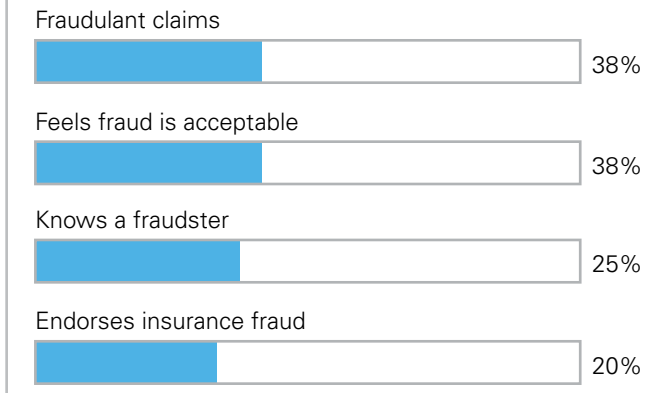
Marnus Van Heerden
Senior Accountant,
Financial Services
Tel: +27 72 475 8978
Email: marnus.vanheerden@kpmg.co.za

Chris van Eden
Senior Accountant,
Financial Services
Tel: +27 72 787 9543
Email: chris.vaneden@kpmg.co.za

BEHAVIOURAL ECONOMICS
Perception is King to reality's court Jester

Dan Ariely, a world renowned behavioural economist, has described the current insurance model as pretty close to the model you would build if you wanted to get people to behave badly. In part, this is due to the incorrectly designed incentives that are inherently present in the insurer-customer relationship. Incentives have long been used in a variety of ways as a means for people or organisations to encourage the way in which they want people to behave.

Fraud in Insurance



The poor design and structuring of incentives is evidenced in the fact that insurance fraud contributes to an estimated 38 percent of claims. In a study done in Australia, 38 percent of consumers stated that there are no losers if people defrauded insurance companies.

One quarter of participants knew someone who had committed insurance fraud and 20 percent even endorsed insurance fraud. It has clearly become socially acceptable. But why is this?

A simple experiment:

10 participants are asked to make a R10 maximum donation in private to a pot. The administrator will then double the total and the resulting total will be divided between participants. For the first few rounds all members pay the full R10. The pot totals R100 and is doubled to R200 by the administrator. Everyone gets R20 back and makes a profit of R10.

This works for a couple of rounds until 1 participant starts to "game the system". He puts in no money. All nine other participants put in R10. The total of R90 is doubled to R180 and everyone gets R18 out with nine people making a R8 profit and the "gamer" making R18 profit.

Slowly, more participants figure this out and stop putting money in until only one person puts in R10, the pot is doubled to R20 with everyone getting R2 in return with nine people making a R2 profit and the only contributor making an R8 loss. A lack of transparency in the structure of the game has ruined what was supposed to be a very profitable scheme for all members.

The same can be said for insurance.
The structure of the model and a lack of transparency has done significant damage to the consumer perception. A study performed by emerging Insuretech Company Lemonade, found that a large proportion of Americans see insurance as a grudge purchase and do not believe their insurance company will pay them in the event of a claim. Tweaking the above game to make everyone's contributions transparent, allowing them to choose who they would like to share a pot with or by correlating returns more to contributions would have a profound impact on the result and the same can be said for insurance.

A lot of the effort at healing the insurance industry has been focussed on the **reality** of insurance through Treating Customers Fairly ("TCF") and regulation. This has focused the efforts on the symptoms rather than the disease. For example, the ombudsman and FSB have put mechanisms in place to prevent unfair claims treatment. This, however, does not help the consumer **perception** of feeling cheated.

Behavioural economics is a new economic field that challenges the traditional economics assumption that people behave rationally.

I know what you are thinking at this point.
It doesn't apply to me and that is where you are wrong. Have a look at the example below.

An individual has been described by a neighbour as follows: "Steve is very shy and withdrawn, invariably helpful but with very little interest in people or in the world of reality.
A meek and tidy soul, he has a need for order and structure, and a passion for detail."

What is his most likely profession?

Steve is a farmer

Steve is a librarian

Most participants pick that Steve is a librarian due to his nature. What most people intuitively ignore is the statistics. Think about how many farmers there are vs librarians. Then think about how many of those librarians and farmers are male vs female and the fact that Steve is a male. You will soon realise that statistically he is a lot more likely to be a farmer.

Theories like these have convinced many prevalent decision makers, including the US government and World Bank, that human decision making is not rational and that the irrationalities should be taken into account in decision and policy making. It is also important to note that behavioural economics is a science that has been proven. So, you can be just as sure that if you implement these strategies correctly you will get the projected results as you are sure that if you drop an apple it will fall to the ground. Can it serve to address the consumer perception of insurance and hence fraud?

One of the big lessons from behavioural economics is that we make decisions as a function of the environment that we're in.

Dan Ariely

Professor of Psychology and Behavioural Economics

What can be done from a behavioural point of view?

1 Reintroduce affinity – Dunbar's number and the sharing economy

Insurance was found on a mutual principle with participants writing their names under the names of others who they are willing to share risk with. This affinity has since disappeared to make room for scale. This scale has made insurance seem impersonal and only profiting the corporates. This has resulted in consumers feeling that there are no losers when fraud is committed, when in actual fact, fraud would increase all policyholders' premium.
Robin Dunbar is an anthropologist and evolutionary psychologist. Dunbar's fame largely focuses around a single number 150. The theory of Dunbar's Number posits that 150 is the number of individuals with whom any one person can maintain stable relationships.

Start-ups like Lemonade, who have obtained funding in excess of $60m focus on making smaller groups within insurance companies rather than one large pot in attempt to revive the affinity, with the target being groups of 150. The people are organised in smaller groups that contribute to their own charities.

Put differently, 150 is the number of people you would not feel embarrassed about joining uninvited for a drink if you happened to bump into them at a bar. The theory behind it is that if you shared your insurance risk with these 150 people you would not commit fraud and that you would manage your risk better.

2 Transparency and reputation

Online reputations have recently driven mass behavioural change. From AirBnB to Uber and LinkedIn, building online reputations have driven consumer and service provider behaviour in a way that would have been laughed off had it been suggested before launch. Recruitment agencies are also increasingly looking at ratings applicants have received such as Stack Overflow ratings for IT staff. With these reputations even replacing CV's.

Introducing transparency from an insurance point of view can be achieved by showing consumers how funds are spent, why they pay what they pay and being open about profitability.

Introducing transparency from a consumer perspective could mean showing a public or semi-public score of an individual's past insurance behaviour. Discovery is the global leader when it comes to using a reputation to drive healthy living and getting consumers to share this behaviour with their peers. Users get rewarded with certain status levels for healthy living.

3 The unseen power of incentives – social contracts

Incentives can be broadly grouped into three distinct categories being financial, moral and social. Studies have shown that certain of these incentives are more powerful than others and that incentives are best employed in conjunction with each other. An often quoted example of this follows:

A day care centre has a clearly stated policy that children should be picked up by their parents by 4 p.m latest. The day care centre is experiencing a persistent problem of parents arriving late to fetch their children, every day there were a certain number of parents who arrived late resulting in the kids having to be looked after by one of the teachers until the parents arrived.

A pair of economists decided that a solution would be to impose a fine of $3.00 on parents that were late to pick up their children (this is an example of a financial incentive). The fine would be added to the monthly bill of $380 that the parents were paying for day care. To see the effects of the fine, the economists would conduct a study over 20 weeks and note how the number of parents coming late was affected under different conditions.

In the first four weeks of the study the fine was not imposed and the economists found that on average there were 8 late pickups per week per day care centre.

In the fifth week of the study the fine was introduced and it was announced that any parent arriving more than ten minutes late would pay the fine of $3 per child each time they were late. Surprisingly (or unsurprisingly for the economists conducting the study) after the fine was enacted the number of late pickups promptly doubled. Parents who previously felt bad that a teacher would have to stay late and look after their child, now felt a lot less guilty as they believed they were paying off their guilt.

In week seventeen, the economists altered the study again and the late fine was removed. One would perhaps expect the late arrivals to return to normal or decrease somewhat and yet the number of late pickups… remained the SAME!

So we might now be asking ourselves, why did the enactment of the fine in the example cause the number of late arrivals to have the opposite effect to what is desired? Well, for a start – the fine was probably set too low. However, the key to the late arrivals increasing was due to the previous moral incentive and social incentives being swapped for a purely financial incentive.

Before the fine was enacted, parents' morals would have told them that it was wrong to arrive late because they were inconveniencing the teacher that had to remain behind with the children. There was therefore a moral incentive in place for them to arrive on time. Additionally, as all parents were aware of the day cares' policies, those who arrived late would be breaking a social contract and would not want to feel judged by parents who arrived on time – creating a social incentive.

The enactment of a financial incentive, in the form of a monetary fine, inadvertently removed these two incentives and resulted in the increase in late arrivals. By initially imposing a fine, the moral incentive was removed as parents could pay off their guilt and therefore less parents felt morally obliged to arrive on time.

4 Behavioural priming – honesty pledge

Behavioural studies have found that we do not intuitively understand what drives dishonest behaviour. A test was done where participants mark their own tests and are paid based on the result they communicate.

The test was structured in various ways to ascertain what situations drive honest behaviour. The studies proved that the risk of being caught (by having the test being put through a fake shredder in front of participants) or being watched has a marginal to no impact on being dishonest, while introducing a representative for money as a reward such as points or tokens, make us a lot more likely to commit fraud. Which would explain why Discovery members are very comfortable swiping in at the gym without doing any exercise just for the points.

What does have a significant impact is reminding someone of their moral compass. When asked to recite the 10 commandments prior to doing a cheat test, cheating decreased to almost 0. This experiment even worked with atheists, as morality is the driver, rather than religion. Lemonade is using this reminder of morality by getting consumers to make an honesty pledge prior to submitting a claim. There are numerous ways of reminding someone of their moral compass in order to prime them for honest behaviour.

5 Framing paying premiums without having claims as a contribution to society at large and attempting to make the intangible nature of a mere contract more tangible.

The **framing effect** is an example of cognitive bias, in which people react to a particular choice in different ways depending on how it is presented; e.g. as a loss or as a gain.

Framing	Treatment A	Treatment B
Positive	"Saves 200 lives"	"A 33% chance of saving all 600 people, 66% possibility of saving no one."
Negative	"400 people will die"	"A 33% chance that no people will die, 66% probability that all 600 will die."

Treatment A was chosen by 72 percent of participants when it was presented with positive framing ("saves 200 lives") dropping to only 22 percent when the same choice was presented with negative framing ("400 people will die").[1]

Insurance is currently seen as a grudge purchase when it could be seen as a social good. The factors above hinder this view. Premiums are seen to profit corporations, pay claims to fraudsters and the loss of affinity results in us not caring about the social good that our premiums could contribute to.

Reminding consumers of how much their premium has helped those in need could overhaul this perception.

Lemonade is attempting to address this by donating left over premium to a charity of the consumer's choice.

6 Improve consumer perception through structuring of rewards

Prospect theory is a behavioural economic theory that describes the way people choose between probabilistic alternatives that involve risk, where the probabilities of outcomes are known.

Kahneman and *Tversky* conducted a series of studies in which subjects answered questions that involved making judgments between two monetary decisions that involved prospective losses and gains. For example, the following questions were used in their study:

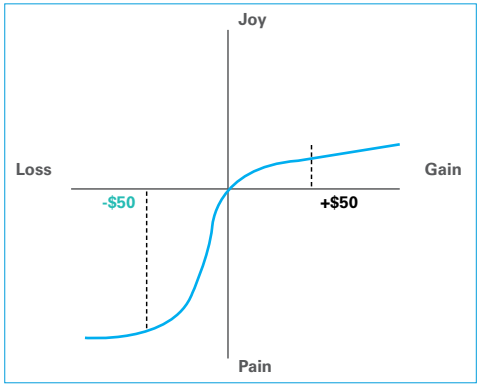
1. *You have $1,000 and you must pick one of the following choices:*
   Choice A: You have a 50% chance of gaining $1,000, and a 50% chance of gaining $0.
   Choice B: You have a 100% chance of gaining $500.
2. *You have $2,000 and you must pick one of the following choices:*
   Choice A: You have a 50% chance of losing $1,000, and 50% of losing $0.
   Choice B: You have a 100% chance of losing $500.

If the subjects had answered logically, they would pick either "A" or "B" in both situations. (People choosing "B" would be more risk adverse than those choosing "A").

However, the results of this study showed that an overwhelming majority of people chose "B" for question 1 and "A" for question 2. The implication is that people are willing to settle for a reasonable level of gains (even if they have a reasonable chance of earning more), but are willing to engage in risk-seeking behaviours where they can limit their losses. In other words, losses are weighted more heavily than an equivalent amount of gains.

[1] Wikipedia

It is this line of thinking that created the asymmetric value function:[2]



Prospect theory has proved that people prefer certainty when a gain is at stake and prefer uncertainty when a loss is at stake as it allows them to not have to deal with the emotional pain of the loss immediately. Most insurance rewards programmes build uncertainty into a gain. For example, with OUTsurance, you get cash out if you don't claim. You might, however, know that there is a 90 percent chance that you won't have a claim. This has, to a large degree, been circumvented by how they phrased/framed the offering. You always [100 percent probability] get something out. Instead of getting an outbonus IF [90 percent probability] you don't claim.

It might be better to structure rewards as a lowered premium (reduced loss), rather than a gain if you don't have a claim. This strategy has proven successful for King Price with 10 000 policies in year 1. Momentum also offers a cash- back bonus, even if you do claim [100 percent probability on a gain].

[2] http://www.investopedia.com/university/behavioral_finance/behavioral11.asp#ixzz4gZKQz73R

This would result in an uncertain loss (premium) rather than uncertain gain (cashback). This allows consumers not to have to deal with the loss immediately as there is some uncertainty.

7 Realign the incentives of consumers and insurers

The irony of insurance is that the incentives of insurers and consumers are at odds as the insurer profits from denied claims.

Globally, peer to peer models such as Guevara, Lemonade and Friendsurance are striving to realign incentives by taking a fixed fee and hence have nothing to gain from denied claims. This resolved conflict should have a profound impact on consumer perception and behaviour. True peer to peer models have yet to solve the problem of scalability as the majority of peer to peer platforms rely on getting a sufficiently large number of customers with similar risk profiles into a static pool and to remain connected to each other. This is necessary for the business model to work.

8 Availability bias and on the go insurance

The availability heuristic operates on the notion that if something can be recalled, it must be important, or at least more important than alternative solutions which are not as readily recalled. Subsequently, under the availability heuristic, people tend to heavily weigh their judgments toward more recent information, making new opinions biased toward that latest news.[3]

If a random word is taken from an English text, is it more likely that the word starts with a K, or that K is the third letter?" They argue that English-speaking people would immediately think of many words that begin with the letter "K" (kangaroo, kitchen, kale), but that it would take a more concentrated effort to think of any words in which "K" is the third letter (acknowledge, ask). Results indicated that participants overestimated the number of words that began with the letter "K" and underestimated the number of words that had "K" as the third letter. Tversky and Kahneman concluded that people answer questions like these by comparing the availability of the two categories and assessing how easily they can recall these instances. In other words, it is easier to think of words that begin with "K", more than words with "K" as the third letter. Thus, people judge words beginning with a "K" to be a more common occurrence. In reality, however, a typical text contains twice as many words that have "K" as the third letter than "K" as the first letter. There are three times more words with "K" in the third position than words that begin with "K".[4]

It would also explain the fear of flying. Although commercial air travel is significantly safer than driving on the road people fear flying a lot more than driving. Due to the newsworthy nature of incidents the incidents can be more readily recalled and seem more probable.

On demand insurance applications such as SanlamGO, MiFITLife and Trov allow users to buy insurance when the threat of loss is readily recalled and thus will appear to them to be a more probable event.

Will we see more applications that play on irrational fears such as air travel, heights and shark attacks to sell short-term insurance?

What can be done from a pure Technology point of view?

1 Prevention through perception

— **Chat bots and more human like tech interfaces**

Companies are using technology such as chat bots to interact with clients. This gives the impression that the user is interacting with a human being, rather than a computer, and could result in drawing out more moral behaviour. Massive advances in natural language processing through the use of artificial intelligence has made this a lot more viable. The underlying technology also does not have to be built from the ground-up by insurers but can rather be sourced from the existing service providers like Facebook and IBM Watson.

— **Blockchain**

The introduction of Blockchain has been a very hot topic in the Insuretech space. An example of the use of Blockchain for insurance would be as follows. 2 Users form a contract in the form of code that is stored on the blockchain. Both pay a crypto currency into the contract as collateral. This contract pays out to either participant based on the result of a predefined condition. The result of the condition is obtained from what is called an 'oracle' or independent information provider. An example of the application of such an agreement could be farming insurance. Electronic contracts can be established that act on the variable of the day's temperature. If the temperature is below 1°C pay contractor A, if not pay consumer B. Hence there is no need for a third party or insurer. This mechanism works well for contracts where outcomes are determined by parametric conditions.

The other function of the Blockchain could be to act as a **trust machine.** As the information on the Blockchain is tamperproof and creates an immutable record, it would show consumers exactly how funds are spent. There are, however, other methods of creating this trust, one of which is transparency. This is how stock exchanges and investment houses create trust without the need for Blockchain technology.

It is important to note that the technology is still in its infancy, and that there are limitations to the speed of processing on tailored Blockchain solutions like Ethereum. Another issue with this technology, is the lack of control over the contract once the contract has been created. An example of how this could be problematic – have a look at "The DAO hack" as an example. It does however hold enormous potential for creating fully decentralised autonomous organisations that are governed by all who participate.

[3] Wikipedia – Availability Heuristic
[4] Wikipedia – Availability Heuristic

We have always thought about design as being so much more than just the way something looks. It's the whole thing: the way something works on so many different levels. Ultimately, of course, design defines so much of our experience.

Jonathan Ive

Chief Design Officer at Apple Inc

— **Intuitive and simple interfaces**

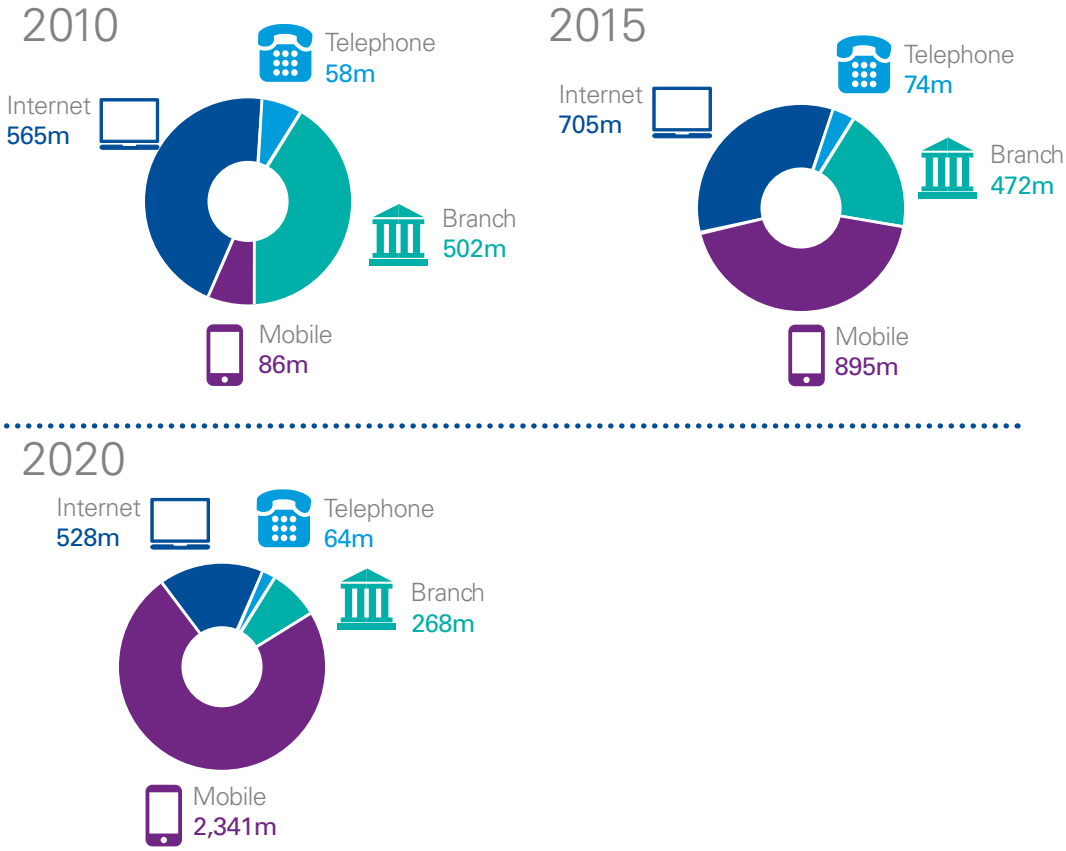
In order for Insurance companies to be successful in the future, not only must they adopt technology in offering their products, but they must pay meticulous attention to the user's experience in using these solutions. Insurance, as it currently stands, is characterised by bloated on-boarding and administrative processes prior to a policy being purchased by the consumer. In the future, these processes will be intuitive and sleek, fashioned in a manner which will maximise consumer adoption.

For an intro to behavioural economics, risk aversion, the endowment effect, and availability bias refer to the 2016 KPMG survey article "Psychology and behavioural economics of insurance"

— **Showing consumers information on mobile interfaces**

As mentioned above, another possible method of creating trust is through transparency. 20 years ago this transparency could only be achieved by sending annual statements to consumers with the performance and spending of the insurer. Since the advent of the smart phone it has become possible to give consumers access to live information at their fingertips. Showing consumers that they are performing a social good and are being treated fairly constantly could drastically reduce fraud.

As more and more consumers move towards online and mobile banking evidenced in the below graphic, it is clear that insurers are lagging behind in this trend, with the ability to lodge a claim on a mobile app a fairly new innovation – and still not a very efficient process.



— **Building technologies that add value for insurer and consumer**

Trov set out to build an "on demand" content insurance application that allows users to toggle cover on and off on a per item basis as this cover is needed. This inadvertently added a lot of value to consumers by giving them a fun and intuitive asset register, and method to manage their risk and keep track of their belongings.

What this means for the insurer is that there is a lot more clarity and information at claims stage as consumers have provided a detailed account of all their assets beforehand.

2 Detection of fraud

— **Wearables and telematics**

Discovery is one of the global frontrunners in the use of wearables and telematics to drive consumer behaviour and prevent fraud. A future development in this field could be the use of wearable technology while a consumer is reporting a claim, in order to detect an increase in heart-rate: thus providing a means of gauging the consumer's honesty and decreasing insurance fraud.

— **Use of voice and facial detection – API**

Facial and voice detection technology has improved dramatically. The technology allows the detection of emotions and will authenticate the claimant. Combining this complex data with an artificial intelligence algorithm could better detect fraud going forward. This technology does not have to be developed by insurers and is made available by technology service providers such as Amazon, Google and Microsoft. The most important factor will be how insurers use the technologies that are available. If you are interested to know more have a look at Google Vision or Microsoft cognitive services.

— **Artificial intelligence – flagging of claims to investigate**

Artificial intelligence is the technology that allows computers to perform functions that are not merely computational, but perceives its environment and takes actions that maximise its chance of success at some goal. This technology could be trained to help detect suspicious claims, by taking into account the very complex voice, facial and circumstantial evidence, allowing claims assessors to focus on more suspicious claims and expediting the process for safe claims. It could also play a role in the cost of claims for instance for motor business predicting what parts to order based on conditions such as driver behaviour, the weather and google maps congestions. If you are interested, have a look at how Germany's Otto uses artificial intelligence on the Economist website.

Conclusion

There is a lot of room for insurers to improve their consumer perception and fraud experience through the use of behavioural economics and technology. The examples mentioned above is merely the tip of the iceberg. The advantage to be gained in consumer perception from getting a behavioural structure right is estimated to be x1.5 to x2.5 Getting numerous of these structural changes right will result in exponential perception change.

The South African market has generated a lot of interest in the Insurtech space. There have, however, been few companies that have pulled the trigger as of yet. Hannover Re hosted a disruption competition called Journey re across Boston, Dublin, Berlin and Johannesburg. A start up called Amyti was launched from this competition. Head of innovation at Amyti, Matthew Elan Smith, describes their model as "Amyti is a peer-to-peer insurer whose goal is to reinvigorate the way people perceive and traverse insurance with behavioural studies and technology at the core of what we do..." While the head of development, Ndabenhle Junior Ngulube has stated that "our core focus will be on user experience through our user centred design."

At the same time, RMB incubator Alpha Code has integrated numerous insurance start-ups into their incubator. These include Decorum, DOI, Riovic and mHealthCO. South African venture capital firm 4Di Capital recently announced the successful first closing of R256 million in initial commitments for a new technology venture capital fund. The major investor in the fund has been revealed to be Exponential Ventures, the externally focused innovation unit of JSE listed insurance group MMI Holdings.

Insurtechs have yet to disrupt the traditional insurers globally, and only time will tell if they will. Until then, we are in for a very interesting ride. One thing is for sure, ignoring the behavioural impact of these technologies will be at your peril.

If you don't innovate fast, disrupt your industry, disrupt yourself, you'll be left behind.

John Chambers

Chairman and Chief Executive Officer, Cisco, USA