Data and analytics will reinvent insurers and insurance, if consumers trust us.

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Abstract

The continued growth of data and analytics in the world and in the insurance industry is seemingly inevitable. The range of applications and potential value generation is vast including, importantly, value for our customers through better insurance propositions. To realize that value, all companies must tread carefully -- and none more so than insurers. The use of data and algorithms raises fundamental ethical questions fairness and inclusivity. The industry must constantly question itself: Just because we can, does that mean we should? Overstepping the mark could result not only in significant regulatory restrictions, but loss of trust from the industry's most important stakeholder: customers. Trust is of paramount importance to the insurance industry because we sell largely intangible products based on the promise of a benefit payment should a claim event arise. The industry must resist the temptation to utilize data and algorithms cannot be easily explained to consumers and it must significantly increase the frequency of meaningful engagements with customers. Moreover, the industry and associated professional bodies must seek to engage in a broader societal debate on the value and future of insurance.

Keywords: Insurance, Data, Analytics, Trust, Transparency

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1. Introduction

The use of data and analytics has grown significantly in recent years as insurers have sought to increase the efficiency of their operations and build better propositions for their customers. This growth has been enabled are ever easier access to voluminous data sources and advances in analytics capabilities. The industry needs to ensure that opportunities presented by the growth in data and analytics will not be significantly curtailed because our consumers ultimately decide the benefits they receive are not worth the personal costs, such as surrendering their personal data.

Better propositions for consumers can be created in many different ways utilizing data and analytics. In the field of risk selection, the insurance buying process can be made quicker and simpler; pricing granularity and accuracy could be enhanced or access to insurance could be broadened. In product design opportunities may exist to offer more personalization of insurance contracts, a trend seen in many consumer industries. Advice could be made available to a wider proportion of the population utilizing more automation. The opportunities are near endless.

The permissions insurers have to operate in a market are determined at a minimum by the regulations governing them, but consumers' reasonable expectations also play a significant role in shaping the nature of consent. In some countries this has been codified in principles-based approaches using terms such as, in the UK for example, "Treating Customers Fairly". If the industry breaches that duty of care and trust, it can certainly expected increased regulation to follow. As the chairman of the European Insurance and Occupational Pension Authority

(EIOPA) said at the 2018 International Congress of Actuaries, "If one of those pricing algorithms

goes wrong the response will be massive regulation" [1].

Trust is of paramount importance to the insurance industry because we sell largely intangible

products based on the promise of a benefit payment should a claim event arise. In addition to the

fundamental need for trust to enable insurance, upholding or improving levels of trust will be

essential to advance the industry's use of data and analytics in insurance risk pricing.

Many InsureTech companies are entering the market by utilizing data, analytics and modern

digital customer journeys and presenting themselves more transparently than existing insurance

companies. For example, Lemonade publishes "Transparency Chronicles"[2] describing how they

are addressing a range of issues and openly admit when they haven't done as well as they would

like. These approaches, and by positioning themselves as different to the established insurers,

have allowed some InsureTech companies to develop significant levels of trust with early

adopters in their target markets, which are often millennials.

Insurers Lack Customer's Trust

Unfortunately the insurance industry is not starting from a position of strength with respect to the

trust the public places in it. The following chart, from Edelman's Trust Barometer report 2018[3],

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[1] Gabriel Bernardino speaking at the Future of Regulation Plenary Session on Friday 8 June 2018 at the 2018 International Congress of Actuaries in Berlin.
[2] https://www.lemonade.com/transparency . Accessed, 28 June 2018
[3] Data taken from Slide 46 of http://cms.edelman.com/sites/default/files/2018-02/2018_Edelman_Trust_Barometer_Global_Report_FEB.pdf . Accessed 17 June 2018. Respondents

is based on the online survey results from 1,150 respondents in each of 28 markets. The report

has consistently showed financial services as being the least trusted of the major industry groups.

Further, the report shows that the level of trust in financial services has improved relatively well

over the past five years, albeit from a low base stemming from the 2008 global financial crisis.
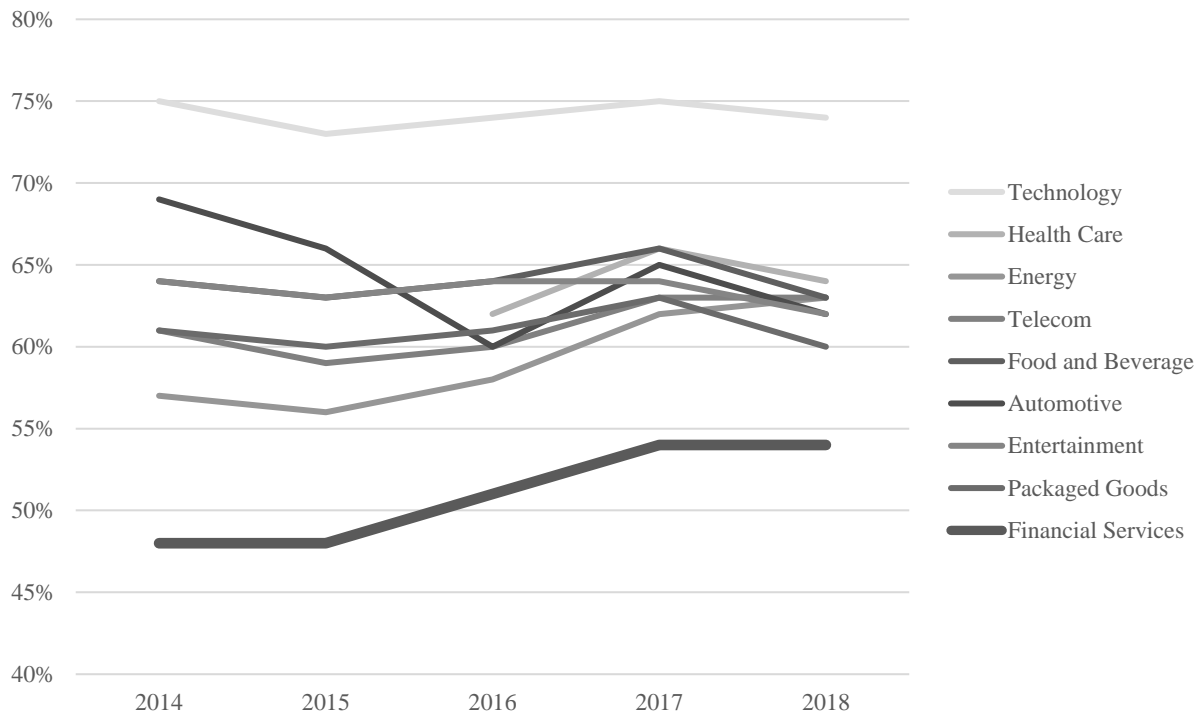
According to Edelman's surveys, within financial services, the Insurance industry has

consistently ranked below Banks, Credit Card companies and other forms of payments.

Other research confirms the low level of trust in the insurance industry. For example:

were asked to place businesses on a 9 point scale indicating the level of trust someone has in businesses
within an industry.

- IBM's 2015 survey[4] showed that only 43% of consumers trust the insurance industry;

- YouGov's 2017 Survey of US consumers revealed that only 10% of respondents trusted insurance companies a lot.

This lack of trust has already inhibited insurance companies' ability to drive better data and analytics based propositions, most notably in usage-based insurance (UBI). In 2013, the National Association of Insurance Commissioners cited privacy as the main obstacle to adopting UBI[5].

A different perspective on trust is that of individual brand strength, accepting that brand strength encompasses more than just trust. In Interbrand's Best Global Brands Report of 2017[6] the top brands are Apple, Google, Microsoft, Coca-Cola and Amazon. The top only two insurance brands (Axa and Allianz) and eight other financial services firms (American Express, JP Morgan, Goldman Sachs, Citi, HSBC, Visa, Morgan Stanley and Santander) made the top 100. Axa's brand is valued at one sixth of Amazon's and around one-seventeenth of Apple's. The fact that Insurance Brands are less well rated than other financial services is also borne out by The Harris Poll's EquiTrend report from 2016.

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[4] https://www.ibm.com/blogs/watson-customer-engagement/2015/09/22/do-you-trust-your-insurance-company/ . Accessed 16 June 2018
[5] http://www.naic.org/documents/topic_usage_based_insurance_future_of_auto_insurance.pdf . Accessed 17 June 2018
[6] http://interbrand.com/best-brands/best-global-brands/2017/ranking/ . Accessed 17 June 2018

Of course, lack of trust isn't always a barrier to providing services. The Cambridge Analytica /

Facebook scandal of 2018 led to an astonishing drop in trust in Facebook (79% in 2017, 27%

after the scandal broke[7]) but short-term indications are that the tangible impact on the company

is limited. For Example, at time of writing the share price of Facebook is above pre-scandal

levels, and surveys suggest perhaps 10% of users deleted their accounts as a result of the scandal

but I would suspect these were not heavy users of Facebook. The longer-term impact on

Facebook remains to be seen; however, it is in a very different position from the insurance

industry as they provide a service that many users would view as essential to their lifestyle. It

also has a significant brand coming in at eighth place in the Interbrand Global Rankings.

The insurance industry does seem to be a platform of trust when it comes to consumers sharing

data with Insurance Companies. The May 2015 Harvard Business Review article on data and

trust and transparency[8] reported that the U.S. consumers rated insurance companies relatively

highly when it came to their being willing to share sensitive personal data with a firm because

they trust the firm not to misuse it, especially if in return they got a desired service.

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[7] Ponemon Institute as reported by the Financial Times and Business Insider.
http://www.businessinsider.com/facebook-trust-collapses-after-cambridge-analytica-data-scandal-2018-4 . Accessed 20 June 2018.
[8] Customer Data: Designing for Transparency and Trust. Timothy Morey, Theodore Forbath and Allison Schoop. Harvard Business Review. May 2015. https://hbr.org/2015/05/customer-data-designing-for-transparency-and-trust

Percentages of consumers who said that each category of organization was "trustworthy" or "completely trustworthy" when it came to making sure that personal data was never used					
87%	85%	80%	77%	**76%**	76%
Primary Care Doctors	Payment of Credit Card Companies	E-commerce firms	Consumer electronics firms	**Insurance companies**	Banks
73%	70%	68%	66%	61%	56%
Telecom carriers	Technology firms	Internet giants	Governments	Media and entertainment companies	Social Media firms

It is interesting that Edelman's trust barometer indicated technology companies were highly

trusted, but this set of results shows that E-Commerce firms in particular are trusted with data.

That would seem to suggest that a company like Amazon (fifth top-ranked global brand

according to Interbrand) would be well placed to expand the number and type of its service

offerings that are enabled by data and analytics; this may enable expansion into insurance

services.

Regulations

No discussion of data can fail to recognize the increasing protections being provided to

consumers and the resulting compliance obligations that global data protection and privacy

standards are generating. Most notably, the European Union's (EU) new General Data

Protection Regulation (GDPR), a harmonizing piece of legislation that creates a modern set of

data laws across the whole of the EU, recently went into effect. (A number of elements of this

new regulation will be touched upon later in the paper). It is also worth noting that new data

protection laws are a global phenomenon with new laws either recently enacted, or soon to be enacted, in Japan, Taiwan and South Africa (to name a few).

Anti-discrimination laws also have a key role to play in addition to data protection and data privacy laws. Equality laws establish protected characteristics upon which discrimination is not allowed, although derogations are commonly granted for insurance pricing in some cases.   For example, in the UK Equality Act 2010 the following nine characteristics are protected: age, disability, gender reassignment, race, religion or belief, sex, sexual orientation, marriage and civil partnership and pregnancy and maternity. Further, according to the UK Equality Act, price discrimination is allowed for insurance contracts on the basis of age and disability provided such discriminations are proportionate and based on relevant and accurate actuarial and statistical data that is regularly updated and available to the public. This creates a tension between what is considered a fundamental right in anti-discrimination laws and specific challenges in insurance where "equality" generally means that those with similar risk factors must be charged the same.

That tension was famously exposed in the Test-Achats case in the EU, in which the derogation granted for age for the purposes of insurance pricing did not stand against a specific legal challenge as to compatibility of these exemptions with the fundamental principle of equal treatment. The key legal opinion recognized that in this case use of gender was (at least in part) an over generalization and many other factors play an important role. Thus the ruling reinforced the need for the use of detailed and causal factors wherever possible (although prohibited, for life insurance at least, the use of one clearly causal factor).

Finally, the use of genetic data in life and health Underwriting deserves special mention here. The use of genetic data is particularly sensitive because people fear their genetic profile will (unfairly) determine the course of their lives (not helped by dystopian science fiction films and television shows). Across the world there is a mix of legislative approaches ranging from no regulation at all, to voluntary industry memoranda, to bans enshrined in regulation, and a number are currently under review or have recently changed. For example, Canada passed S201 in March 2017 which prohibits the use of genetic test results by all insurers. Additionally, the Australian government is proposing to enact a complete ban on the use of genetic information in life insurance underwriting.

2.   The Fundamental Questions The Industry Must Ask

This section discusses the three fundamental questions that are central to the use of data and analytics in insurance:

- What do customers want?

- What data should the insurance industry use?

- How transparent do algorithms need to be?

What Do Customers Want?

This question seems simple, but consumers struggle to answer it.   As Steve Jobs said, "A lot of times, people don't know what they want until you show it to them." Acknowledging that issue, from a life and health insurance perspective it seems to be universally accepted that consumers want quick and easy:

- ways to purchase insurance;

- settlement of claims;

Consumers also want certainty of cover which encompasses two key topics:

- That their specific insurer and the insurance industry in general continue to exist as a going-concern;

- Their coverage will continue as long as they need it, either via a long-term contracts or via guaranteed renewability options.

When it comes to price, consumers clearly want to pay as little as possible, which, in practice, is difficult for insurers to reconcile with consumers' desire for ease and certainty. It's also related to how granular a country's risk pools are, a point that will be covered shortly.

Another element of delivering low consumer prices is the control of fraudulent claims. As ease of obtaining coverage increases, so does the opportunity for fraud unless a better way to validate client disclosures can be found. Use of data is no doubt part of the solution to this issue, and it could also produce a sentinel effect. Several insurance markets globally utilize contributory databases to pool data on insurance applications and claims to help prevent fraud (for example, MIB Group Inc.[9] in the U.S. and the Claims and Underwriting Exchange in the UK[10]).

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[9] https://en.wikipedia.org/wiki/MIB_Group.
[10] https://www.mib.org.uk/managing-insurance-data/mib-managed-services/cue-miaftr/.

Consumers' overriding feeling, of course, is that they (apart from fraudsters) don't want to ever claim on their insurance policy because if they do it means something has gone wrong in their lives.

Looking to the future there is no doubt that consumers will demand more explicit value in exchange for their data. GDPR recognizes the rights of consumers to data portability, that data a company holds on an individual can be extracted from their systems and passed back to that person in machine-readable formats, and which he or she can then use to obtain personal value. Therefore, it will be essential for insurance companies to provide to their customers shared-value services that leverage their personal data for mutual benefit.

The Concept of Fairness in Risk Pricing

The fundamental question here is whether insurers should work to charge prices that most accurately reflect the risk or maximize access to insurance. Advances in data and analytics as applied to risk pooling and risk pricing have a natural tendency to drive ever more granular underwriting that involves more rating factors, possibly resulting in ever smaller risk pools. This makes it possible to offer lower prices for the best risks, but consequently the poorer risks have to contend with higher, potentially unaffordable, prices. Should the industry be striving for truly individualized approaches to consumers as we have seen in many industries, and should pricing reflect that? Do consumers even want this? Just because better data permits more pricing, there is no requirement that this be the case. It is the industry's choice whether to use data in this way.

The issue of risk pooling is intensely culture-specific, and not every country responds in the same way. It is a topic that drives at a society's sense of fairness and concerns about discrimination:

- For some countries, fairness is about paying a price that most accurately represents the risk a specific consumer brings to the risk pool. In these countries smaller risk pools tend to predominate; preferred life underwriting classes in life insurance in the U.S. and the highly detailed motor insurance rating approaches in the UK are two examples.

- In other countries, fairness is about inclusivity and trying to set a price that includes as many people as possible. Here more heterogeneous risk pools predominate.   The Japanese life insurance market is an example of one where the number of risk factors and depth of underwriting are generally very limited compared to other Western markets.

Culturally the differences in views on fairness in insurance pricing could may align to how individualistic or collectivist the culture is.

While considering societal differences regarding fairness in insurance, it is also worth consider how people in a society place value in different data types. In the previously mentioned paper by Morey, Forbath and Schoop, respondents were asked the approximate amount they would pay to protect each data type (in U.S. dollars, adjusted for purchasing power) in five countries. Based on the results shown below, there are clear trends not only where a country has much stronger

views of the value of data protection (for example, Germany versus India) but also within

different data types (health history highly valued in Germany and the UK but not in the U.S.):[11]

	United States	China	India	UK	Germany
Government Identification	$112	●	●	⬤	⬤
Credit Card Information	⬤	●	$22 ⬤	⬤	⬤
Digital Communications	⬤	$4 ●	·	⬤	⬤
Web Browsing	●	·		●	●
Health History	●	●		$59	$184

That these geographical differences exist should be borne in mind as we consider our next

question – what data should the industry use. Clearly the answer will differ by country and

culture.

Generational differences also need to be taken into account. Surveys regularly show that the

millennial generation are happy to share a wide range of data in return for lower prices. In a

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[11] Original source included other types of data, all with low amounts (e.g., search history, location, purchase history, contact information).

recent survey of 8000 consumers globally[12], 62% of people aged between 18 and 34 said they would be happy for insurers to use third-party data from the likes of Facebook, fitness apps and smart-home devices to lower their price. This compares to 45% of 35-54 year olds and 27% of those aged over 55.

What Data Should the Insurance Industry Use?

A wide range of data, which the insurance industry considers to be rating factors, informs insurers about the current and likely future health prospects of an individual. The data spans a range of domains including:

- Basic demographics (for example, age and gender)

- Socio-economics (for example, salary and wealth)

- Behavioral (for example, risk-taking behaviors)

- Health and biometric data (for example, history of major morbidities and blood pressure)

The data could be risk factors themselves or proxies for risk factors. Collecting a wider range of data items theoretically permits more accurate and granular pricing.

This section covers the following aspects of data use:

- Equal access to relevant data between consumer and insurer;

- Ensuring consumers seek data that could have health benefits;

- Using third-party data;

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[12] Survey by Mulesoft inc, as reported by Bloomberg https://www.bloomberg.com/news/articles/2018-06-19/most-under-35s-ok-with-insurers-digital-spying-if-it-cuts-prices . Accessed 28 June 2018

- Granularity of data, whether it be individual, household or small geographical area;

- Adherence to regulation and the impact of data breaches.

Equal access to relevant data between consumer and insurer

When a consumer has more data on their probability of claiming than the insurer then information asymmetry exists. If the consumer then has a mechanism to evaluate that data with respect to their potential risk the potential for anti-selection arises. Anti-selection permits those at higher risk to extract more value from the insurance pool, which presents a question of fairness to answer. At the extreme, anti-selection has the potential to render voluntary insurance systems unviable. Therefore, the insurance industry should always adopt the stance that it should be permitted to see and use any data that the consumer has about themselves as it relates to the risk they are seeking to insure. That said, the industry does not want to be unnecessarily intrusive for a wide range of reasons, so asking for data that can clearly be demonstrated as relevant is a key consideration.

Being able to prove the relevance of the data to predicting the risk would ideally be based on a body of statistical analysis and a plausible causative argument. Relying solely on a statistical analysis would raise concerns about the relationship being purely correlational, which is undesirable for three reasons:

1) For the consumer, can insurers properly explain and justify a decision based only on correlation?

2) For the insurer, will the correlation last for the duration of the contract, or indeed prove robust if applied to different groups of lives?

3) Proxy variables could unintentionally be used to make rating decisions based on underlying factors that are either prohibited by regulation or which are viewed as unacceptable by the insurance industry in a given country, such as ethnicity, sexual orientation or educational attainment.

What about consumers having access to all the data insurance companies hold? Being open and transparent with the data a company holds on an individual will be a key determinant of who is trusted and who isn't in the future. It was fascinating to note how, in the wake of the Cambridge Analytica / Facebook scandal, Facebook took significant steps to be more transparent about the data that it held on people and made available to advertisers using the site. This was a way of rebuilding trust. Google had started to take steps in this direction with its Dashboard offering many years before[13]. Insurers offer nothing like that degree of transparency. This will become a significant issue for insurers, as companies that are transparent with the information they gather and give customers control of their personal data will likely be the ones that are trusted and earn the right to expanded access.

Ensuring consumers seek data that could have health benefits

An interesting point related to information asymmetry is the situation where a consumer wants to undergo testing to obtain more information about themselves but does not do so because of concerns about how the results may impact what insurance they can buy. This point is raised often in connection with genetic testing as it relates to life and health insurance. Access to the

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[13] https://en.wikipedia.org/wiki/Google_Dashboard. Accessed 19 June 2018.

genetic data could permit lifesaving medical interventions but could also render the person

uninsurable.   Clearly this situation is highly undesirable and solutions would be needed.

Use of Third Party Data

The insurance industry is unique among other industries in regard to how few touchpoints it has

with its customers throughout the duration of the contract. Each touchpoint generates data and

an opportunity to build trust. Having so few touchpoints means low volumes of data and

relatively narrow views of customers on an ongoing basis, so naturally insurance companies turn

to third parties to help broaden their understanding of their customers.   The lack of interactions

is illustrated in the chart[14] below, with four insurer types being seen to the left of the chart:

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[14] Transforming Life Insurance with Design Thinking. Markus Berger-De Leon, Jochen Kühn, Ildiko
Ring, and Maximilian Straub. McKinsey and Company. May 2016.

Estimated average number of customer interactions per year
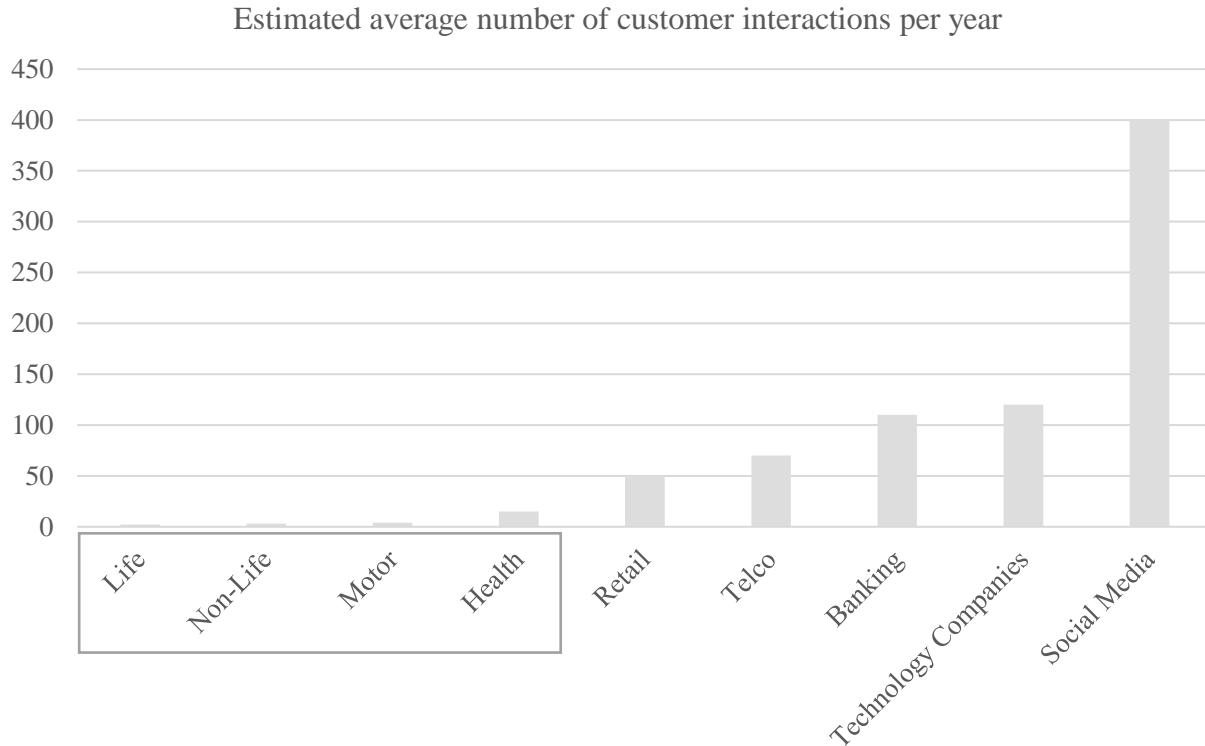
Third party data is a broad term encompassing many different data providers with differing

authorizations. In some cases explicit consent is received from the consumer at the time of

application to access the data held by another party (for example, consent to collect medical

data).

In other cases, insurers purchase volumes of third-party data for use in models without any

explicit consent from the consumer. It is these latter cases that should raise the biggest concern

for the industry. This is a very big business spanning many industry verticals. In 2014, the U.S.

Federal Trade Commission showed that 2012 revenues from nine data brokers totaled

approximately $426 million.[15] When that figure is scaled globally and incorporates the growth

in this market since 2014, it's clear that this is a multibillion-dollar business. The main concerns

are:

- How much of the data is directly verified rather than being inferred based on other

  attributes collected in the data (i.e. are gaps in the data being left blank or filled in with

  estimates based on the results of models)?

- What is the latency in the data? When was it collected? If it was correct at the time of

  collection is it still correct now?

- If challenged on how the company came into possession of the data, could an insurer

  willingly share this information?

- How should a "thin" data record be interpreted? Should customers be penalized for

  leaving a small digital footprint?

While all these points have always been true their importance becomes more apparent as modern

data protection laws permit consumers to obtain copies of all the data a company holds on them.

More broadly, though, would consumers reasonably expect insurers to be making key decisions

that affect them based on data that they have no knowledge of what it is or how it was obtained?

To reiterate the earlier point, not all third-party data is created equal. In particular, credit data in

many countries is strictly regulated and shares all the features one would want in a third party

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[15] Data Brokers. A call for Transparency and Accountability. Federal Trade Commission, May 2014. https://www.ftc.gov/system/files/documents/reports/data-brokers-call-transparency-accountability-report-federal-trade-commission-may-2014/140527databrokerreport.pdf.

data source – low latency, strong regulation regarding who can use it and when, no modelling out

of data elements and tested approaches for consumers to inspect and correct data.

Within this area the use of social media data deserves special consideration. To what extent is it

appropriate to mine social media data for insights to be used in risk classification? In November

2016, the UK insurer Admiral launched a trial of using Facebook data to provide discounts to

new drivers if their Facebook data suggested they were a good risk.[16] Admiral sought individual

consent to access the data, but Facebook intervened and closed down Admiral's access to the

posts. Facebook's terms[17] clearly state that "You own the content that you create" and "You are

free to share your content with anyone else, wherever you want." But if that is the case, then

what was wrong with Admiral's approach? Facebook's objection seems to have been based on a

fundamental decision that if Facebook data were to be used in this way, there would be an

incentive for people to be less authentic on the site. Given that Admiral's algorithms worked to

assess personality using Facebook data there were similarities to Cambridge Analytica's

approach raising risks of association in the press. I would propose that although Facebook was

strictly wrong to do what it did according to its own terms and conditions, it may have saved the

insurance industry some collateral damage. As consumers assert their ownership rights over

their data more and more, it will be interesting to see how social media data use develops.

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[16] https://www.bbc.com/news/business-37847647. Accessed 19 June 2018.
[17] https://www.facebook.com/terms.php. Accessed 19 June 2018.

Granularity of data

As an example, the use of zip codes for life insurance pricing in the U.S. is strictly prohibited to

avoid the possibility of indirect racial discrimination; conversely, use of Postcodes has been a

major feature of annuity pricing in the UK for many years.   This example serves to demonstrate

again that there is no single answer that is right for all markets.

Adherence to regulation and the Impact of Data Breaches

Adherence to regulation is a consideration that sets the minimum standards that apply. Assuming

the new EU GDPR[18] will set the global standard that other countries will adopt in due course, use

of data in risk scoring algorithms will probably be lawfully processed under the principles of

having obtained explicit consent or because it is necessary to do so for the execution of the

contract.   Furthermore, GDPR imposes specific responsibilities on the insurance company, both

where data is obtained from the data subject (Article13) or not (Article 14).

Other key clauses which will affect the data being utilized include: Right to Rectification (Article

16) and Right to Erasure (Article 17).

Because insurers must adhere to anti-discrimination legislation in all cases, data that clearly

infringes on protected characteristics should not be used in the model-building process, but it

should be checked against in the validation stage to ensure that indirect discrimination has not

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[18] https://gdpr-info.eu/ . Accessed 19 June 2018

taken place because of hitherto unidentified correlations between data in the model and protected characteristics.

Data loss incidents are now attracting significant media attention and threaten extreme reputational risks, not to mention significant fines and costs of remediation. For example the Equifax's loss of data on up to 147 million people[19] in October 2017 is still being reported 9 months later and has led to new data security rules being imposed on them and nearly $243 million of spend dealing with the fallout[20]. The insurance industry simply cannot afford such a breach given it lacks the brand equity to overcome it.

How transparent do algorithms need to be?

Transparency is a relative term and to a large extent is determined by the technical skill, interest and knowledge of the person to whom the model is being described. For insurance purposes, companies should assume that consumer technical skill, interest and knowledge are all low and aim to build highly transparent models.

GDPR codifies the right for a data subject to have a decision made by an automated tool to be reviewed by a human being. This simple right reflects the general public's mistrust of automated algorithms, but it also serves to ensure companies have decision making algorithms that are interpretable.

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[19] Business Insider, http://uk.businessinsider.com/equifax-breach-check-details-update-2018-5 . Accessed 28 June 2018.
[20] New York Times article published 27 June 2018. https://www.nytimes.com/2018/06/27/business/equifax-data-security.html . Accessed 28 June 2018.

The comments in the data section regarding the desire for causation arguments rather than pure correlation arguments also apply here. In this case, the specific observation is that the way in which variables interact in a model should capable of explanation using deeper causation arguments.

It's worth remembering that, for all the suspicion that complex algorithms engender, human experts also bring a range of cognitive and cultural biases to their interpretation of data, so a carefully constructed algorithm based on strong data could provide a less biased than the human expert.

3. What The Industry Must Do

So far I have developed arguments and exhibits that demonstrate that:

- The insurance industry lacks the trust of its consumers and has limited brand strength. Technology companies, particularly e-commerce companies, seem to enjoy the highest degree of trust.

- Data privacy and regulations and anti-discrimination laws provide a minimum set of restrictions on how insurers can operate. More important is living up to consumers' reasonable expectations.

- Consumers have a clear set of preferences about insurance that are to some degree in conflict with one another, and the optimum balance depends on the specific characteristics of a given country's cultural norms.

- Significant opportunities to use data exist, but the use of any data should be managed carefully because of the wide range of elements that influence the data landscape.

- Algorithms should be transparent and capable of being explained to consumers as a key way of developing and maintaining trust.

So where to next for the insurance industry? There are many tactical activities that could be undertaken to increase trust across the industry, but I limit the discussion here to those directly related to data and analytics. In this section I propose three areas of work:

- Increasing the number of shared-value touchpoints the industry has with consumers

- Increasing overall levels of transparency

- Society level education and debate

Increasing the number of shared-value touchpoints the industry has with consumers

When insurers regularly engage with consumers it provides more opportunities to demonstrate value and build trust. And, by using their customers' data in these engagements, insurers are implicitly renewing their consent to use it.[21]

How can the life and health industry increase the number of value-adding interactions? One solutions is the incentivized wellness concept pioneered by the South African company Discovery and exported around most of the world as Vitality. The Vitality program is an

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[21] Which I would argue is much stronger than "explicit consent" that is obtained through someone agreeing to a set of terms and conditions or Privacy Statement.

expression of the shared-value concept where actions taken by the insured and insurer create

value for the insurer, which then shares that value with the insured. Operating such a scheme

would address many of the issues raised earlier in this paper related to building trust and

transparency:

- It demonstrates the alignment between the goals of the consumer and the insurer to improve the quality and quantity of the customer's life.

- Reducing the probability of a claim means the chance of something going wrong in customers lives has been reduced – that adds real value and aligns our industry's interests with those of consumers, which in itself builds trust.

- Consumer data is being regularly utilized to provide health scores which implicitly refreshes the permissions the industry has to use lifestyle related health data.

- There is a transparent, understandable link between the use of data and how that translates into benefits and insurance discounts.

- The number of touchpoints between consumer and insurer increases significantly, and the consumer freely provides more data through the interactions.

- Insureds are incentivized to provide all the data they have that relates to the risk if access to interventions that address those concerns is available via the scheme and they realize benefits from addressing those risks.

The key challenge here is determining what level of engagement consumers want with their

insurers.

One of those challenges is that apps and reward schemes are a very crowded space. Consumers already typically use 10 different apps daily and 30 different apps a month.[22] Further, on average people belong to 13 different loyalty schemes, of which they use roughly half.[23] Is there room for another app and another loyalty scheme in an already competitive environment? The key differentiator for insurance related wellness programs is the potential to add tangible value to the insurance product by providing rewards which touch everyday activities like buying a coffee or cinema tickets.

Another challenge is the pricing of such schemes, given that insurance is a relatively low-margin business. Many schemes can only provide generous benefits to a small number of members if large numbers pay but do not receive any benefits. This does not feel like a long-term, sustainable position.

The insurance industry should consider whether to create its own plans or be a component part of existing schemes. Being part of a trusted existing scheme would allow insurers to benefit from some transference (or borrowing) of trust to enhance their own scheme. It may also prove to be more cost-effective.

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[22] Spotlight on Consumer App Usage. App Annie.
http://files.appannie.com.s3.amazonaws.com/reports/1705_Report_Consumer_App_Usage_EN.pdf.
Accessed 19 June 2018.
[23] The 2016 Bond Loyalty Report.
https://info.bondbrandloyalty.com/hubfs/Bond_Brand_Loyalty_2016_Loyalty_Report_Infographic.pdf?t=
1529060740325. Accessed 19 June 2018.

Increasing overall levels of transparency

The level of transparency about data that is captured and how it is used needs to be better communicated to consumers. The industry has made great strides in delivering electronic new business journeys in many countries, but investments in online policy management have generally been lacking, not least because consumer demand seems limited for these services. When considering life and health application processes, it should be noted that most companies simply digitalized existing paper application forms, so despite offering an electronic process, the experience is still poor.

By not providing a modern application experience, not only do we potentially inconvenience our consumers, but this loses a key opportunity for transparency and building trust that would result from immediate consumer feedback from a responsive newly designed system. It is through the use of responsive newly designed systems that Insurtech companies are able to rapidly gain trust from their target markets.

In the life and health space, as it is in many lines of insurance, the underwriting process is opaque. Opportunities to provide insights on a person's health after having assessed their application could be an added-value service as well as increase transparency and trust. Imagine if your life policy had been offered non-standard terms and you received clear information on the reason why, including advice on what would need to change to avoid the rating. The industry does not do it due to fears about creating legal liability, encouraging mis-disclosure and unintentionally sharing rating philosophies with competitors, but there are significant upsides to be gained from building trust.

One of the great hopes for increased transparency and trust in many industries is the application of blockchain and particularly of smart contracts. These technologies could work to:

- Give the consumer much greater control over their data and who can access that data (which in turn should allow them to monetize their data rather than data brokers);

- Provide information automatically on when a potential claim event occurs;

- Process claims without the need for automation.

Axa already provides an example of the last two points with its blockchain solution to flight delay insurance.[24]

Society-Level Education and Debate

Consumer desires are often interpreted and expressed not by the consumer but by governments, regulators, the press and vocal individuals who believe they understand the general public's view. Therefore, the industry should enter into a broad engagement of education and debate. The broadness of that debate encompasses all public relations activities, including communication through social media channels. In the current world, those who regularly share their thoughts online can shape public opinion far more readily than they have ever been able to before.

Delivering that education and debate should be the role of individual companies, industry bodies and professional associations. There is evidence of this taking place in many countries, but more

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[24] https://group.axa.com/en/newsroom/news/axa-goes-blockchain-with-fizzy.

effort needs to be made here. The education is generally centered on how the use of data makes

insurance work better for people,[25] but a wider debate on fairness and equity and how they

should be reflected in insurance risk pooling is required. It may be that commercial solutions

alone cannot provide what a society wants from its insurance system and other concepts need to

be explored, for example public/private partnerships, community rating schemes, etc. The

industry needs to be open and transparent about what solutions it can provide. Without such

transparency at this fundamental level, it will be hard to be transparent with consumers.

4. Concluding Remarks

The boundaries of what the insurance industry could and should do will grow as trust and

transparency in the industry grows and the industry succeeds in returning ever more value to

consumers through use of their data. Increasing consumer value generation, trust and

transparency is a challenge all insurers around the world need to place at the center of their

business strategies. Success will result in a fair access for insurers to a broad range of data.

Failure will result in greater regulatory restrictions which prevent insurers from using anything

but the most basic of data[26].

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[25] For example, the UK's Association of British Insurers (ABI) published such a paper in 2015.
https://www.abi.org.uk/globalassets/sitecore/files/documents/publications/public/2015/data/how-data-makes-insurance-work-better-for-you.pdf.
[26] A fuller description of potential outcome scenarios is included in the Geneva Association report Big Data and Insurance: Implications for Innovation, Competition and Privacy. Accessed 28 June 2018.