance in the past year? comScore Custom Survey, U.S., Age 18+, 2015							
	2009	2010	2011	2012	2013	2014	2015
Yes	52%	52%	51%	52%	48%	46%	46%
No	48%	48%	49%	48%	52%	54%	56%

In general, most consumers showed that they secured multiple quotes while making potential purchase decisions. Across all shopping channels, 62 percent of consumers who shopped in the past year got two or three quotes when doing so most recently. Furthermore, consumers who shopped via online channels were even more likely to get two or more quotes[5].

2.4.3 Advances in Technology

Starting with the telegraph, and then the telephone, advances in communications technology have facilitated the transmission and exchange of information for underwriting and settling claims, enabling insurance agents and other intermediaries to perform their tasks with greater speed and reliability.

With the introduction of the Internet in the 1990s, insurers began offering policies online. As consumers began to be increasingly comfortable purchasing products of all kinds over the Internet, online aggregators began to appear. Aggregators collect information on prices, generally, for auto insurance and term life insurance, which are the most standardized, so that consumers can compare the cost of coverage from one company to another. Many agency companies as well as direct writers have begun to offer Internet platforms, making it possible for consumers to purchase an insurance policy directly online without the aid of an intermediary.

The following technology advances have an impact on the insurance industry. The use of the digital channel for insurance purchases, and policy management rely heavily on technology.

Telematics: Telematics combines computers and wireless technology to stream information across multiple platforms, which can then be used for analysis. For example, new insurance models can use in-car telematics to capture information such as how long the car went over 80 miles per hour or how quickly the driver hit the brakes to provide dynamic changes to insurance costs based on driving behavior.

User-Based and User-Focused technologies: The customer demographic has forced insurance companies to alter their transparency and website navigations as they do business with their customers directly. The ease of browsing, searching, and getting good deals has made online shopping the dominant mode of shopping. Omni-channel commerce, which integrates online, mobile, and in-store retail purchases, is getting more prominent. Payment

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[5] Susan Engleson, Online Auto Insurance Shopping Report, November 2015

with a mobile device by using digital wallets, apps, or devices is gaining adoption, and so is the tablet as a Point-of-Sale system.

Self- driving cars: Self-driving cars will soon be available on the market, and the insurance industry must adapt to this driverless future. Sophisticated Software processes all the data in real-time as well as modeling behavioral dynamics of other drivers, pedestrians, and objects around the car. The learning algorithm processes the data of not just the driverless car, but that of others to find an appropriate response to each possible problem. Behavioral dynamics help recognize situations before they happen, much like a human driver[6]. Self-driving cars are expected to reduce accidents by 90 percent. Auto insurance premium pricing, and claims processing will be significantly different.

Big Data: There is data everywhere on policyholders. When paired with telematics and mobile technologies, this data can help sharpen actuarial models by analyzing people's actions. The amount of structured and unstructured, internal, and external data coursing into every organization is voluminous and increasing exponentially. Data today comes from disparate sources that include customer interactions across channels such as call centers, telematics devices, social media, agent conversations, smart phones, emails, faxes, police reports, day-to-day business activities, and others.

Robotics/Process Automation: Robotics, initially leveraged for advice, will lead to additional opportunities in core insurance operation. Chat-bot technology is rapidly catching the insurance industry up. Chat-bot is a computer software program that can communicate with humans using artificial intelligence. This technology can be used for customer service of digital insurance products. Most calls to insurance companies are to either make very basic changes to a policy or to ask a question which for the most part would be easy to answer if there is access to contextual data surrounding the caller. Examples of this are policy endorsements like adding or removing a vehicle, requesting a basic certificate of insurance, or asking a question related to current coverage. Questions like these could very quickly be answered by appropriately empowered Chat-bots that live right inside a messenger client such as the one powered by Facebook. An example is Allie is Allianz's online assistant available 24/7.

Cloud: Some of the key drivers of cloud computing in insurance include the ability to reduce total costs of IT ownership and operation, unify customer data, enabling customer-centricity, drive new business and engage customers more effectively through new distribution models, handle peaks in demand more easily and at lower cost, reduce speed to market and drive new business opportunities, force a move to a service-oriented model and new innovation in systems design, better manage intermediary relationships, maximize renewals by customers, support integration of third party systems/agency management systems.

Digital Trust: The new data trust and data ethics landscape poses as much opportunity for insurers as it does risk. Aon Benfield estimates that the global market for cybersecurity insurance policies is around $1.5 billion in gross written premiums, a figure that is set to grow along with the digital economy and as data privacy and protection laws become stricter.

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[6] Future Tech, Bryan Clark , "How Self-Driving Cars Work: The Nuts and Bolts Behind Google's Autonomous Car Program"

Collaborating with technology companies or start-ups, insurers could wrap cyber-insurance products into wider data protection products and services for commercial customers and ecosystem partners. In so doing, they would support the next waves of digital innovation while creating new revenue streams[3].

Drones: Drones have the potential to significantly change the way insurance claims property adjusting is performed. When appraising property claims, claim adjusters typically encounter hazardous situations. They often climb scaffoldings and ladders to assess rooflines, ice dams and chimneys. Easy portability, navigation, and the ability to take high-resolution videos and photos make drones the ideal solution for supplementing claims adjudication.

Machine Learning / Artificial Intelligence: For the insurance sector, machine learning can be used for improving compliance, improving cost structures, and improving competitiveness.
Machine learning algorithms, techniques and technologies can be used to review, analyze, and assess information in pictures, videos, and voice conversations. One immediate benefit, for example, is the ability to better monitor and understand interactions between customers and sales agents to improve controls over selling of products.

With a significant portion of an insurer's cost structure devoted to human resources, any shift towards automation should deliver significant cost savings. Using machine learning insurers could cut their claims processing time down from several months to just a matter of minutes. While reduced cost structures and improved efficiency can lead to competitive advantage, there are many other ways that machine learning can give insurers the competitive edge, including product, service and process innovation.

Social Media: Insurance industry have been applying social media primarily to marketing, public relations, and servicing. For example, Farmers Insurance sells virtual insurance for farmers against crop withering in the popular Farmville Facebook game. They have also been used to Design and execute marketing campaigns. Brand icons and passion pages, such as Progressive's Flo, Allstate's Mayhem and New York Life's Keep Good Going, demonstrate highly efficient use of social media to keep target audiences engaged. Social Media has also been used to generate leads. As consumers freely share their life events on social media forums, it is possible to use listening tools and analytics techniques to identify emerging needs for both prospects and existing customers, and present relevant offers. Companies also protect their brands through sentiment analysis. Insurance companies can actively listen to and analyze consumer comments on social media networks, enabling them to timely address potentially damaging comments from unhappy, disgruntled customers.

Mobility: Mobile technology offers insurers opportunities to expand their market share by meeting evolving customer needs while reducing operational costs through process efficiencies. It adds significant value across the insurance value chain through seamless information transfers and real-time customer communication channels. From self-service apps that allow customers to initiate a claim from the accident site, to smart phones and tablets that connect on-the-go claim adjusters with back-office systems, mobile solutions are beginning to play a key role in improving all aspects of the insurance industry.

Virtual Reality (VR): Healthcare insurance carriers are increasingly including tele-health services in their policies. As technologies have advanced, healthcare professionals and patients are using digital consultations for non-emergency care as a more efficient and

convenient approach. With fully immersive, three-dimensional VR technology available, the level of care is only going to improve. VR brings some significant cost savings to insurance companies. Underwriters no longer have to physically travel to different locations before offering coverage. It also allows them to perform inspections remotely.

The above gives an overview of how the insurance industry works and its including laws and regulations, distribution channels and advances in technology.

3. TRANSFORMING INSURANCE: DIMENSIONS OF EVOLUTION

In this chapter system thinking, will be applied by using a system dynamics models and a holistic framework to analyze the direct-to-customer distribution ecosystem. Technology strategy framework will be used to explore technology-based business strategies from the three perspectives of Market, Technology, and Business Strategy.

As defined by the Random House Dictionary, an ecosystem is a system formed by the interaction of a community of organisms with their environment. The term of business ecosystem originated from James Moore's article in the Harvard Business Review in 1993[7]. A business ecosystem is an economic community producing goods and services of value to consumers. The members in such an ecosystem include consumers/customers, suppliers, producers, competitors, and other stakeholders, such as regulators and governments. Over time, the members may play different roles in the ecosystem to co-evolve around innovation, working cooperatively and competitively to support new products, satisfy customer needs, and eventually incorporate the next round of innovation[8]. In this chapter, given an understanding of the insurance ecosystem described in chapter 2, System thinking will be applied to insurance in the context of a digital direct-to-customer channel.

3.1 HOLISTIC FRAMEWORK

Analyzing the direct-to-customer Insurance channel

Professor Ed. Crawley's holistic framework for analyzing products and systems is applied here to gain a systematic view of insurance industry's direct to customer channel in order to gain a deep understanding of it[9]. The holistic framework addresses questions of why, what, how, who, where, when, and how much.

Putting a distribution channel, specifically the direct-to-customer channel under the lens of the holistic framework, one can understand various aspects of the channel. The following table 4 summarizes the holistic analysis of direct-to-market distribution channel.

Table 4:Holistic Analysis of Direct-to-market distribution channel

Question	Explanation
Why (Needs)	Needs, Goals, and Benefits
What (Insurance Products)	Product (Product type, structure, etc.)
How (Technology)	Function - post-aggregation Process
Where (System Architecture)	Form and structure –architecture of the distribution channel (system components etc.)

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[7] Predators and Prey: A New Ecology of Competition, James F. Moore, MAY–JUNE 1993 Harvard Business Review

[8] P. Senge, The Fifth Discipline: The Art & Practice of The Learning Organization, Currency Doubleday Press, 1990.

[9] Introduction to System Architecture. Ed Crawley, 2007

When (Operational Sequence)	Operational Sequence
Who (Beneficiaries)	Potential customer, Industry partners, Aggregators, Market Researchers etc.
How Much (Business Model)	Business models (revenue source and cost structure

Why – The "Why" question asks about what needs a direct to customer channel satisfies and what values or benefits the channels provides to its users. An insurance provider should be clear about who are the beneficiaries of its service (this is addressed by the "Who" question) and what are the needs of their beneficiaries.

Different stakeholders have different needs. Potential customers, need to find information and the insurance product they want with high relevance and in less time to replace the information they get from intermediary broker channels. For insurance providers, as the product owner, would need to attract more traffic to their sites so to increase their revenue and brand recognition. Marketers have the needs of understanding the market trend and customer segments.

What – the "What" question is about the product that the insurance companies sell via the direct channel. What are the kinds of products that lend themselves to the direct online channel? What are the considerations that insurance companies need to know to for an end-to-end online customer experience across the insurance value chain?

Where – the "Where" question mainly refers to the place in which the insurance products are offered and the technical architecture of such a system. Where geographically can they be sold, or restricted to sell their products.

When – the "When" question asks about the operational sequence of setting up a direct to customer online distribution channel. The operational sequence also includes how and when the insurance companies add new products. The ecosystem shows and environment that is currently undergoing changes in regulation and technology. With changes in life expectancy and demographics the demand opportunities are big and there a huge potential to improve value-creation process, for all the major players in the eco-system.

How – the "How" refers to how companies enter this channel. Since there are several players with different affiliations to existing channels and technological capabilities.

Who – insurance companies need to be very clear about who are interested in their products and therefore benefit from the online channel. There are also in-direct beneficiaries. Aggregator, affiliates, partners of insurance companies can in-directly benefit from it.

How much – this question targets an insurance company's business model. What are the sources of revenue via the online direct to customer channel? What is the cost structure? Is this channel profitable? Aside from the premiums garnered, some companies follow the revenue sharing business model, in which they build formal relationships with digital natives, affiliates, partners so that they can share revenues generated by re-directed sales traffic.

3.2 SYSTEM THINKING APPROACH

System thinking requires shifting attention from the parts to the whole[10]
- From objects to relationships
- from structures to processes
- from hierarchies to networks
- from analysis to synthesis
- from linear to non-linear thinking

In this analysis, I will be using System thinking approach as against a static thinking approach as shown in table 5[11].

Table 5: System thinking approach

Usual Approach	Systems Thinking Approach
Static Thinking	Dynamic Thinking
Focus on event	Focus on patterns
System as effect	System as cause
Behavior as externally driven	Responsibility for behavior from internal actors and rules
Tree by tree thinking	Forest Thinking
Knowledge from understanding details	Knowledge from understanding contexts of relationships
Factors thinking	Operational thinking
Concentration on factors that influence or correlate	Concentrating on causality and how behavior is generated
Linear thinking	Loop thinking
View causality running in one direction	View causality as an ongoing process with feedback influencing causes

Understanding how different actors and actions are connected and impact on each other is essential. We will be looking at the insurance ecosystem as a framework of connected systems. This insurance industry shows the following Characteristics of Complex systems[12]
- Self-organizing

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[10] Center for Ecoliteracy, Capra, Fritjof, "From Parts to Whole, Systems Thinking in Ecology and Education," 1994

[11] Department of Epidemiology and Public Health, Health Systems Unit, Don de Savigny "Social Health Insurance: from a Systems Thinking Perspective"

[12] WHO, Don de Savigny and Taghreed Adam (Eds). "Systems thinking for health systems strengthening. Alliance for Health Policy and Systems Research," 2009

- Constantly changing
- tightly linked
- governed by feedback
- non-linear
- history dependent
- counter-intuitive
- resistant to change

This is very true to the distribution channels in the insurance industry.

3.2.1 System dynamics of digital direct-to-customer

The following analysis presents a method of identifying both the risks and opportunities of investing in an e-business model as a direct-to-customer channel. This current environment requires companies to react quickly to the opportunities presented or face loss of market share to competitors.

A common challenge in using any form of model-based or -supported thinking is in the surfacing and communication of different actors' mental models. In any thinking about the building of an electronically based business, there are at least three simultaneous views of what it is expected to achieve and how this can have made to happen:

- entrepreneurs have their ideas for successful businesses;
- technologists envisage ways to implement new complex technological or information systems to achieve business value; and
- operational managers have their ideas as to how business processes could be enhanced and extended to benefit from new opportunities[13].

Each of these views could form the basis for a model of the e-Business, extending down from the entrepreneur's vision of how to create value in the business environment, or upwards from the views of operational managers and technologist as to what new opportunities could be exploited from new and alternate applications the company's assets and processes and/or emerging technical capabilities. The below model attempts to provide a casual loop that unifies these views so that entrepreneurial, technologists and operational managers' mental models can be surfaced and articulated, and the models shared with other actors in a way that they can see within them the business processes and technological infrastructures

System thinking techniques will be used in the form of causal loop diagrams.
It highlights the dynamic complexity of the business strategy of end to end digital insurance by identifying the multiple feedback loops that exist and shows how the tools of system thinking and system dynamics can be used to better evaluate the merits of the strategy.

3.2.2 Causal Loop Diagram

A causal loop diagram is a visualization of how the variables in a system are interdependent. It consists of a set of variables and arrowheads. Arrowheads denote the causal direction as well as whether it's a positive relationship (an arrowhead marked positive indicates that the two connected variables change in the same direction) or a negative one (an arrowhead

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[13] Philip Joyce and Graham Winch, Developing and Codifying Business Models and Process Models in E-Business Design

marked negative indicates that the two linked variables change in opposite directions). A closed circle in a causal loop diagram should be either labeled as a reinforcing loop or a balancing loop. A reinforcing loop is where an action produces a result that strengthens the same action. A balancing loop is where an action produces a result that weakens the need for the same action[14].

The following is the underlying structure that causes an increase in customer on-line purchases over time, as a causal loop diagram. This shows that the distribution of insurance products over the internet would grow with other on-line purchases and also direct to customers would be at a higher margin which would increase the profit and value of the company.

In addition to the benefit of the investment, companies need to be concerned about the risks of not investing in this channel. For them there is a risk of either a competitor or a new entrant who could leverage the technological advances to create a competitive advantage for them.

Figure 7 shows the reinforcing loop 1 to justify the digital direct-to-customer strategy. This shows the expectation that an investment in digital direct would bring added profit to the company. The more sales, the more profit would be created from the strategy which could then be reinvested to fund further investment in the channel. The investment would improve the quality of the digital service which would further increase sales to consumers. The opposite hypothesis of increased online sales causing more price competition which drives down the profits must have considered in the business strategy before an insurance company chooses to be listed in an aggregator portal. In this case, the carrier must be cognizant of their competitor's product offering in order not to be adversely selected so as not to enter the price competition.
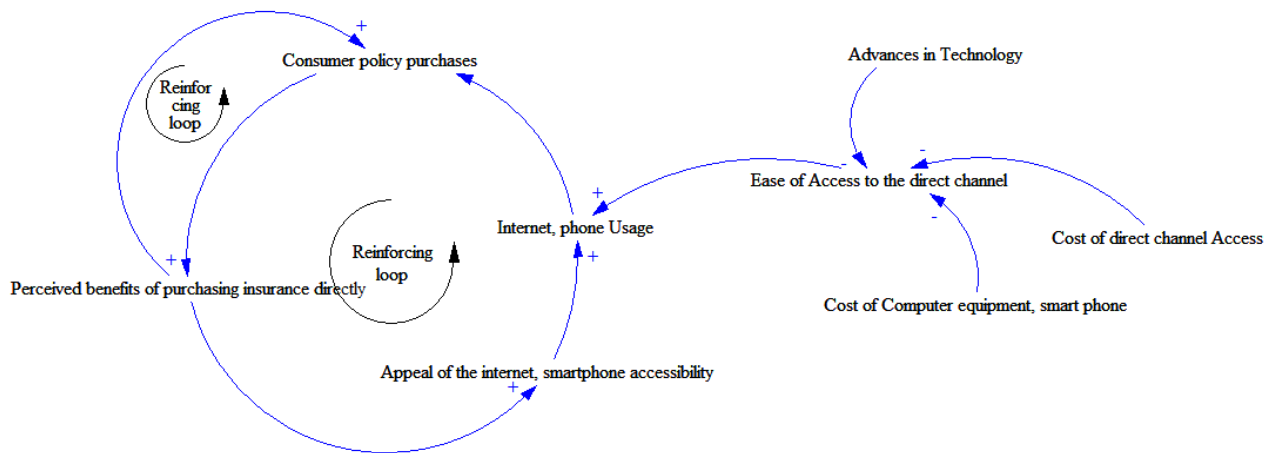
Figure 7:Feedback structure showing increased use of direct channels for policy purchases

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[14] J. Sterman, Business Dynamics: Systems Thinking and Modeling for a Complex World, New York, NY: Irwin/McGraw-Hill,2000

This shows that the sales of insurance products over the internet would grow in line with other on-line purchases and sales direct to customers would be at a higher margin which would increase the profit and value of the company.

In addition to the benefit of the investment, companies need to be concerned about the risks of not investing in this channel. For them there is a risk of either a competitor or a new entrant who could leverage the technological advances to create a competitive advantage for them.

The figure 7 shows the reinforcing loop 1 to justify the digital direct-to-customer strategy. This shows the expectation that an investment in digital direct would bring added profit to the company. The more sales, the more profit would be created from the strategy which could then be reinvested to fund further investment in the channel. The investment would improve the quality of the digital service which would further increase sales to customers. A second reinforcing loop "Loop 2" exists because the benefits the consumer would receive as a result of being able to buy quickly and directly without intermediaries would increase customer satisfaction which would create positive word of mouth attracting more customers and greater sales.
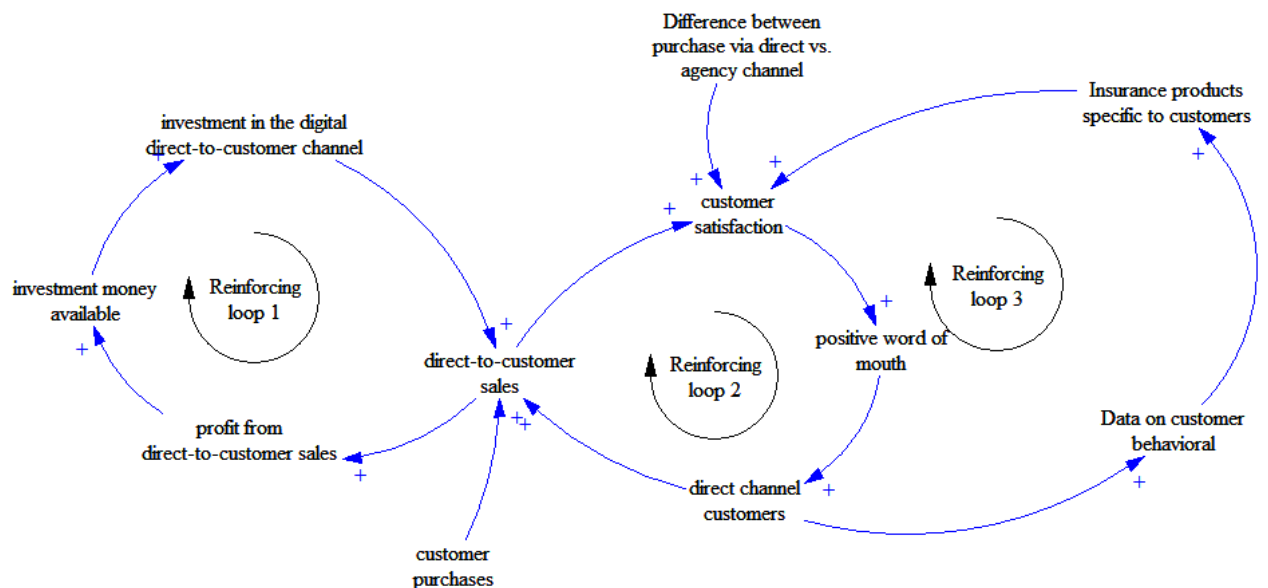
Figure 8: Initial reinforcing loops to justify the digital direct-to-customer channel

A third reinforcing loop, "Loop 3" exists. As the number of online-customers increase, the company would gain knowledge of the customers which would enable the companies to create tailored products (on-demand insurance coverage) for consumer which would further increase customer satisfaction and so further increase in sales via the digital direct channel.

This is true for many e-business strategies based on the appeal of the reinforcing loops identified in figure 8.

A series of interviews with executives and management in the insurance IT and business departments helped identify limits that could inhibit the expected exponential growth. Below is a summary of the main factors discussed that require further consideration.

- Channel Impact: how would the current distribution channel react to the news that the company had just tried to cut them out of the business? How would they fight back? Would the staff be focused more on the digital channel that the current channels would suffer even if the insurance companies moved to a hybrid channel approach?
- Change management for customers: How easy would it be change the buying behavior of the customer who have been used to buying the product from agents or brokers? would there be any security or privacy concerns of the consumer in relation to sales over the internet?
- Organizational Management: Can the existing organizational design cope with the new opportunities? Should the company set up a new business unit to handle this channel or should it be integrated with the business?
- Financial Management: Where would the funding come from to start the investment? Would it be taking from elsewhere in the business that offered a greater long term return on the investment? If so, what is the opportunity cost of the forgone investment? what would be the total cost of this strategy? e.g. cost of training staff, developing the technology etc.
- IT Operations: How does the current operations impact the digital channel? Would issuing policies, running customer service operations and policy administration jibe with the existing systems?
- Financial Operations: Does the company have the appropriate financial set up with banks and the larger corporation to manage the financials and sales for this channel?

Each of the above factors can be used to create balancing loops to describe potential limits to the success of the digital direct strategy.
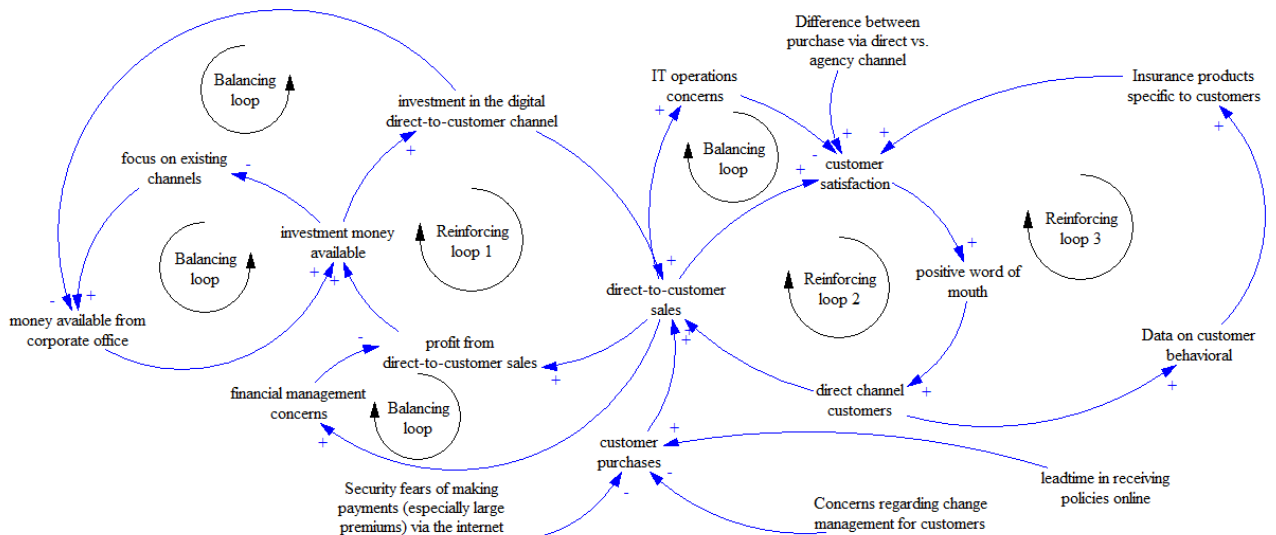

Figure 9:Potential barriers to strategy in the original reinforcing loops

Figure 9 identifies the important factors and the causality between them in relation to the decision to invest in digital direct to customer channel of insurance product distribution. The diagram identifies that there are some potential inhibitors to the success of the proposed strategy.

This causal loop diagram does not however show the importance of individual loops. A system dynamics model needs to be built for specific companies to simulate the effect of the strategy on the company over a period (say 5 year) forecast to assess the impact and maximize the potential for their success and minimize the risks.

Examples of the factors are:
- Different estimates of the response of the current agency writers to the news that the company would be selling direct to customers.
- Different estimates of the take up rates for consumers can be assessed based on the customer satisfaction and word of mouth effects to calculate the likely distribution requirements.
- Different investment options can be explored. For example, could the company invest heavily at the launch stage or should there be a small initial investment and then reinvest the profit.

All these options and more could be assessed using the quantified model and the financial outputs generated would help the companies to better understand the impact of the strategy prior to implementation. Although it is impossible to predict the future, through the development and use of a well-built system dynamics model can help gain a thorough understanding of the structure of the system which drives the behavior and confidence to make more informed business decisions and the ability to monitor performance more effectively.

Here, system dynamics is used as a method of identifying and understanding both the risks and opportunities of investing in the digital direct to customer channel. System thinking and system dynamics are valuable tools to assist in evaluating their business strategy as there is a great deal of complexity and feedback between the various opportunities and risks.

The causal relationship of the factors and feedback relationship analyzed the different factors and different parameters of the system. The digital direct-to-customer channel is dependent on certain dynamic factors. The dynamic factors of customer concerns regarding change management, security fears for making payments (especially large premiums) via the internet, and customer satisfaction may decrease or increase the online purchases, and therefore should be strengthened. Improving customer's knowledge of products, the company's knowledge of customer behavior and needs, improving the customer's view and increasing their level of education as gained from an agent face-to-face can effectively increase customer retention for policy renewals and enhance the decisions of the channel manager. The model is found to be especially well suited for long term strategy development and risk analysis.

3.3 TECHNOLOGY STRATEGY FRAMEWORK

The above analysis indicate that the direct-to-customer channel are ready for transformation. Since the conditions for disruption cannot be ignored by insurance companies and businesses, technology innovators and savvy investors have spotted an opportunity to make their fortunes in the forthcoming upheaval. Many insurance companies have also recognized

what's coming and are beginning to change their businesses to meet the challenges that lie ahead.

The technology strategy framework[15] will be used in this thesis to explore technology-based business strategies from three perspectives: Market, Technology, Business Strategy. While each category leverages unique tactics to deliver value to the insurance customer, many tactics within the categories overlap or are used in coordination.

As shown in figure 10, the framework explores a technology-based business strategy from three perspectives:
Market: it is mainly to understand the demand opportunities, the evolution of such demand, and the value-creation process.

Technology: from this perspective, the thesis discusses enabling technologies that an insurance company can use to achieve its goals.

Business Strategy: it primarily answers what the key elements of a business model are for an insurance carrier, what business models are commonly adopted by online brokers/aggregators and online agencies.

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[15] Technology Strategy, Davies, 2007
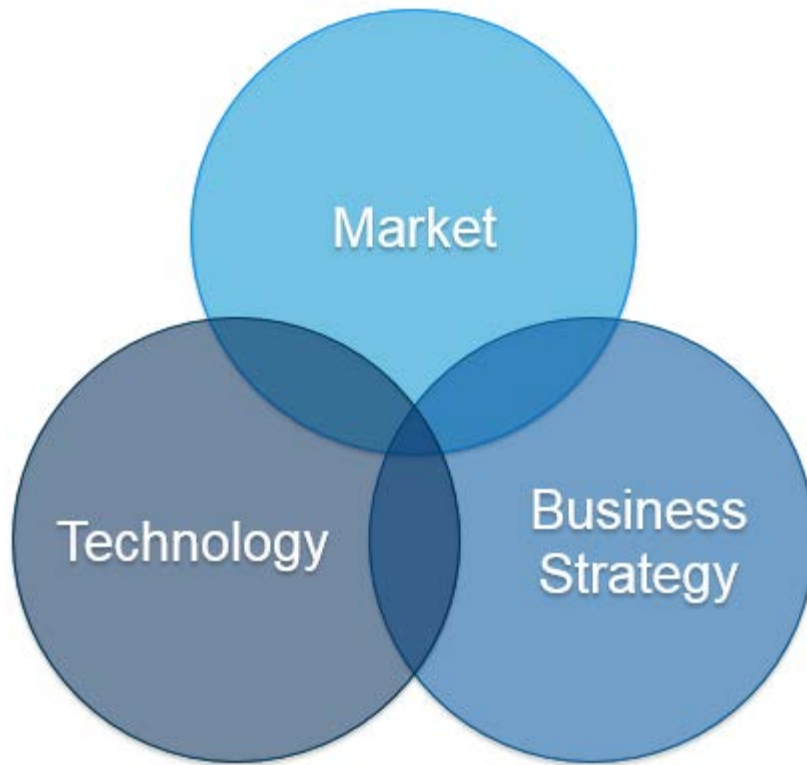
Figure 10: Technology strategy framework

3.3.1 Market

As mentioned in chapter 2, A.M. Best, the insurance rating agency, organizes insurance into two main distribution channels: agency writers and direct writers. Agency writers distribute products through third parties, and direct writers distribute through their own sales capabilities. For agency writers, these third-party channels include independent agents/brokers and a variety of hybrid structures. The direct writer could be managed agents, insurance companies, start-up InsurTech companies, program administrators who have sales capabilities that include company websites, their own sales and marketing teams.

A segment of customers will continue to prefer traditional channels, such as local agents who are valued for their accessibility, personal attention, and expertise in the product when these tend to be complex.

However, there is an opportunity to redefine distribution strategies to better align with the needs of the insurance customer. An insurance customer could be one who seeks out insurance because they know or have become aware they need it or want it or could be one who is considering purchasing insurance because, during other activities, they have completed some action or provided some information that allows a timely and unique offer of insurance to be presented to them.

The demand opportunity can be explained by the market size, untapped market, customer attitude towards insurance. With annual premium revenue of around $5 trillion and assets

under management close to $15 trillion, the global insurance industry is an enormous potential market for technology suppliers and their backers[16]. While many insurers enjoy large and well-established pools of customers there are big populations of people, especially young individuals, and low-income earners, who do not buy insurance products and services. If this market is not tapped, they'll take up the insurance options that are being increasingly bundled with the sales of products such as cars, mobile phones, and kitchen appliances.

Value creation can be explained by the cost of customer acquisition and distribution. Insurance is a grudge purchase for many consumers. Relations between insurers and customers are often distant and contact infrequent. Customers are increasingly looking to their insurers to provide them with comprehensive online services like those they experience in other retail environments. Few can currently meet this expectation. Traditional insurers need to not only increase the number of touch points they provide their customers. They must also add frequent digital interactions that build the trust of consumers.

Customer acquisition costs: Insurance customers are expensive to acquire. Average per customer acquisition costs for the industry are estimated between $500-800[17], and insurance keywords are among the top keywords by paid search ad spend[11], often priced between $30-50[18] per click. Customer acquisition costs for carriers or brokers using a digital model can be much lower, given naturally lower costs to acquire a customer with free/low cost consumer apps.

Distribution: New consumer behaviors and entrants are threatening traditional distribution channels. Policyholders increasingly demand digital-first distribution models in personal and small commercial lines, while aggregators continue to pilot direct-to-consumer insurance sales.

3.3.2 Technology

From the technology perspective, the digital natives and startup players use much of the enabling technologies in this field. Insurance providers are well behind most other financial services firms in their investment in technology. Furthermore, spending has tended to focus on productivity and efficiency improvements rather than raising customer satisfaction and developing new business opportunities.

Mobile first: In addition to moving more of the purchasing process online, there is also a push towards "mobile-first" digital channels. By using a mobile device/OS as the primary mode of engagement, the distributors (online agencies, brokers) and carrier can meet potential customers where they are increasingly likely to be found. Further, mobile-first companies leverage the smartphone as a platform to enable novel and valuable user experiences. These experiences could be in the application process, notice of loss, servicing of claims, payment and renewal, and a variety of other interactions.

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[16] McKinsey Global Institute report, "Big Data: The Next Frontier for Innovation, Competition and Productivity," May 2011

[17] Chicago Tribune, Becky Yerak, "Direct insurers paying less to attract customers", May 2015

[18] Lion Tree Marketing Group, "Top 10 Most Expensive Google Keywords", June 8, 2015

An application of leveraging the "Mobile first" approach is a personal auto insurance mobile app that uses the smartphone camera in policy issuance, authorizes payments via a payment API, processes driving behavior via the phone's GPS, accelerometer and a connection to the insured vehicle in order to influence or incentivize safe driving behavior, notifies the carrier of a driving signature indicative of an accident, and integrates third-party software into their own app that allows for emergency response and rapid payment of claims. It can also use the camera feature for claims submissions and also for using the voice/video/text messaging features for contacting customer service.

Reduced transactional friction: In many cases, customers using third-party products/services for providing (or granting API access to) much of the information required to digitally quote or bind insurance. Even if these services were to monetize via lead generation referral fees rather than directly brokering policies, they could still remove purchase friction by plugging directly into other aggregators/online agencies. For example, cover hound provides partners simple APIs that can be used for lead generation and quoting.

The technologies used in insurance were discussed in section 2.4.1. The ones that can be currently used by carriers are discussed below.

Internet of Things, Telematics: Telematics combines computers and wireless technology to stream information across multiple platforms, which can then be used for claims adjusting and policy pricing.

In 2012, State Farm collaborated with Ford via the car company's Sync system. Information such as how long the car went over 80 miles per hour or how quickly the driver hit the brakes is sent to State Farm to create a pay as you go policy, specifically tailored to individual drivers.
Telematics and real-time weather observation that include sensors - analysis of the gathered data can identify unsafe driving, industrial equipment failure, impending health problems, etc. and can be used to identify prevention. The sensor-driven approach is also being explored in life insurance by using lifestyle data as input.

Big Data: Data on consumers is readily available. When partnered with telematics and mobile
technologies, this data can help sharpen actuarial models by analyzing people's actions. Behavioral analytics and advanced data analysis capabilities can help insurance companies gain a deeper understanding of behavioral trends, customary aspects, and habits of individuals, allowing for the development and creation of customized solutions and better real-time and fast-track customer service. Protection-based models are shifting to more sophisticated preventive models that facilitate loss mitigation in all insurance segments.

The ability to capture and analyze data from different sensors and sources in near real time opens the door to more pro-active prevention models. From driving alerts to industrial equipment failure notices, this information will allow insurers to develop new approaches to more actively manage risk, most times in collaboration with the insured.

Technology could extend the reach of life, annuities and pension coverage into largely untapped areas such as younger and lower income segments by reducing costs and allowing businesses to engage with customers in more compelling and relevant ways.

3.3.3 Business Strategy

The insurance industry throughout most of the world has changed little during the past several decades. Big, established carriers have become successful by prizing stability and caution above innovation and agility. This has created plenty of opportunities for nimble and inventive newcomers to the market.

The business strategy of an insurance carrier depends on the product (offering, pricing) and services (claims, customer engagement) offering.

Product Offering: The product offering for the digital market could be different from that offered in a product that requires a lot of touch points with the customer. They are products that can provide automated risk profiling and real-time decision making, deliver low-cost, more customized products.
Significant changes in product offering can be obtained by diversification-offering multiple products. Introducing variable product categories would be beneficial to companies to increase capital ratios.

However, insurance companies need to consider geographic diversification carefully and consider the cost of expansion or acquisition, local rules and regulations (insurance laws vary by state in the US), tax regimes, industry competition, core competency, fragmentation of management attention, and other associated risks and challenges.

As consumer preferences change, customization of insurance products will also help insurers to upsell and cross-sell thereby increasing revenue and customer retention.
Here are a few of possible product innovations leveraging new technologies. These strategies subdivide insurance coverage and duration into more relevant and accurate segments, offering more accurate pricing or supporting new forms of self-insurance.

- Fragmenting coverage time can be accomplished with on-demand or transactional insurance. For example, an insurance service could use access to a mobile calendar and other apps to offer timely insurance products based on daily activities. An example would be insuring an individual who drives an Uber for a few hours, is scheduled as a handyman for a few hours and so on. Based on his appointments and employers, he could get insurance coverage only for those hours.

- Another product innovation, if feasible, is for the policyholder has a single policy "Combination" that represents the entire cost to ensure that individual based on dynamically adjusted, minute-by-minute protection for all activities.
- On demand insurance for the products only for the duration the customer wants. E.g. Trov insurance based out of Australia covers insurance on-demand, for products such as phones, cameras.

Balancing the interests of the individual with the interests of society and public policy is a key question surrounding product innovation. Also, privacy and data sharing must be addressed in mutually beneficial and safe ways. Customers will expect value in exchange for sharing information about behavior, so data recipients must create the right incentives and protect personal data vigilantly.

Insurance distribution, structural, and product innovation support one another in ways that are both reactive and complex. Thus, they can be used in coordination to create entirely new insurance experiences.

The objective of this section is to provide background information on the rationale for choosing certain products. An illustration is to examine a few products in the small commercial lines segment. This segment is characterized by insurance products that have annual premiums of under $10,000. To design the insurance product, a customer segment analysis is required to:

- Identify the customer segments by product offering and the geography.
- Identify customer segments that are conducive to flow-businesses that have a low-touch with the customer and the underwriting required for the segment.

This illustrative product analysis is to indicate that products targeting certain are suitable for direct to market. It is not meant to be exhaustive/conclusive, but aims to drive home the point that it is not profitable for all insurance products to be sold direct to customer. This will be an input to the Business model/framework of the carriers.

The structure of the insurance product itself may require more of a personal/agent type of approach e.g. a customer that pays ~$20million in premium to cover large warehouse like that of Amazon's require heavy underwriting and high touch customer relationship vs. small businesses (1-10 employees) who can be provided automated risk profiling. Considering some of the calculations that go into the pricing, rating, and expenses for servicing the product, I have elaborated on the rationale for choosing some of the small business segments and individual professional segments as an illustration for this study.

Small business is a large and growing segment of the economy in the US accounting for 46% of the private nonfarm gross domestic product (GDP)[19]. The government's definition of small business is under 500 employees. Of the 6.6M firms in the U.S. 3.8M or 58% of the businesses employed less than 10 people. Another segment is employed and self-employed professionals in healthcare, real estate, management liability and professional services fields.

This segment can be divided into two groups: Medical Professional Liability and non-Medical professional liability.

Based on the data from U.S. government's Bureau of Labor Statistics, U.S. Labor Statistics Department (2010), there are over 11.5M healthcare and social services professionals that work in the non-governmental healthcare and human social service sectors. This group is broken into 96 major occupations. The range of professions vary from home health aides to physicians and
surgeons. Nurses, physicians & surgeons, dentists, physical and occupational therapists, social
workers, counselors, and psychologists are a few of the larger professions in this sector.

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[19] US Small Business Administration, SBA.gov

Professions	Number of professionals (private sector)
Registered Nurses	2,229,390
Nurse Practitioners	111,430
Nurse Anesthetists	32,900
Physician Assistants	84,360
Physical and Occupational Therapists	273,000
Pharmacists	269,080
Psychologists & Counselors	424,360
Social Workers	358,900
All Other Allied Health Professions	6,059,920
General Dentistry	95,400
Dental specialties (i.e., orthodontist, etc.…)	15,190
Dental Hygienists	305,420
All Other Dental Professions	194,310
Optometrists	31,750

Based on the data from U.S. government's Bureau of Labor Statistics, U.S. Labor Statistics Department (2010), there are over 8.6M professionals that work in the non-governmental non-
medical fields. This group is broken into 63 major occupations. The range of professions vary from social service workers to lawyers. Accountants, Lawyers, Social Workers, and Consultants are a few of the larger professions in this sector. Below is a list of major professional groups.

Professions	Number of professionals (private sector)
Real Estate Professionals	318,240
Insurance Agents/Brokers	374,650
Accountants and Auditors (CPAs)	130,000[20]
Financial Advisors	195,600

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[20] There are approximately 1,053,490 accountants & auditors in the US. Roughly 660,000 of these professionals are CPAs and only 130,000 either work independently or for a firm – the rest work for various industries as employees (CFOs, staff accountants, etc…).

Examples of Small Business that require low touch (automated/minimum underwriting) Broad Categories are shown in the list below:

Personal services	Dry cleaning and laundry services
Professional Services – including finance, real estate and insurance	Electronic shopping and mail-order houses
Retail businesses	Electronics and appliance stores
Businesses related to real estate	Florists
Agencies, brokerages, and other insurance related activities	Furniture and home furnishings stores
	Furniture stores
Book, periodical, and music stores	General merchandise stores
Building material and garden equipment and supplies dealers	General rental centers
	Health and personal care stores
Building material and supplies dealers	Home furnishings stores
Child day care services	Jewelry, luggage, and leather goods stores
Clothing and clothing accessories stores	
Clothing stores	Lawn and garden equipment and supplies stores
Consumer goods rental	
Death care services	Lessors of real estate
Department stores	Miscellaneous store retailers
Sporting goods, hobby, book, and music stores	Non-store retailers
	Office supplies, stationery, and gift stores
Total	
Used merchandise stores	Offices of dentists
Vending machine operators	Offices of other health practitioners
Warehousing and storage	Offices of physicians
Personal and laundry services	Offices of real estate agents and brokers
Personal care services	Other general merchandise stores
Real estate	Other miscellaneous store retailers
Real estate and rental and leasing	Other personal services
Rental and leasing services	Outpatient care centers
Shoe stores	Sporting goods, hobby, and musical instrument stores

Pricing: The combination of rich customer data, telematics, and enhanced computing power is opening the door to usage- and behavior-based pricing that could reduce barriers to entry for companies that lack the loss experience formerly needed for accurate pricing.

Service: Consumers expect personalized, self-directed interactions with companies via any device at any hour, much as they do with online retail leaders like Amazon.

Claims: Automation, analytics, and consumer preferences are transforming claims processes, enabling insurers to improve fraud detection, cut loss-adjustment costs, and eliminate many human interactions. Connected technologies could allow policyholders and even smart cars and networked homes to diagnose their own problems and report incidents. Self-service

claims reporting such as "estimate by photo" can create fast, seamless customer experiences. Drones can be used to assess damage quickly, safely, and cheaply after catastrophes.

Customer engagement. Insurance can be a low-touch and poorly rated business. However, because most customers choose to use third-party products/services of their own volition (given the independent value they provide), leading to new opportunities to support risk management without making the customer "actively" think about insurance. In addition, the use of third-party apps creates more frequent opportunities to engage with customers, which has positive effects on customer retention.

3.3.4 Transformation in Insurance

Many insurance companies have also recognized what's coming and are beginning to change their businesses to meet the challenges that lie ahead.
Drawing on Davis's Key framework of an industry life cycle,
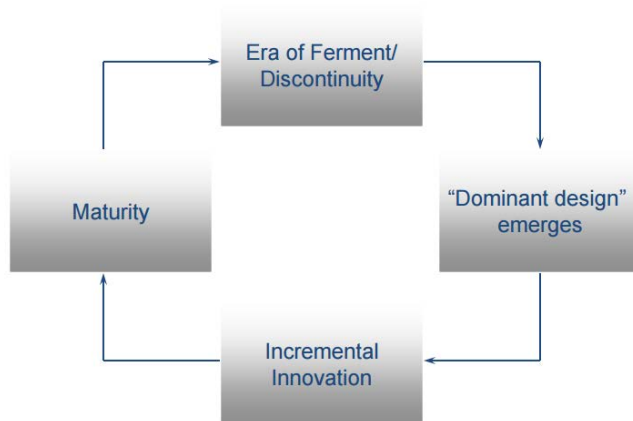
Figure 11: Transformation lifecycle in Insurance

It be said that changes to insurance will happen in three ways – incrementally, discontinuously over the near term, and discontinuously over the long term. For this thesis, I am considering them as dimensions on change. The current ecosystem and state of the industry as described in Chapter 2 can be considered "mature".

The incremental changes of this mature state will improve the effectiveness or efficiency of existing workflows, or create new workflows that are substantially similar to existing ones.

In contrast, the long-term discontinuous changes will happen in response to changes that one sees coming when peering far into the future, i.e. risk management in the age of commercial space travel, human genetic modification, and general AI.

Between those is the dimension of change that is discontinuous over the near term that represents the step function advances and significant departures from existing insurance processes and workflows. These changes are a re-imagination or reinvention of some aspect of insurance as we know it.

4. MARKET MAP IN THE DIGITAL DIRECT-TO-CUSTOMER SPACE

To analyze the strategies adopted by several firms, let's list out the players and use a framework for analysis.

4.1 MARKET MAP FRAMEWORK

The framework I am using for this analysis, stems from the work in Prof. Madnick's class to understand the strategies that companies use to enter this market.
This framework will be used to analyze the business models that companies in this space adopt to understand their technology, market and business strategy. These categories were charted based on a holistic analysis of the direct-to-customer channel in the insurance business.

As shown in figure 12, a framework is used as a visualization tool for categorizing the positions of companies in a specific business models. The framework is also used to show examples of companies that fall under these categories providing a basis for qualitative analysis used further in this thesis. It uses a two-dimensional matrix to illustrate the business focus and differences between the companies. The display divides then into four distinct sections, based on both operating as independent unit from traditional business (on the Y-axis) and technical capability to scale in the digital direct-to-customer space. The categories are: 1. Online Brokers (Distributors and aggregators), 2. Online Agencies 3) Digital Insurance carriers 4) Hybrid channels (that leverage the capabilities of the agency channel and also build their own online portal.
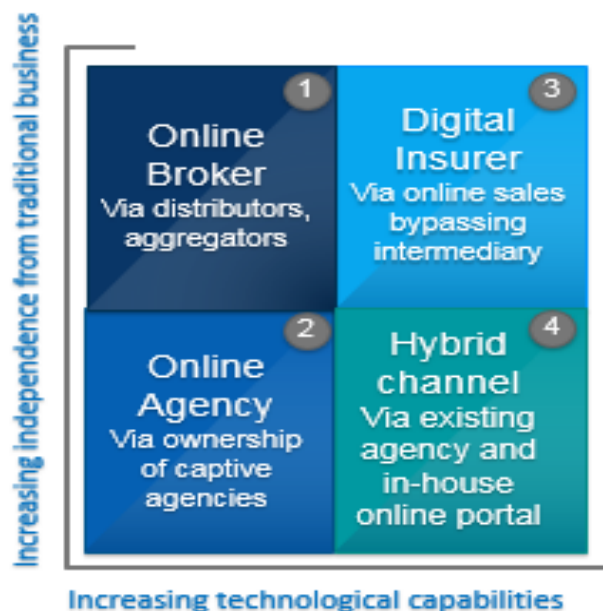

Figure 12: Framework of Business models in Direct-to-Customer Insurance

Category 1: ONLINE BROKERS

Online Distributors act as aggregators who can be compared to brokers in the traditional channel selling products for multiple carriers. These include insurance or non-insurance who provide quotes, binds and issues policies. They gather and analyzes policy offerings from a variety of carriers who sign up with them where they see a selection advantage. The aggregator analyzes the offerings and the customer demand to present a summarized view of choices. In doing so, the aggregator strives to save users time of sifting through many options while they receive commissions from the insurance carrier.

Some companies often function as brokers providing a management layer. This taps into the Direct-to-customer channel via partnerships/relationships with the insurance companies and has the following advantages. Working with these partners, the Agency channel (brokerage, agency, program administrator, or managed agency) creates a product or service that delivers value independently of insurance/risk management, but uses the resulting relationship with the customer and data about the customer's needs to make a timely and relevant offer of insurance.

Examples:
- Goji, Zebra,coverfox,Insurify,Metromile Cuvva— Creating an online auto insurance comparison site.
- Insureon, CoverWallet, Next Insurance— Comparison site for business insurance.
- QuoteWizard, Policy genius, Coverhound- comparison sites for multiple lines of insurance such as home, auto, health and life insurance
- GetInsured, HoneyInsurance, SimplyInsured, a comparison shopping site for health insurance.
- Zenefits - offers HR and pay roll services for free, but acts as health insurance agent for carriers like United Healthcare, Aetna, MetLife, BlueCross Blue Shield, The Hartford, Hig Mark, WellPoint, Humana, Healthnet.
- FounderShield, Coverwallet, Insuron, Embroker –managing business insurance for many of the leading commercial carriers.

Category 2: ONLINE AGENCIES

These are companies that are wholly owned as a subsidiary of established insurance carriers who underwrite the insurance product by their licensed producers They insurance direct to consumers online and by phone.

When the established companies own online agencies, it does not require an elaborate technological investment to integrate the online portal to the insurance carriers' technical capabilities. The established carriers can tap into the online agency channel for certain products only that lend themselves to direct to customer, low touch underwriting or as a complementary parallel channel for direct-to-customers. It reduces a need to restructure the existing agency force for these products that leverages technological capabilities as the captive agency will use their own technology to build the online platform. For instance, InsurTech startups are backed by large insurance companies[21].

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[21] Insurance information institute, "Buying Insurance: Evolving Distribution Channels", August 2016

Examples:
- Coverhound - Business Insurance platform for ACE insurance
- MetroMile – On-demand auto insurance platform for Intact insurance
- Haven Life—life insurance company owned by Mass Mutual
- Next Insurance – Professional liability insurance by Hiscox

Category 3: DIGITAL INSURERS

This includes insurance carriers to be a one-stop insurance provider that allows customers to purchase policies online, mobile and for managing policies and claims. In this case, these companies operate in specific segments.

Two early pioneers were Esurance, which in 1999 became the first insurer to operate exclusively online and paperless, and Guidewire Software, serving the property/casualty field since 2001. Guidewire delivers core processing, data and analytics and digital engagement to 200-plus insurers in over 20 countries as well as over 300 products[4].

These digital insurers are tech-centric and use the advances in technology like telematics. For example, auto insurance uses "smart" data collection to assess risk and hence insurance premiums; Automatic sensors used in technologies that connect the Internet of things are used in "smart" houses to lower the risk and hence the insurance liability.

On-Demand insurance is another concept that aims to deeply customize coverage and turn it on or off with an app or text.

Peer-to-peer insurance has cropped up mostly outside of the US. Based on a shared economy approach, policy owners with the same insurance type form small groups. A part of their premiums is paid into a cashback pool. If no claims are submitted, the members of the group get some of their money back at the end of the year. In case of claims, the cashback decreases for everyone. Small claims are settled with the money in the pool. The concept will work if the groups are formed such that pool of money is more than the claims and the capital is sufficient per regulations.

In the event of bigger claims, Larger reinsurers provide backup in case damages exceed available funds in the group.
Examples:
- Oscar, Clover Health, Collective Health, Melody Health Insurance— health insurance.
- Quilt, Super—home insurance, home services, home appliances.
- Asurion— products(cell phones).
- Lemonade, Gather, Friendsurance, Guevara, Inspool (auto), Jointly (auto), BoughtByMany(health), WorldCover(crop insurance), Limelight Health(Health), StrideHealth(Health) – Peer to Peer insurance.
- Trov, Cover, SimpleSurance—On demand insurance for individual products. Creating a new type of insurance.

Category 4: HYBRID CHANNEL

Large companies build their own hybrid channel to sell their products directly to their customer via phone or online and via their agents. For instance, Progressive primarily offers its services through the Internet or by phone and through independent insurance agents. This

model structures the agents into the direct purchase process. This channel will be elaborated through case studies to illustrate distribution through multiple channels and how channel conflict is handled.

Examples:

- Progressive, AllState – Auto Insurance
- Liberty Mutual- Home, Auto
- MetLife – Life

Category 5: NO CHANNEL DISRUPTION

Companies in this category, wait for the market to shake up and have not ventured into the online direct channel. As mentioned in chapter 2, they could be restricted because of barriers to entry into the direct channel because of their heavy investment in existing channels or because of the products that are not amenable to online purchases.

There are established companies or business units that cannot move their book of business away from their existing channel due to the nature of the product or have barriers in breaking their existing channels. This is found in specific business lines. For example, MassMutual would not disrupt their Agency channel for whole life Insurance.

In the following chapter 5 we will study the business model for each of these categories. This will inform the recommended model in chapter 7 that a business professional in an established company can use in their decision-making process.

5. BUSINESS MODEL ANALYSIS

Strategy is taken from a perspective of industry position, value chain position, geographical market(s) of interest, customers or insurance carrier perspective, industry culture and/or structure, etc. Hence, the business strategy and models need to be formulated considering a wide range of influencing forces and different perspectives.

To show the application and practical value of this cognitive framework, the relational structures of Weill and Vitale's 'atomic models' for e-Businesses (e.g. 2001) are used as a starting point and are extended by making more explicit the nature of each of the critical system flows. These businesses models give a perspective of the causal links in strategy execution and the organization's competitive environment, and the feedback structures that will determine system behavior and corporate performance.

5.1 KEY ELEMENTS OF A DIGITAL BUSINESS MODEL

This chapter adopts the system thinking analysis described in chapter 3 into building a sustainable business model for businesses that fall under each of the categories per the market map detailed in chapter 4. As seen in chapter 3, System Thinking, views systems from a broad perspective including seeing overall structures, patterns, and cycles in systems rather than seeing only specific events in the system. A system is simply an organized collection of parts and/or subsystems that are highly integrated to accomplish certain goals. A system has various inputs, which go through certain processes to produce certain outputs, which together accomplish the overall desired goals for the system. System Thinking is centered at the context, the interfaces, and emergent behaviors – the interstitial elements around and within the system. The "whole" view of the system can help a business to quickly identify the real causes of issues in their organizations and know where to work to address the issues.

Let us look at the business aspect of an insurance company that wants to enter the digital direct-to-customer channel. Weill and Vitale define the e-Business model [22] as: "A description of the roles and relationships among a firm's consumers, customers, allies, and suppliers that identifies the major flows of product, information, and money, and the major benefits to participants".

Wikipedia defines a business model as a profit producing system that has important degree of independence from other systems in the enterprise. Osterwalder proposes a business model design framework that uses 9 building blocks to describe a formal, comprehensive business model: core capabilities, partner network, value configuration, value proposition, customer relationship, distribution channel, target customer, cost structure, and revenue streams[23].

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[22] P. Weill & M. Vitale, Place to Space: Migrating to e-Business Models, Harvard Business School Press, April 2001

[23] P. Senge, The Fifth Discipline: The Art & Practice of The Learning Organization, Currency Doubleday Press, 1990.

Putting an insurance company and online distributor companies (representing online agencies and emerging insurance companies as appropriate) under the lens of the e-Business model, one can identify the key elements of the business model as the major flows of information and money, the revenue flow, and the company's relationships with its affiliates, partners and customers.

5.2 BUSINESS MODEL

This section adopts system thinking in analyzing sustainable business models for the online distributors (and online agents, emerging digital insurance carriers) and traditional companies that predominantly use an agency model.

Weill and Vitale[22] propose a definition of a business model as: "a business model is a description of the roles and relationships among a firm's consumers, customers, allies and suppliers that identifies the major flows of product, information and money and the major benefits to participants."

Osterwalder proposes a business model design framework that uses nine building blocks to describe a formal, comprehensive business model[24] that can be summarized as follows:

5.2.1 Customer Segments

Most of the traditional insurance companies focus on large customers via brokers and smaller premium customer via agents/brokers. Most of the digital distributor/agency companies target the mass market consumer segment. In contrast, most of the smaller insurance companies may target niches of consumers, for example, the owners of performance cars or the owners of expensive homes. E.g., Super covers home insurance for home services, appliances, or the entire home.

5.2.2 Value Proposition

The value proposition of traditional insurance carriers is their expertise in providing the right coverage to meet a customer's needs. The value proposition of online distributors (brokers/agencies) is based on offering a low. Their value proposition is to use technology to compare all of the companies in the market one can get the best insurance deals from.

5.2.3 Channels

There are typically two channels that this business model will use. Direct to consumer via the Internet is one, and via affiliates is the other. The affiliates will then advertise the comparison site on their website and take a cut of any products sold. The typical channels used by traditional insurance carriers are via the field agencies or brokers. Detailed distribution channel landscape is provided in chapter 2.

5.2.4 Customer Relationships

For companies that use the digital direct approach, the relationship with the customer is initially self-service, in that the customer does all the work to obtain a quote themselves.

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[24] A. Osterwalder, The Business Model Ontology – A Proposition in A Design Science Approach, Thesis, 2004

Often telephone and email backup is provided if there is a problem, or to help the customer make their payment.
For insurance companies that predominantly use the agency channel, the primary customer is the agent, agency, and broker.

5.2.5 Revenue Streams

The revenue streams are based on selling the products of others for the comparison sites, digital distributors that do not have any products of their own. Revenue is typically a percentage of each policy sold as shown in figure 13. The online distributor/aggregator typically develops the digital product they sell, which includes the decision on insurance products they intend to sell profitably and carrier partnerships. Their expenses are heavily reliant on digital marketing and improving their digital product to sell directly. The revenue is based on commissions and margins as negotiated with the carriers and advertisers.
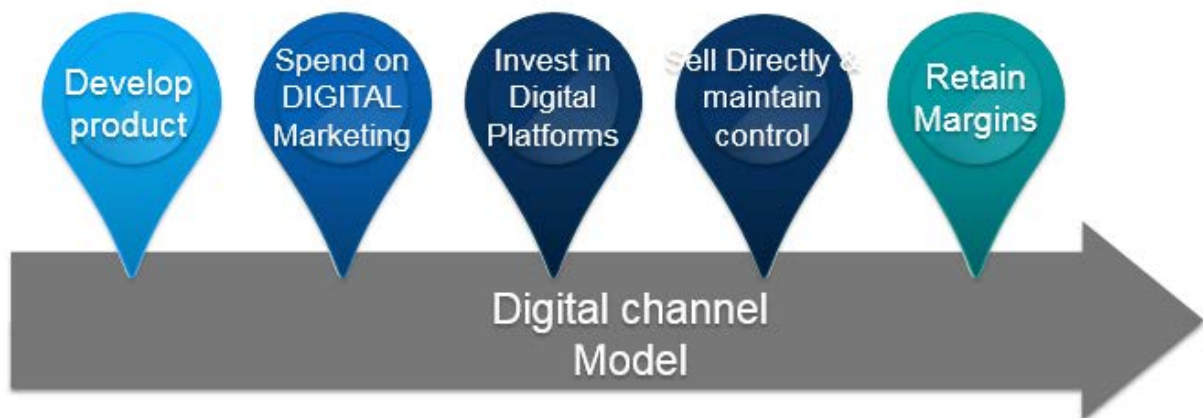
Figure 13:Investment-Revenue stream for Online distributors/aggregators

Traditional Insurance Companies business model is to bring together more value in premium and investment income than the value that is expended in losses and at the same time to present a reasonable price which the clients will accept. As shown in figure 14, the primary activity of the insurance firm is to develop the insurance product. Their expenses include marketing, distribution and sales in addition to investment in the Agency channel. The agency would also be spending on their own marketing with directive/oversight from the insurance company. The insurance company shares the margins with the agency/broker by providing commissions and/or compensation.

Figure 14: Investment-Revenue stream for traditional insurance companies

The following formula describes the earnings:
Earnings = earned premium + investment income – incurred loss – underwriting expenses.
Insurance Companies gain their wealth with these two methods:
Underwriting, is the process that Insurance companies use to select the risk to be insured and chooses the value of the premiums to be charged for accepting those risks.

To arrive at the premium, the actuarial price setting is done, based on statistics and probability to estimate the value of future claims within a given risk. ratemaking at a simple level is taking a look at the frequency and severity of the insured liabilities and estimated payment average. Insurance companies check historical data concerning losses they've had and update it on today's values and then comparing it to the premiums earned for a rate adequacy assessment. More complexes calculations with multivariable analysis and parametric calculation, are done taking data history as it inputs to be used on the probability of future losses assessment.

The insurance companies underwriting profit is the amount of premium value collected when the policy ends minus the amount of paid value on claims. The underwriting performance also known as the combined ratio is measured by dividing the losses and expenses values by the premium values. If it is over 100% it is called underwriting loss and if it is below the 100% then it is called underwriting profit.

Also, part of the revenue stream is the investment part which means that the insurance companies can have profit even with the existence of underwriting losses.

The Float is amount of value collected in premium within a given time and that has not paid out in claims. The investment of the float starts when the insurance companies receive the payments from the premiums and end when the claims are paid out.

5.2.6 Key Resources

The key resource in this type of business is the direct-to-customer digital interface itself. This portal will either take batch feeds or communicate in real-time with each of the product

providers for online brokers/distributors. It must also provide an un-complex user experience and journey to the customer.

The key resource in a traditional insurance firm are the human resources – field force, marketing, underwriters and claims adjusters. Aside from this the support resources and IT back bone for record keeping, finances are essential.

5.2.7 Key Activities

The key activities of the online broker/agent type of business are twofold. They must be focused on marketing, both to customers and to affiliates to drive customers to the site. They will also be focused on platform development, constantly improving the platform in several ways, including adding new products and making changes to increase the conversion rate. The key activities of a traditional firm include the underwriting and agency maintenance. Aside from this their asset management is a key business activity.

5.2.8 Key Partnerships

The key partnerships for a distributor will be with those businesses with whom the online distributor or agency must integrate in order to sell their products. For a traditional firm the key partnerships are with the channel distributors.

5.2.9 Cost Structure

For online distributors and agencies, most costs incurred in this type of business come from marketing activities. The next biggest cost will be the human resources needed to maintain and develop the platform. For an insurance broker or agency business, the cost structure will be very different to traditional insurers, as an insurance comparison business is not an insurance business but a platform business using marketing to attract consumers.

For insurance companies that underwrite the policies, most costs incurred are the claims aside from marketing, agency commissions and human resources. The actual "product" paid for in insurance companies industry are the claims and loss handling. After the claims allocation, follows the investigation with collaboration of the customer to define if the contract covers it. The investigation outputs the value and the payment approval to the client.

Whether explicit or implicit, every business has a competitive strategy. This strategy can be developed explicitly through planning or implicitly through ongoing business activities. In the next section, we will see the strategies employed by companies in each of the categories.

5.3 STRATEGIES FOR DIGITAL PLATFORMS

To study the strategies of each of the categories, the characteristics of the insurance industry, the resources of the organization, their current business processes, enabling technology and the insights from the causal loop diagram are considered.
As shown in figure 15, drawing on Davies's approach to strategy[15]. Effective strategies tackle three key questions:
How will we create value?
    How will the technology evolve?
    How will the market change?
    How do we organize effectively?

How will we capture value?
    How do we compete to gain sustainable competitive advantage?
    How should we compete if standards are important?
    How to manage technology platforms?
How will we deliver value?
    How should we execute the strategy?
    How do we make strategic decisions and take decisive action?
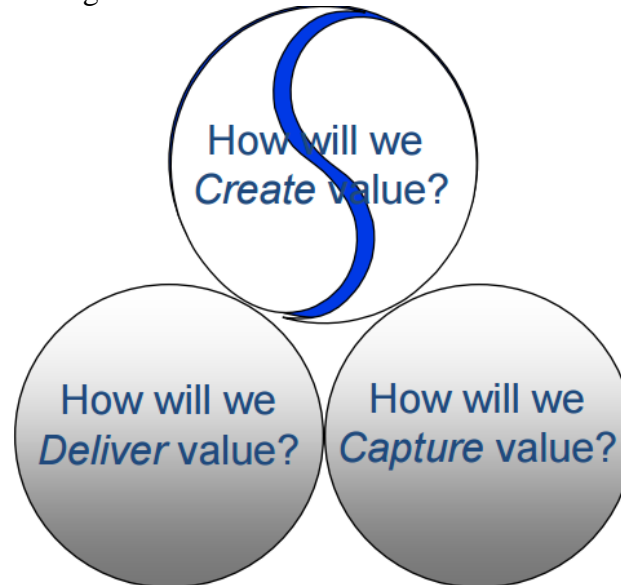
Figure 15: Davies' approach to strategy

We will examine each of the business models through the above questions to help structure the opportunities, challenges, and key questions to consider.

Category 1: ONLINE BROKERS

The Opportunity
The broker/online distributors facilitate the transactions between the customers and insurance carriers. In turn they earn money through transaction fees, commissions, and margins. Based on the information about customers, some brokers/distributors can provide targeted services specifically tailored to customers, thereby modifying the insurance product to suite their target audience via their digital channel.

They also leverage the data they have collected and the information system they have built to offer consulting services to their partners. They could play a powerful information intermediary role to provide market insights to insurance carriers as well as product insights to consumers.

For firms within this model, it is essential to note that traditionally, it can take time to develop relationships with carriers and partners – time to connect with them, test products, negotiate spend, and pricing.

The Challenges

In this model, companies have little say on pricing and merchandising. For partnering insurance working through these channels could imply losing their ability to create a brand awareness among customers. For example, Rice insurance is an online agency that used to exclusively carry insurance products underwritten by the carrier Zurich US and is not carrying the same product that is underwritten by Great American. However, the end customer is unaware of the actual insurance carrier and interfaces only with the agency and is only aware of the agency's brand. This makes it challenging for the insurance carrier to gain significant exposure to their end customers and hence get a better picture of those customers' needs, wants and behaviors – much less brand awareness and loyalty. In the case of brokers, if the insurance carriers are adversely selected for their products, they would eventually pull away from the distributor. This is another challenge that companies in this category need to be constantly cognizant of and tailor their digital offering.

For a company that operates as an online insurance broker or agency the

Key Questions to Consider

Market and Customer

- Which carrier/product and customer segment should we target?(value creation)
- How will the market change? (Value creation)
- Do we have brand recognition? (capture value)
- How would we differentiate from competition? (capture value)

Operating model

- What core capabilities are required and what are the critical gaps?(deliver value)
- Do we have the right leadership and experienced resources?(deliver value)

Channel Value proposition

- How can it strengthen our direct channel value proposition? (capture value)

Technology

- Is our technology infrastructure ready? (value creation)
- How will the technology evolve? (value creation)

Category 2: ONLINE AGENCIES

The Opportunity

With the advances in technology enabling the build out of new digital platforms, it is now significantly easier for companies to establish an online digital direct sales capability. This allows companies that are represented as online agencies to build a branded retail presence for a fraction of the cost of building and maintaining a field force of agents and brokers. Critical capabilities, such as detailed reporting and analytics, and online/mobile customer service capabilities such as online chat tools, are instantly at disposal. Digital tools go hand

in hand with paid platforms, providing the customer facing presence that can establish a direct relationship and drive online traffic.

The Challenges

Traditionally, emerging insurance companies haven't had the resources to invest in mass marketing campaigns to build brand awareness, and rely on venture capitalists. Another challenge is to digitize the experience for the insurance products that the carrier has. In some cases, it might be harder to go online with certain products owing to the nature of the product (it may need more risk assessment and verification than can be done online) or to the carrier's technological capabilities that the agency needs to integrate to for a product. For instance, Next-insurance has collaborated with Hiscox but can only use certain products specific to certain customer segments. This is restricted by Hiscox's digital capabilities.

As with online brokers, it can take time to develop relationships with the traditional insurance carrier – time to test products, negotiate spend, pricing, commission/compensation structure and so on. Emerging online agencies have little say on pricing and merchandising.

Key Questions to Consider

Market and Customer

- What does direct to consumer distribution mean for us? (deliver value)
- Which market and customer segment should we target?(value creation)
- Do we have brand recognition?(value creation)
- How would we differentiate from Competition?(capture value)

Operating model

- Do we have the right leadership and experienced resources?(deliver value)

Product/ Pricing

- Do we have the right products? (capture value)
  How can we offer incentives to consumers? (capture value)

Channel Value proposition

- What impact would it have on the carrier's agency channel? (capture value)

Technology

- Is our technology infrastructure ready for the future?(capture value)

Build vs. Buy

- Should we grow organically or acquire? (capture value)

Category 3: EMERGING DIGITAL INSURERS

The Opportunity

For many new and emerging insurance companies, e-commerce is the only way to sell products or services.

New digital tools and platforms mean that emerging companies no longer need to distribute their products through traditional channels. Now, they can take the direct-to-customer route from the very start. Emerging brands can achieve scale quickly without the time and expense of a custom-built capability.

Digital marketing such as search engine optimization (SEO), search engine marketing (SEM), content marketing, influencer marketing, content automation, campaign marketing, and e-commerce marketing, social media marketing, social media optimization, e-mail direct marketing, display advertising, e–books, games, are becoming increasingly common in our advancing technology. This extends to non-Internet channels that provide digital media, such as mobile phones (SMS and MMS). Social media is being harnessed to promote the new products or services and create awareness and buzz, enabling brands to build a community of potential customers who want to hear more about what brands have to say and sell.

By adopting a digital, direct approach at the outset, they can test and experiment with pricing and products to better determine the 'sweet spot' for conversion and profitability. Because they retain their entire margin, emerging companies can adjust prices as necessary and as possible within regulations to gain market momentum.

The Challenges
Emerging insurance companies aren't as well known as the more established insurance carriers.
They're the newcomers trying to make a name for themselves and their products, and it isn't always easy. Insurance being an industry which relies on its assets and solid capital, established and long existing companies have the advantage.

Regulatory and capital adequacy barriers to enter the insurance industry limit the impact of "standalone" InsurTech companies.

Another challenge is the lack creditability with the financial industry. Financial analysts and investors care less on the technology but are more interested in the sustainable business revenue models for the insurance business.

Key Questions to Consider

Market and Customer
- Which market and customer segment should we target? (value creation)
- Do we have brand recognition?(value creation)
- How would we differentiate from Competition?(capture value)

Operating model
- What core capabilities are required and what are the critical gaps?(deliver value)
- Do we have the right leadership and experienced resources?(deliver value)

Product/ Pricing
- Are we innovating on the product level, trying to create a next-gen carrier? (capture value)
- How do we incentivize customers? (capture value)

Channel Value proposition
- Are we innovating on the sales channel of insurance? (capture value)
  How can we strengthen our distribution channel value propositions? (value creation)

Technology
- Is our technology infrastructure ready for the future?(capture value)
- How can we leverage investment? (capture value)

Build vs. Buy
- What can we invest in to build organically? (capture value)

Category 4: HYBRID CHANNEL

By combining traditional distribution and direct channels, the companies that follow a Hybrid approach enjoy a large reach. Example, MassMutual bought Haven Life, AllState bought Esurance. However, owning their own channels– and in some cases, their own loyalty programs-gives these companies consumer data. Margins and commissions must still be negotiated with agencies and other traditional distribution channels because of staying in a hybrid model, though owning direct channels does provide these companies with the opportunity to release different products through different channels.

For these companies, going directly to consumers through digital channels allows them to move into new and previously unreachable markets. They can tap into the 'long tail' of their product offering and gain a greater share of their target market. Product selection can be extended to move customers to higher margin online channel that complement their products sold via their agency channel. For example, AIGDirect sells life insurance via their program administrators. They could include other products in the digital space but sold directly by AIG. Moreover, they can develop and deepen their own relationship with customers – using their customer data to deliver a personalized, targeted experience and building brand loyalty based on relationships rather than quality or price.

A direct-to-consumer approach also provides established companies with more flexibility in launching and marketing products. Established insurance companies can leverage real-world data through digital tools to better understand the expected performance of a product before it is launched. Post-launch, companies can introduce more targeted and personalized marketing

strategies for their traditional and direct-to-consumer channels, such as context-based, life-event based promotions.

If the online channel is acquired and not built in-house (like Liberty Mutual, MetLife), companies that are acquired of their online agencies are not encumbered by the legacy technological systems, the organizational overhead and enjoy the benefits of capital investment and compliance with strict regulations.

The Opportunity

This approach is where established companies use the agency channel along with a parallel direct-to-consumer channel. Traditional distribution channels via agency channels aren't going away any time soon, though they could be considered as an aspect of the "Omni-channel" experience to get some of their products into traditional distribution channels and some digitally. For established companies, it creates opportunities to deliver wider, more differentiated product offerings.
The benefits of this approach are across financial, operational and market dimensions such as Revenue growth, Expanded market reach, Reduced capital expenditures, Improved customer data, improved customer relationships, Comprehensive products.
The opportunities will vary depending on the type and maturity of the insurance company. Companies with parallel direct-to-consumer channels in place may achieve better returns by focusing their attention on deepening their customer relationships. Data analytics can help these brands make the optimum use of the data they collect – from social media interactions to online purchasing behavior – and create an ever-sharper picture of their customers. The insights gained from this data analysis can be used to fine-tune and differentiate direct-channel product offers, promotions and online or mobile features. By enhancing their ability to deliver the products customers want, when and how they want it, insurance carriers stand to improve conversion, grow brand loyalty.

A direct-to-consumer approach also provides established companies with more flexibility in launching and marketing products. Established insurance companies can leverage real-world data through digital tools to better understand the expected performance of a product before it is launched. Post-launch, companies can introduce more targeted and personalized marketing strategies for their traditional and direct-to-consumer channels, such as context-based, life-event based promotions.

For the InsurTech companies that are associated with these established firms, the benefits are huge. They are not encumbered by the legacy technological systems, the organizational overhead and enjoy the benefits of capital investment and strict regulations.

The Challenges
An established company with no digital direct-to-consumer channels will achieve different results than a 'digitally native' company. Companies need to establish their motivations and objectives for going direct, identify which digital tools, platforms and traditional initiatives could be used, develop the business case, estimate the ROI, and determine the sequence of execution. They must overcome the barriers such as channel conflict, price setting by channel, IT funding, business operations and structure among others.

Key Questions to Consider

Market and Customer

- What does direct to consumer distribution mean for us? (value creation)
- Which market and customer segment should we target? (value creation)

Operating model

- Should we create integrated or stand-alone channel infrastructure?(deliver value)
- What core capabilities are required and what are the critical gaps? (capture value)
- Do we have the right leadership and experienced resources? (delivery value)

Product/ Pricing

- Do we have the right products? (value creation)
- Should we have different product/pricing by channel? (value creation)
- Should we offer channel specific incentives to consumers? (value creation)

Channel Value proposition

- What impact would it have on our agency channel? (capture value)
- How can it strengthen our agency value propositions? (capture value)

Technology

- Is our technology infrastructure ready? (capture value)
- How can we leverage investments across channels? (capture value)

Build vs. Buy

- Should we build or buy capabilities? (value creation)
- Should we grow organically or acquire? (value creation)

Category 5: ESTABLISHED COMPANY WITH NO CHANNEL DISRUPTION

The Opportunity

For some established insurance companies have a wide reach by virtue of their distributors' footprint. For these companies, the capital expenditures are lower, because the necessary infrastructure is already in place. Established companies got that way by building strong relationships with traditional distributors and retailers over the years.

The Challenges

Companies have limited control over their ability to re-price and revisit margin negotiations, which are negotiated with and ultimately set by the agency channel. Furthermore, they don't own their customer data. At best, they can get from their brokers and agents, aggregated customer data and analyze it post-purchase, but this provides little insight into who their customers really are. Agency relationships must be continually managed, and companies must work with their commission and margin. Differentiating products and offers – For companies that own some direct-to-consumer channels that don't have conflict, a very different set of challenges are presented. Product and offer differentiation becomes a crucial strategic decision, as is careful attention to pricing strategies for the various channels used. Understanding how customer segments shop across products can help match the appropriate

channel and insurance products with the most receptive segment. Despite these challenges, insurance companies should seize the opportunity to reach out to their customers directly.

Key Questions to Consider

Market and Customer

- What does direct to consumer distribution mean for us?(value creation)
- Which market and customer segment should we target?(value creation)
- How would we differentiate from Competition?(capture value)

Operating model

- Should we create a new channel infrastructure?(value creation)
- What core capabilities are required and what are the critical gaps? (value creation)
- Do we have the right leadership and experienced resources?(deliver value)

Product/ Pricing

- Do we have the right products?(value creation)
- Should we have different product/pricing by channel? (value creation)
- Should we offer channel specific incentives to consumers? (value creation)

Channel Value proposition

- What impact would it have on our agency channel? (capture value)
- How can it strengthen our agency value propositions? (capture value)

Technology

- Is our technology infrastructure ready for our strategy? (capture value)
- How can we leverage investments across channels? (deliver value)

Build vs. Buy

- Should we build or buy capabilities? (capture value)
- Should we grow organically or acquire? (capture value)

Today's digital tools and platforms have made the direct-to- customer approaches an accessible strategy. For established companies, the direct approach can open up new, more profitable revenue channels that can offset a stagnating, low-margin broker/agency environment.

But more importantly, taking a digital, direct approach can enable every brand to control their customer experience and deepen their relationship through data driven insights. For new and emerging companies in the InsurTech, can leverage their expertise in technology and expand on the insurance product offering as they don't have legacy limitations.

Companies could achieve this by expanding the breadth of their insurance product offerings. This will require additional capital investment. By combining traditional distribution and direct channels, they would enjoy a large reach. A business model recommendation for traditional companies to enter the digital direct-to-customer channel is provided in the next chapter with two use cases illustration how they overcame the barriers of channel conflict.

6 RECOMMENDATION FOR ESTABLISHED INSURANCE FIRMS

For established insurance companies, that run their policy management, policy administration, claims management and services primarily via the agency writers channel predominantly rely on legacy systems (like Delphi) and are unable to decouple their operations and system support from their legacy processes and systems.

The recommendation for these companies is to follow the Hybrid approach where an omni-channel experience gives the customer a seamless experience.

This approach is where established companies use the agency channel along with a parallel direct-to-consumer channel. Traditional distribution channels via agency channels aren't going away any time soon, though this channel could be considered as an aspect of the "Omni-channel". For established companies, it creates opportunities to deliver wider, more differentiated product offerings.

Advantages of the Hybrid Channel

The table 6 below shows the dimensions of each of the channels illustrating the many advantages that can be leveraged in a Hybrid channel.

Table 6: Channel Comparison

Dimension	Agency Channels	Digital Direct Channel
Reach	Finite	Unlimited
Personalization	Mass market	Personalized
Loyalty	Basic	Advanced
Access to customer	Limited, periodic	Comprehensive, real-time
Pricing	Partial control	Full control
Speed to market	Slow	Fast
Merchandising	Limited control	Full control
Assortment	Limited	Full
CAPEX	High	Low
Overhead	High	Low

Capitalizing on the digital tools and platforms to develop a direct-to-consumer capability can deliver a range of benefits across financial, operational and market dimensions:

- **Revenue growth** - Companies can establish their own direct connection with customers, increasing engagement and conversion rates through their own digital channels.
- **Improved margins** – Companies no longer have to negotiate margin sharing with wholesale

brokers, Managed general agencies and program administrators.
- **Expanded market reach** – Insurance companies don't need to be restricted by geography or their distributors' reach when they market and sell their products directly to consumers online. Now they can sell to the customer segments, allowing them to go global overnight.
- **Reduced capital expenditures** – Companies can reduce some CAPEX investment costs as they don't necessarily need to develop costly, cumbersome new agency channels to drive growth. They do however, need to invest in digital channels.
- **Improved customer data** – Companies can leverage the incredible wealth of data generated by digital tools and platforms to better understand their customers' preferences, lifestyles, demographics, and path to purchase. High value segments can be identified and targeted, while pain points in the customer journey can be alleviated.
- **Improved customer relationships** – companies can own their customer relationships by leveraging their data-driven understanding of customer behavior to deliver a more targeted value proposition.
- **Comprehensive products** – companies can provide a full line of products across a customer's life events like Business Owners Insurance, Workers Compensation, General Liability, Home and Auto. The new opportunities for these brands lie in growing the share of revenue they generate from their higher margin, direct channels. Insurance firms could achieve this by expanding the breadth of their insurance product offerings. This will require additional capital investment.

Limitations of the Hybrid Channel

An established company with no digital direct-to-consumer channels will achieve different results than a 'digitally native' company. Companies need to establish their motivations and objectives for going direct, identify which digital tools, platforms and traditional initiatives could be used, develop the business case, and estimate the ROI, and determine the sequence of execution.

Table 7: Product characteristics by channel preference

Exclusive Agency Channel	Direct Channel
More complex product	Less complex product
Less standardized products	More standardized products
Greater client service demands	Lesser client service demands
Longer client relationships	Shorter client relationships
Less mass-advertising	more advertising
Higher premium per policy	lower premium per policy

The major limitations of the hybrid channel approach, assuming the products of concern have characteristics that allow it to be marketed via the direct channel as shown in table 7 are:

- **Channel Conflict:** Carriers must address the additional challenges driven by agent and customer demands. Carriers already are spending large sums of money to provide capabilities for agents and self-service online support. If customers are serving themselves increasingly, carriers must address agent commission structures be changed over time. Carriers need to consider if agents be rewarded for supporting the self-service channels.
- **Additional IT costs:** Carriers also need to account for the added costs of mobile applications, enhanced call center capabilities, and websites.
- **Business Structure and Model:** Building trust as a "new insurance" company that looks out for the customer while leveraging the claims and loss handling machinery of the large company is an intrinsic barrier.
- **Price setting:** When the exact same product and services is offered via multiple channels with a price differential, the distribution system is upset. In some situations, insurers will provide "preferred prices" for banks and other alternative distribution channels that have more clout than agents. With the introduction of the online channel, this price variation will be more transparent and pronounced.
- **Agency Buy-In:** Carriers need to build up all their channels that are in their strategic approach by building strong agency management, agency satisfaction and a focus on the agency value proposition.

USE CASE: Liberty Mutual

In this section, the Hybrid approach taken up by two established companies are discussed. The company that was chosen for the case study is Liberty Mutual as they have been successful in implementing the multi-channel approach.

Liberty Mutual Insurance Group

Liberty Mutual Insurance Group's US consumer markets sells private passenger automobile, homeowners and specialty (including watercraft, motorcycle, recreational vehicle and umbrella) property and casualty (P&C) products in the U.S. under the Liberty Mutual Insurance and Safeco Insurance brands. Liberty Mutual serves its customers through a network of professional insurance agents, brokers, affinity groups, alternative distribution such as financial institutions department, and online.

Product Offerings
- Life products provide the opportunity for long-term saving, combined with specialized risk insurance coverage of the insured persons – both children and adults.
- Special products on Group Life, Personal Accident and Group Medical Plans are offered, accompanied by a complete administration and performance monitoring system.
- Special products exclusively designed for bank clients are being offered providing loan borrowers protection, among others.

Channels of Distribution
- **Call Centers**: a network of over 2,300 sales professionals pass through a special selection procedure and thorough specialized training, to contact potential customers and offer flexible solutions to best serve their present and future needs for security and protection.

- **:Independent Agency Channel** – Liberty Mutual's own agency channel, Safeco that has a strong agency management, record highs in agency satisfaction and a focus on the agency value proposition. The agents establish a long-term service and responsibility towards the customers.
- **Third-party producers/brokers:** One of the channels that Liberty Mutual strongly supports is distribution through brokerage companies. Joint product solutions, incentive systems and employee and management training programs are in place.
- **Financial Institutions**: Their insurance products are offered through insurance intermediaries as well as via advanced communication channels, such as bank assurance and direct marketing. They have partnerships with various financial institutions, offering a range of insurance plans. Specific life insurance programs combined with savings elements are designed for different types of bank portfolio segments. Also, the company has a range of insurance products to offer customers from financial institutions in the form of group credit life and accident insurance.
- **Online Channel:** Liberty Mutual also sells a range of P&C and specialty coverages online through their own website.

Key Lessons on how to successfully implement a Hybrid approach

A hybrid multi-channel distribution strategy offers customers a choice of ways to buy insurance products. A true multi-channel strategy covers purchases from an agent, purchases from a website, call center ordering, and comparison shopping sites. The hybrid multi-channel retailing strategy will maximize revenue and loyalty by offering your customers choice and convenience. Certain products cannot span through all the channels and may require specialized agency channels such as ones with high premiums, and/or high risk exposure as explained in chapter 3. This section focuses on the products that are not intrinsically restrictive and can be sold via all channels. Some of the key strategies that overcome the barriers to marketing via multiple channels by the above companies are shown below.

- **Integration of channels and reorganizing silos:** Liberty Mutual values every one of their distribution systems as important. It handled its insurance distribution channel by revamping its business strategy. Their strategy is to grow business by developing a distribution network that covers all the touch points for consumers. It also includes taking steps to improve the performance of its agency system through focusing on one independent agency channel - Safeco to expand their business.
  Safeco's exclusive agents are compensated to boost existing customer loyalty and grow revenues. The company's variable compensation to agents was increased from 10 percent to 25 percent commission, based on improvements in the agency's business, which improves cross-selling and building the scale of the firm[25].
- **Pricing:** When operating in a multi-channel strategy, there is the option of charging the same price for a product across all channels, or offering your customers different prices, depending on their channel choice. Offering customers website prices for policy

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[25] Mark E. Ruquet, Jun 03, 2011, propertycasualty360.com, Allstate Outlines Its Agent and Direct Distribution Strategies

premiums that are lower than prices quoted by agents reflects the lower overheads in website operations.

To deal with the pricing differential, Liberty Mutual created strategic business units with clearly defined parameters. They delineate markets through size and distribution source. At Liberty Mutual, Commercial Insurance Holdings unit handles accounts up to $75,000 in annual premium, and only through the independent agency system. The Business Markets unit handles all middle-market accounts, those with annual premiums of $75,000 to $2.5 million, and strictly through Liberty Mutual's direct sales force. a $60 billion small-account market through independent agency[26].

- **Interfacing with legacy systems:** going self-service with support mechanisms for both the Agency channel, customer service and direct-to-customer portal is an ongoing process at Liberty as integrating with legacy systems and systems from acquired companies.
- **Digital interfaces, apps, platforms:** Liberty built out their mobile technology. For example, Liberty Mutual's Home Gallery® app enables homeowners to keep an active home inventory – photos, prices, notes, etc. to make filing a claim much easier and to help ensure all belongings are itemized and insured for the correct amount. Liberty Mutual was named Compuware's "Best of the Web Mobile Leader," and the company's mobile site earned first place in the Auto and Property Insurance category. As for claims technology innovations, Forrester Research recently recognized Liberty Mutual for having the "Best-in-Class Auto Mobile Claims App," which outscored competing companies by a wide margin.
- **Data analytics and mining:** At Liberty Mutual the data available from multi-channel strategies is used to identify customer preferences and maximize lifetime revenue. The risk in a multi-channel strategy is that customers' information and profiles can become fragmented as they use several channels. Liberty's strategy integrated purchasing data consolidated into a single database to get a 360-degree view of your customer.
- **Training staff:** The company invests in training staff who interface with clients in all their distribution channels to promote transparency. Liberty ensures that all customer-facing staff in their call centers, agency, broker, and website development to understand and comply with the company's customer service standards.

Shortcoming of the analysis

This analysis and hence recommendation lacks the success measures and exploration of alternate options in devising the distribution strategy. To gauge the success of these initiatives, Liberty Mutual must constantly measure improvements. A quantitative analysis of trends and check points toward their long-term goal is lacking in this analysis.

Knowledge of the results of re-visiting early assumptions and using the data to refine the next phase will be valuable lessons that can be applied by other companies.

They come up with sophisticated apps for customers, continue further integration and differentiation of direct and agent channels, implement processes for customer acquisition and retention in a digital world. They have increased integration and use of software from

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[26] James F. Moore, Predators and Prey: A New Ecology of Competition, May-June 1993 Issue, Harvard Business Review

specialist suppliers, leveraging the data from the Internet of Things. These strategies seem to work well, but quantitative measure of what has been done and predictions of where this trajectory will take them will be useful as well.

Lastly, understanding the strategy they did not pick and the reasons for them will be useful to provide a qualified recommendation.

7 REFLECTIONS ON THE DIGITAL DIRECT CHANNEL FOR INSURANCE

The insurance market is huge. As seen in chapter 1, insurance premiums are $1.2 trillion dollars per year in the U.S. alone[27]. Of this total spend: 56% goes into life and health insurance and 44% goes into Property & Casualty insurance[3] (which includes auto, home, and commercial). Insurance sold through agents, which creates a steep customer acquisition cost for carriers. We see that most of the companies that intend to penetrate this channel are taking advantage of one or more of the major forces in the market today.

- **New channels (web/mobile):** Currently the bulk of insurance is sold through agents in-person or over the phone—however the next generation of consumers is used to purchasing goods directly online. Through mobile insurance can be sold directly at the point of need, in real-time, and in shorter durations.
- **New sources of data (big data, machine intelligence, wearables, connected cars):** Due to technological advances, we now can collect more data which potentially could better inform the insurance risk models we use today.
- **Potential for new types of insurance:** Peer to Peer, sharing economy (where people are both providers and consumers), self-driving cars (no need for personal auto insurance), internet of things (both a new data source, and a new attack vector), cyber security (a form of risk).
- **Potential for new structures of insurance (P2P, lowering the barriers of self-insurance):** Some startups are trying to reinvent the entire model of insurance and apply new models to the business of insurance.
- **Changing demographics:** Changes in consumer preferences have led to the emergence of the online distribution channels. The success of price comparison sites is a result of consumers becoming more aware and informed of their purchases.
- **Low interest rate environment:** Due to continued low interest rate environment, both life and non-life companies faced downward pressure on investment yields over the last 5 years.
- **High market volatility has affected investment returns:** Slow global growth and rising economic issues in different parts of the world add to this pressure and emphasize the need for geographic diversification of products and investments.

The main barriers for established insurance firms to enter the digital direct-to-customer channel are:

- **Channel Conflict:** Almost 10% of the Fortune 500 are insurance companies, with an average age of 95 years. These companies have relied on the agency channel for many years that it is difficult to reinvent organization and distribution structures in established firms.
- **Additional IT costs:** Carriers also need to account for the added costs of mobile applications, enhanced call center capabilities, and websites.

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[27] Market Realist,"An investor's guide to the insurance business, The US insurance industry: Largest in the world"

- **Business Structure and Model:** Building trust as a "new insurance" company that looks out for the customer while leveraging the claims and loss handling machinery of the large company is an intrinsic barrier.
- **Price setting:** When the exact same product and services is offered via multiple channels with a price differential, the distribution system is upset. In some situations, insurers will provide "preferred prices" for banks and other alternative distribution channels that have more influence than agents. With the introduction of the online channel, this price variation will be more transparent and pronounced.
- **Agency Buy-In:** Carriers need to build up all their channels that are in their strategic approach by building strong agency management, agency satisfaction and a focus on the agency value proposition.

To take advantage of the digital online channel, carriers need to recognize that this channel is a key piece of their distribution models. Insurance web sites will continue to expand, adding links to traditional sales channels like agents, while offering the e-commerce capability. The demand to support online sales depends greatly on the type of insurance offered and the target audience (i.e., personal vs. commercial lines). No insurance line of business is immune to e-commerce pressure. There are products from all types of carriers (e.g., healthcare, life, and property and casualty) that can be leveraged online, although the personal or individual insurance lines are currently the most affected by e-commerce. However, commercial insurers will face direct pressure from their customers to offer some level of sales. Carriers in this market must be closely attuned to their customer demands, and must proactively anticipate future requirements[28].

7.1 CONCLUSION

This thesis presented a study of the insurance industry and its distribution channels with focus on the digital direct to customer channel. It analyzed the Market landscape and players using system thinking frameworks to classify the business models of these companies. System Thinking was applied to the digital direct to customer channel in the insurance industry. A system dynamics modelling technique for causal loops was constructed to understand the dynamics among the key factors in the digital business as identified by interviews with business and IT professionals in the insurance industry. The market ecosystem, and business model for a digital platform and an established insurance carrier were described.

Based on the above, the thesis introduced categories, providing a framework so that related companies and businesses can be comparatively analyzed and summarized. To aid a business professional to make a guided decision, the thesis discusses the key opportunities, challenges and key questions to consider for companies in each of these categories. Based on the study ad analysis, and a case study, a recommended strategy for an established insurance carrier to overcome the barriers of sustaining in the direct-to-customer channel is outlined.

Regulatory and capital barriers to enter the insurance industry limit the impact of "standalone"

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[28] Gartner Inc.: "Insurance firms should investigate 'insuretechs' to complement their digital strategies"

technology companies. However, I believe the union of technical capabilities with a backer who brings in capital, regulatory fit and a recognized brand would be transformational for the sector along with product innovations and aggressively leveraging the enabling technologies.

7.2 FUTURE DIRECTIONS

This thesis presents a qualitative analysis of the digital direct-to-customer channel in insurance. It would be interesting to gain a better understanding based on a more mature industry that was once in the cusp of the digital transformation, like in the Financial services industry. An example case study would be the successful handling of channel conflict by Merrill Lynch. It would also be interesting to drill down into specific use cases of failures within the insurance industry like Google Insurance. This will enable a decision maker to home in on the strategies to deal with the most dominant barrier of channel conflict.

GLOSSARY

- Actuary - business professional who analyzes probabilities of risk and risk management including calculation of premiums, dividends and other applicable insurance industry standards.
- Adjuster - a person who investigates claims and recommends settlement options based on estimates of damage and insurance policies held.
- Agent - an individual who sells, services, or negotiates insurance policies either on behalf of a company or independently.
- Affinity group **-** An affinity group is any organization or group formed around a common interest or for a specified purpose. This includes businesses, clubs, fraternities and sororities, or other groups that exist for a common purpose such as AARP, AAA, and others.
  In insurance, affinity groups are used for distribution by providing discounts. An affinity group discount is granted to a club, business, or organization as part of an agreement in which the group agrees to encourage its members to purchase insurance from a certain auto insurance provider. These discounts vary from group to group and average between 5% and 20%.
- Captive/Exclusive agents- Captive/Exclusive agents are insurance agents who only works for one insurance company. A captive agent is paid by that one company either with a combination of salary and commissions or with just commissions.
- Casualty Insurance - a form of liability insurance providing coverage for negligent acts and omissions such as workers compensation, errors and omissions, fidelity, crime, glass, boiler, and various malpractice coverages.
- Claim - a request made by the insured for insurer remittance of payment due to loss incurred and covered under the policy agreement.
- Combined Ratio- The underwriting performance also known as the combined ratio is measured by dividing the losses and expenses values by the premium values. If it is over 100% it is called underwriting loss and if it is below the 100% then it is called underwriting profit.
- Exposure - risk of possible loss.
- Float **-** The Float is amount of value collected in premium within a given time and that has not paid out in claims. The investment of the float starts when the insurance companies receive the payments from the premiums and end when the claims are paid out.
- Liability - a certain or probable future sacrifice of economic benefits arising from present obligations of a particular entity to transfer assets or to provide services to other entities in the future as a result of a past transactions(s) or event(s). three essential characteristics: a) It embodies a present duty or responsibility to one or more other entities that entails settlement by probable future transfer or use of assets at a specified or determinable date, on occurrence of a specified event, or on demand; b) The duty or responsibility obligates a particular entity, leaving it little or no discretion to avoid the future sacrifice; and c)   The transaction or other event obligating the entity has already happened.

- Lloyd's of London - association offering membership in various syndicates of wealthy individuals organized for the purpose of writing insurance for a particular hazard.
- Managing General Agent (MGA) **-** A specialized type of insurance agent/broker that, unlike traditional agents/brokers, is vested with underwriting authority from an insurer. Accordingly, MGAs perform certain functions ordinarily handled only by insurers, such as binding coverage, underwriting and pricing, appointing retail agents within a particular area, and settling claims. Typically, MGAs are involved with unusual lines of coverage, such as professional liability and surplus lines of insurance, in which specialized expertise is required to underwrite the policies. However, MGAs also write some personal lines business, especially in geographically isolated areas (e.g., western Oklahoma, North Dakota) where insurers do not want to set up a branch office.

  MGAs benefit insurers because the expertise they possess is not always available within the insurer's home or regional offices and would be more expensive to develop on an in-house basis.
- Peer to Peer Insurance **-** This is an insurance model based on a shared economy approach, policy owners with the same insurance type form small groups by pooling insurance premiums from people who know and trust one another. That pot of money is used to pay members' claims, and members then keep any unused cash. Its competitive advantage for users is that the insurance company doesn't gain anything from denying claims, and is therefore more willing to reach settlements. A part of their premiums is paid into a cashback pool. If no claims are submitted, the members of the group get some of their money back at the end of the year. In case of claims, the cashback decreases for everyone. Small claims are settled with the money in the pool. In the event of bigger claims, the reinsurance company (which has financial incentive to see that claims do not exceed policyholder's self-insurance) covers any amount that exceeds the coverage through the group.
- Premiums Written - total premiums generated from all policies (contracts) written by an insurer within a given period of time.
- Property - coverage protecting the insured against loss or damage to real or personal property from a variety of perils, including but not limited to fire, lightening, business interruption, loss of rents, glass breakage, tornado, windstorm, hail, water damage, explosion, riot, civil commotion, rain, or damage from aircraft or vehicles.
- Reinsurance - a transaction between a primary insurer and another licensed (re) insurer where the reinsurer agrees to cover all or part of the losses and/or loss adjustment expenses of the primary insurer. The assumption is in exchange for a premium. Indemnification is on a proportional or non-proportional basis.
- Reinsurer - company assuming reinsurance risk.
- Underwriter - person who identifies, examines and classifies the degree of risk represented by a proposed insured in order to determine whether or not coverage should be provided and, if so, at what rate.
- Underwriting - the process by which an insurance company examines risk and determines whether the insurer will accept the risk or not, classifies those accepted and determines the appropriate rate for coverage provided.
- Underwriting Profit- Underwriting profit is the amount of premium value collected when the policy ends minus the amount of paid value on claims.

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