AUTO INSURANCE AT THE CROSSROADS

KEY DRIVERS RESHAPING THE AUTO INSURANCE COMPETITIVE LANDSCAPE

INSURANCE REPORT 2018

ALTRAN

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by
Altran Consulting

TABLE OF CONTENTS

PREFACE

JAVIER DE LA LAMA

FINANCIAL SERVICES DIVISION DIRECTOR
at ALTRAN

Just a few years ago the telecommunications industry set out on a path of business disruption whereby the major value provided by voice and data has been gradually but continuously transferred to the hegemony of content and solutions. This set off a very important change in the role of operators and their market approach strategies. One outcome is that relationships with the partner ecosystem and innovation have been shaped as key elements in the market's future evolution.

The insurance industry is current undergoing a significant transformation stage in which social, cultural, environmental and technological changes are determining the new needs of individuals, groups and companies, to be supported by existing entities or new entrants. All of this – included within a scope in which emerging consumer and behavioural habits and services adapted to the incipient demand – must be aligned with the regulatory framework and the limits that this imposes.

Is this an opportunity or a threat for "incumbent" insurance companies? This is one of the great questions relating to the aforementioned issues. Although there is no clear consensus in the industry's response, the idea of working on the evolution of the business model does resonate (at least it has done in the discussion and work sessions on which this report is based). What to offer clients and in which segments? How to strengthen the channel and adapt its role in the market? How to ensure the operation and work on efficiency? How to adopt new technologies and propose "ordered" change? How to advance cultural change and focus on talent?

In short, we are living at a unique time; one in which new ideas, fresh thoughts and actions and the passing of traditional schemes form part of our daily agenda. There is no doubt that they will make this transformation stage much for challenging for us all.

Lastly, I want to take this opportunity to personally thank everyone who took part in the various expert discussions for their collaboration. Your contribution has been fundamental to the creation of this report.

Kind regards

Javier de la Lama

VOICES OF EXPERTS

AGUSTÍN DE LA CUERDA

CHIEF OPERATING OFFICER AT ALLIANZ

"There are three key elements that must be managed and combined to ensure the success of the sector within the digital transformation. Knowing the customer and the market so as to provide the elements that genuinely provide value and generate a competitive advantage; analysing the business model and redefining the pillars in the new digital environment; and, lastly, managing time-to-market in an extraordinary way to be more agile when adapting to the required changes, without taking excessive risks. The car of the future will bring with it a reformulation of business models where new scenarios that must be coherent with the digital world will arise. We need to understand our customers well, be transparent with them, adapt business models to their needs across the life cycle and, lastly, be more observant than predictive so as to offer services of real added value for those we insure"

"We hear more and more about the autonomous car, something that until recently seemed like science fiction but which is becoming closer to reality. Just like the mobile phone, autonomous cars will improve profits and optimise costs, enabling widespread access to these vehicles. When will this come to pass? The most optimistic talk of four years but in truth we still need to advance the technology that supports these vehicles, set some joint criteria with the automobile industry to determine the "ethics" of the vehicle, and define a regulatory regime covering both compulsory insurance laws and road safety. All of this makes the timeframe at least 10 years. However, the autonomous car creates new business opportunities for insurers along with new types of risk to cover and new services to offer, reinforcing the value of prevention over payouts, transforming our business towards new customer needs"

MAITE SOBRINO

AUTOS DIRECTOR AT AXA SEGUROS

"The arrival of the autonomous and connected car will be challenging for the sector, but the most important thing is, undoubtedly, that it will also bring new opportunities. In recent years, the insurance industry has faced multiple different scenarios arising from the economic crisis, regulatory developments or changes in automotive industry, among others. In all cases, it has been demonstrated a great adaptive capacity thanks to continuous innovation and the proven agility in the implementation of new measures. This type of vehicles will provoke new changes in the society and its behavior patterns, to which the sector must react promptly (time to market) relying on new products and more segmented services, simple and easy, always with the goal of improving the customer experience"

JESUS DEL RIO

CLAIMS MANAGEMENT DIRECTOR AT
MUTUA MADRILEÑA

RICCARDO ALBERTI

BUSINESS, CLIENTS AND INNOVATION
CORPORATE AREA AT MAPFRE

"There is a parallel between the manufacturer in its broadest sense and the insurers that are adapting their positioning. Over the coming years, manufacturers will not only be recognised as vehicle producers but will have to evolve to become mobility providers. At the same time, insurers will have to evolve their vehicle insurance model towards insuring personal mobility (multi-modal insurance) and develop their ability to offer complementary services"

"In my opinion, the connected car has an evident added value for individuals and for insurance companies, it is something that is already visible in the market and that has a lot of potential progress and application in the short/medium term, although it will still have to overcome some emotional/legal barriers concerning the privacy of users. Regarding the autonomous car, I believe that we are still far from a massive implementation and that it will be years before this becomes a reality. At the risk level, it should have a very clear impact on the accident rate and is therefore good news for society. But until this becomes a reality, intermediate solutions will appear that will coexist with the vehicle and its use as we understand it now, although this does not mean that the companies do not have to focus on it, which we are doing, but that we should assign it the priority and resources it needs at this moment"

ALBERT FORN

ACCOUNT DIRECTOR (PARTNERS)
AT ZURICH INSURANCE

JORGE FERNÁNDEZ

HEAD OF MOTOR & PERSONAL LINES AT
GENERALI SPAIN

"The popularisation of these types of cars will bring with it new risks requiring insurers to find solutions. We are facing a stage where technology is essential. Therefore, it is fundamental that our product offering insures the technological devices that these smart cars incorporate, while reinforcing their cybersecurity. It is also important to manage the process of the data obtained. In this way we will generate even more personalised premiums, better reconstruct incident scenarios, accelerate claim management and anticipate potential risks on the road or in the vehicle itself, all of which will result in greater safety for our customers"

GERMAN BAUTISTA

BUSINESS AND CUSTOMER DIRECTOR
AT CASER

"The arrival of the autonomous car is unstoppable and the "new" connected car a reality. However, in the short term and with one of the oldest fleets in Europe, the opportunities are with second-hand vehicles. The Internet of Things (IOT) opens up a new world of distribution. In the medium term, we are observing changes in consumer behaviour (new generations prefer use to ownership and are committed to sustainable energy). Therefore, in the private market we need to explore mobility and environmental solutions, faced with a predicted reduction in sales. In the professional market, renting and leasing fleets will be less affected, favouring those who offer comprehensive, high-quality management"

"Dispersion in the evolution of automobile technologies – autonomous, connected, new propulsion models – together with a limited capacity to renew the fleet and a change in the behaviour of users compared to the previous dominant paradigm of exclusive ownership of private vehicles, may generate a multitude of different lines of business. The challenge for insurers may be in their capacity to adapt to each new line of business without increasing investment and structural costs on those lines"

JOSE IGNACIO DE MIGUEL

RISK MANAGEMENT DIRECTOR AT
PELAYO

1. INTRODUCTION TO THIS REPORT: SCENARIO PLANNING AND THE DIGITAL DISRUPTION ERA

The emergence of connected and autonomous cars, the birth of innovative models of shared mobility, new customer consumption patterns through digital channels, the loss in value of vehicle insurers as perceived by the insured and the impact of new technologies and legislation are some of the many factors driving the evolution of the traditional model of this area of insurance towards a completely unknown model.

This document endeavours to discuss the potential changes that auto insurers need to take into account for this new context to occur. At this point, it is extremely important to highlight the relevance that user data is assuming and how this data will become what we are calling the Holy Grail of future business models, not just in the insurance industry. We will develop this further below.

The aim of this study is simply to discuss where the auto insurance industry needs to focus, to introduce some data and examples illustrating some of the first steps that have been taken and to bring together the voices and perspectives of the major players in the industry, who participated in the various expert panels that we held to support this report.

Far from being prescriptive, the actions outlined in this report attempt to describe potential changes to the traditional ways of doing things. We discuss new customer consumption patterns, new entrants into the auto insurance sector and even attempt to forecast future business models, while introducing parallels that our analyses have drawn with industries in the same position, such as banking and telecommunications.

Altran's Strategic Consulting unit, Altran Business Consulting, has applied one of its contrasted strategy definition methods. This is based on four clearly differentiated stages: trend analysis, evaluation of industry impact and scenarios, identification of the business model impact and, lastly, the composition of the strategic imperatives for building a road map.

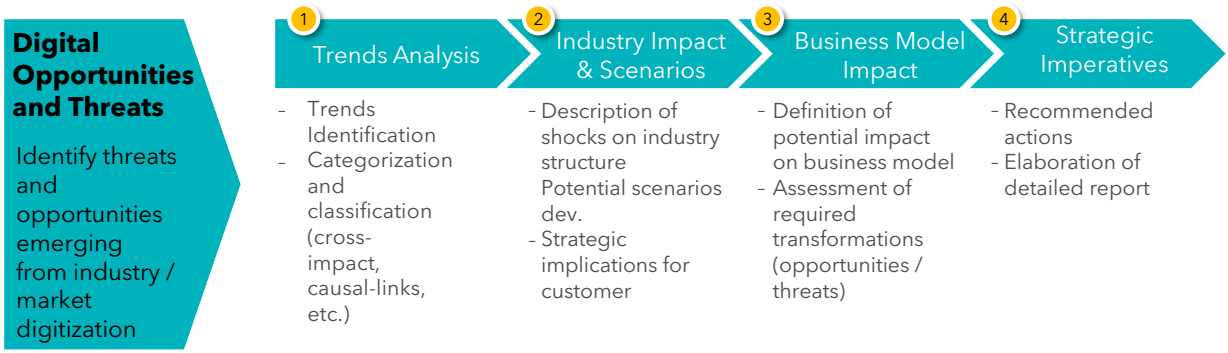


EXHIBIT 1.1: STRATEGIC TRANSFORMATION FRAMEWORK

After the trend analysis, focused not only on technological-digital factors but also on regulatory, economic, social and cultural aspects, our studies point to a transformational change throughout the sector. Some of the trends we have uncovered explain the commitment of administrations to more sustainable vehicles (electric engines), the appearance of new rules of play on matters of protection and user data privacy (GDPR[1]), movements associated with collaborative economies (car sharing or ride handling), new consumer patterns (millennials), the acceptance of new players in the auto insurance sector and, lastly, the service vs product trade off (e.g. mobility services of activation and deactivation of coverage on demand).

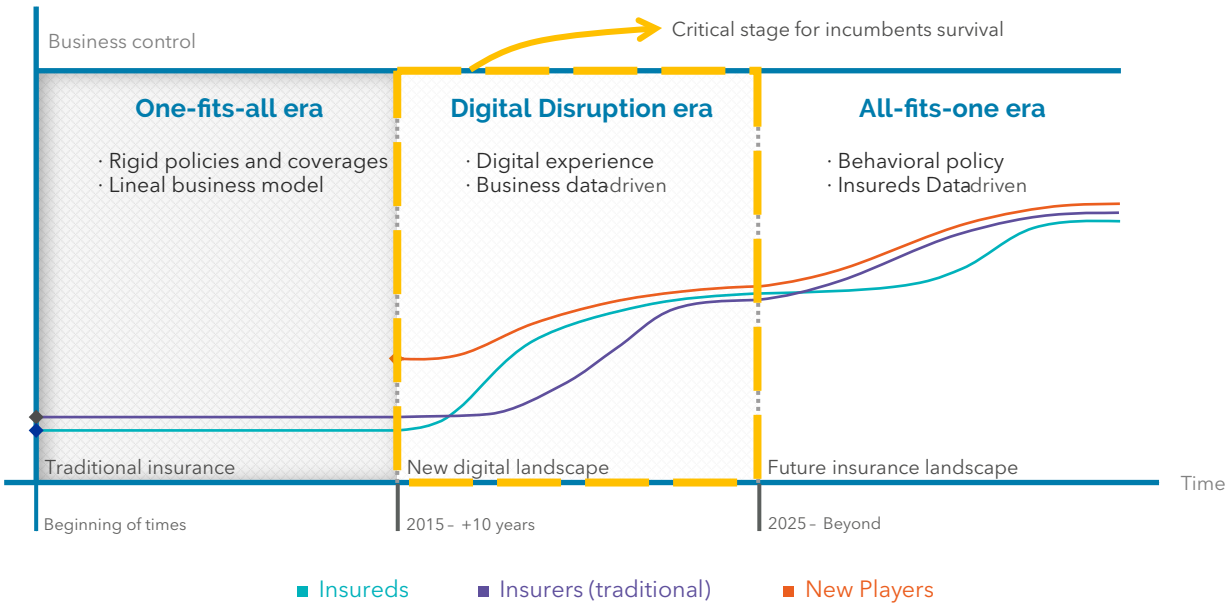


EXHIBIT 1.2: AUTO INSURANCE TRENDS

According to our methodology, these trends are classified as accurate (CID[2]) or less accurate (UID[3]) variables, which we then combine to create future scenarios that can totally or partially complete or reformulate the sector. This exercise results in various ways of exploring the different components that make up the industry: market, business models, customers and operations.

1 General Data Protection Regulation
2 Certain industry drivers
3 Uncertain industry drivers

1.1 MARKET

Our analysts agree that we are approaching a new era for this type of insurance (and within the sector), which we have christened the "Digital Disruption Era". This new stage sidesteps a past where the business model was linear, there was little interaction with the insured (except when selling the insurance and processing claims) and where personalisation was minimal. The new paradigm facing insurance companies today passes through two significant pillars. One is the discovery of new sources of risk to be insured, such as cybersecurity, where the insurers are still at an early stage and the products they are designing still do not have the necessary characteristics. The other is based on new consumer preferences. Consumers want to be offered tailored services (and products) that take into account accessibility and an understanding of what they really want to maximise their outcomes.

This results in new demands, such as microinsurance and proactive insurance policies that anticipate the needs of the insured. It is important to note new players are now emerging (primarily insurtechs) that, given their status as "digital natives", can offer services that complement or replace more traditional industry services. This enables them to outflank large corporations characterised by their lack of flexibility in the face of the changes demanded by the market.

After a period of stabilisation and convergence of traditional and new players, we foresee a new era where large corporations once again assume control of the market, with their ability to respond appropriately to microfragmented demand (on time, agile and customised).

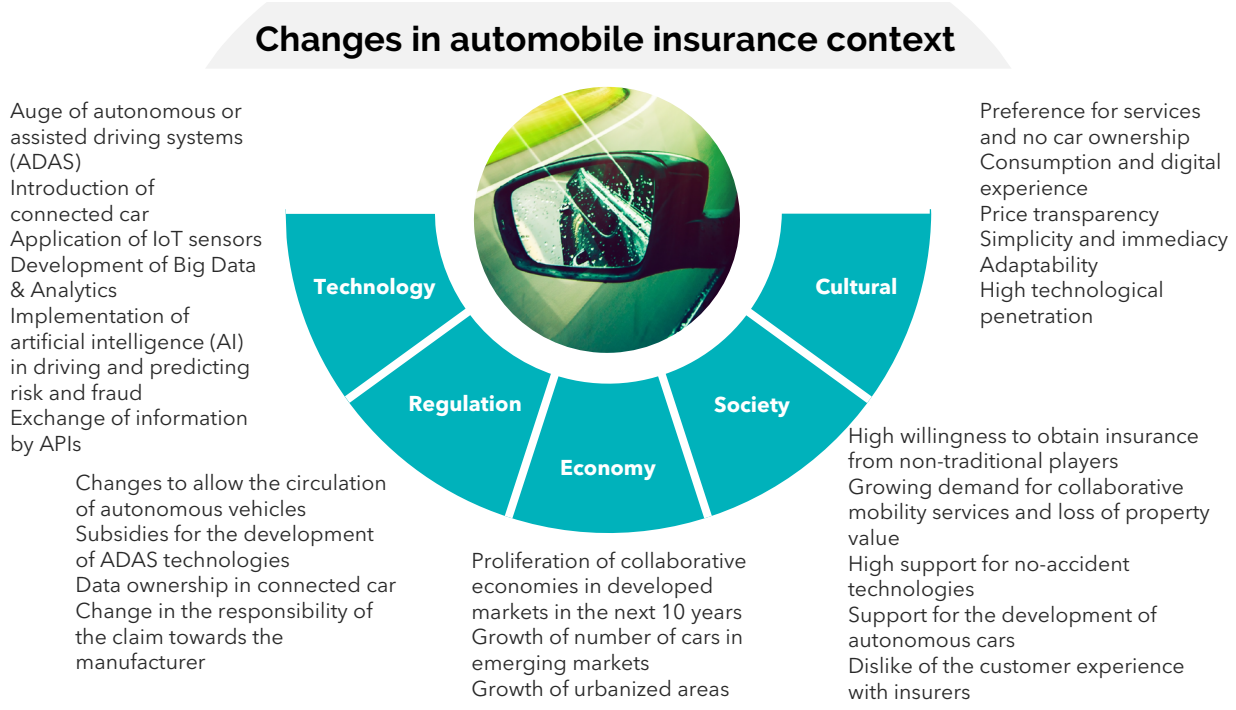


EXHIBIT 1.3: INSURANCE LANDSCAPE

1.2 BUSINESS MODELS

The formula that will define the new business models encompasses both the new demands of the insured and the reformulation of insurers' capacity to respond. We clearly do not have a crystal ball with which to predict the future, although we do have scenario simulation techniques. These include Scenario-Planning techniques, which aim to identify new business stages and see how they should be managed by companies.

The graphic below demonstrates a scenario we call Mobility Insurance. This combines emerging mobility services in the automobile industry (car sharing) with new consumption patterns of drivers who are seeking to save on their insurance premiums (motivated by their good behaviour and low accident rate) thanks to the use of technology that monitors their driving (via OBD[4] or apps).

Scenario Mobility Insurance

Drivers

- Advanced connected cars and environment
- Widespread adoption of sharing economy models
- Educated and demanding customers
- Predictive analytics capabilities

Industry Impact

Products	Suppliers	Customers
· Growth of commercial policies · Policies allow episodic consumption	· Reinsurers partner with fleet owners · Telematics providers play a differential role	· Policies consumption through virtual distribution · Get used to full personali-zation

Action Plan

- Grasp advanced predictive and prescriptive capabilities to anticipate risk exposure
- Develop seamless and real-time connectivity to enable ongoing purchase and proactive policy incentive
- Access to behavioral, situational and contextual data to determine insurance needs instantly Partner with sharing economy players in order to
- capture market share and stay relevant

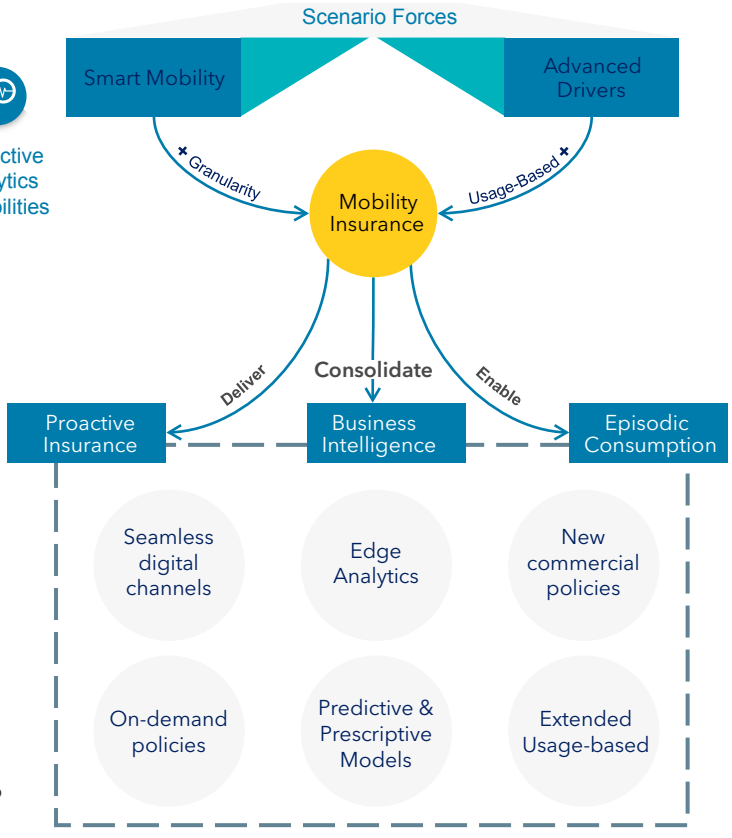


EXHIBIT 1.4: MOBILITY INSURANCE SCENARIO

Some of the levers required under this scenario include the possibility of offering low-demand policies, the inclusion of in-car advanced analytical devices to facilitate intelligent decision-making (edge analytics) and the adoption of usage-based insurance (UBI – also known as pay as you drive in the auto insurance sector), which has been very successful in other European markets such as in Italy.

4 On-board diagnostics

1.3 CUSTOMERS

Because of the changes emerging in the automobile industry, potential auto insurance customers may also be affected. Several analyses indicate that various models will begin to coexist, distinguished by whether they involve vehicle ownership or using vehicles as a service.

This disruption to the purchase motivations of consumers reminds us of the change in direction that other industries have previously taken, such as the printer market. The transformation of owned assets (whose value was decreasing exponentially with time) into the pay per use models commonly adopted today meant a reconfiguration of their entire printing industry.

In light of this, new generations may very well ask, "why do I need to buy a car?" or even "why do I have to drive?"

New generations may very well ask, "why do I need to buy a car?" or even "why do I have to drive?"

It is true, however, that the car has been (and remains today) a status symbol. In the past, consumers were expected to be of legal age to purchase a vehicle, which then gave them a degree of independence and social recognition. Nowadays, it is increasingly common for vehicle purchases to be based on a formal relationship with a partner or to meet the transport needs of families with children. This has caused a delay in purchasing, leaving a significant proportion of the population removed (although not totally) from traditional target segments.

If this change of trend is ultimately consolidated and consumers begin to demand pay per use models, insurers will have to do the same and change their market target. This will require moving from personal to commercial policies, given that factors external to the industry will mean that future potential insurance customers will be either vehicle manufacturers (OEMs[5]) or fleet companies offering mobility services.

5 Original equipment manufacturer

1.4 OPERATIONS

Ultimately, operations will be reconfigured by the many technological advances beginning to come on line – such as the IoT, process automation, artificial intelligence and machine learning – or others that show great promise and potential benefits for the industry, such as the robotisation of core functions, the use of Blockchain and new digital brokers.

The individuals best adapted to their environment have a greater probability of surviving than other members of a population

The common variable in all of these cases involves increased operational efficiency (fewer errors, reduced times, cost savings etc.), always supported by a technology, where the returns provided by the associated business cases make the necessary investments very attractive in the eyes of insurers. Some call it transformation, others, digitalisation, but we prefer the term re-evolution, recalling Darwin, "the individuals best adapted to their environment have a greater probability of surviving than other members of a population".

It will be fascinating to see how insurance companies face this metamorphosis and make large technology stacks coexist (with aggregate investments of millions of euros) with new functionalities, offered either by new partners or by insurtechs that provide the agility so in demand by consumers.

2. SPANISH INSURANCE MARKET: KEYS AND SHOCKS

In this section, we will analyse the current situation of the Spanish automobile insurance market. We will evaluate the changing trends we have witnessed in the last 10 years through various key indicators, including: turnover (total and by insurance type), average premiums per user, the combined ratio and the different players operating in Spain. At the same time, we will take into account the impacts that have affected the sector. These include the economic crisis in Spain, the 2000E financing plan (to encourage new vehicle purchases) and reformulation of the new Baremo (system for assessing damages in personal injury claims).

After a long global economic boom, the economic crisis that started in the United States and expanded rapidly across the global economy hit in 2007/2008. This caused everything from bankruptcies to interventions by central banks in the major developed economies. All of this led to an economic downturn and forced some of the most industrialised economies into recession.

The Spanish economy suffered a significant correction, which translated into a lower GDP over the next six years and major job losses that took the unemployment rate to 25.8% in 2012, the highest rate since records began.

Principal macroeconomic indicators

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Unemployment rate	13,8	18,7	20,1	22,6	25,8	25,7	23,7	20,9	18,6	16,6
GDP	-1,3	-2,9	0,5	-1,8	-3,5	-0,2	2,2	3,8	3	3,1
General CPI	1,4	0,8	3,0	2,4	2,9	0,3	-1,0	0,0	1,6	1,1

EXHIBIT 2.1: EVOLUTION OF INSURANCE PREMIUM VOLUMES. SOURCE: ICEA – RESEARCH BODY FOR THE SPANISH INSURANCE INDUSTRY (2018)

Apart from the deterioration of the main macroeconomic indicators, perhaps the greatest impact and repercussion of the crisis in Spain involved the transformation of the banking system, the result of bankruptcies, interventions and mergers. The savings banks were particularly affected, lacking as they did a certain professionalism. They almost totally disappeared, in most cases causing direct government intervention in the form of capital injections used to sustain this important part of the Spanish financial system.

The Spanish insurance sector, as part of the financial system and linked intimately to the banking sector, did not escape the large-scale crisis. Although the sector came through the crisis very positively at a business level, demonstrating great strength and high solvency levels, rates of business growth definitely fell over time.

It is also true that it was affected differently and for different reasons to the non-life and life insurance segment.

Evolution of the insurance sector. Life vs non-life

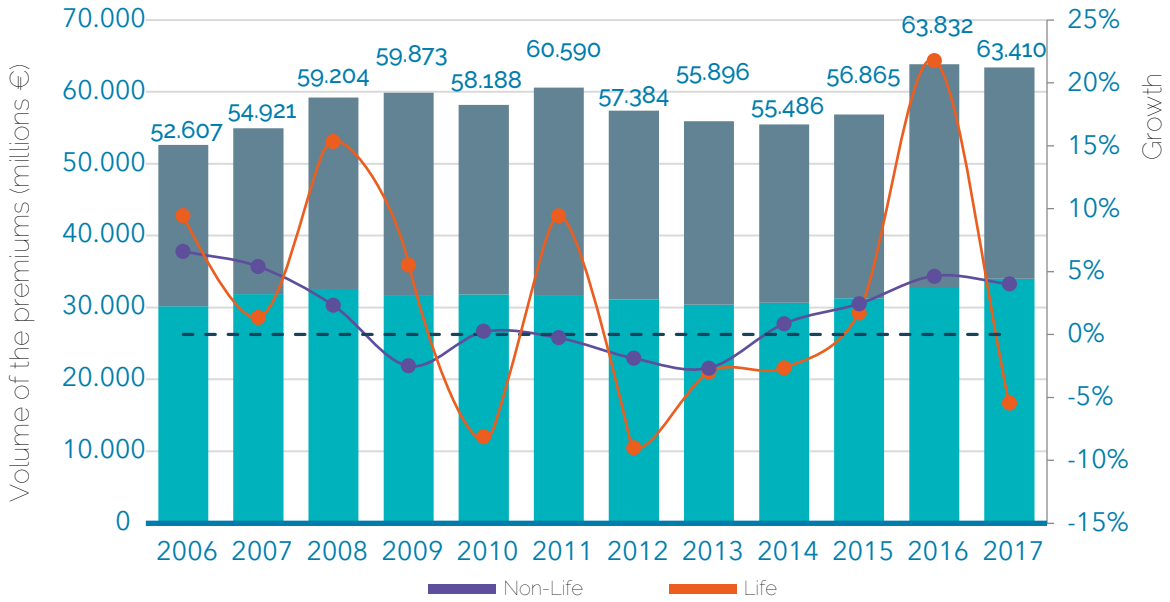


EXHIBIT 2.2: EVOLUTION OF INSURANCE PREMIUM VOLUMES. SOURCE: ICEA (2018)

Focusing on the life insurance business where the banking sector has a greater market presence, growth has been more variable due to the commercial policies set by the bancassurance companies to capture the savings business because of interest rates that have made deposits less attractive.

Looking at the largest area related to life insurance, another remarkable fact is that managed savings have grown steadily year after year, even in the worst years of the crisis, in some years exceeding the amount accumulated by other savings products, which are typically financial, such as investment funds.

Evolution of managed savings from Life and othes savings instruments

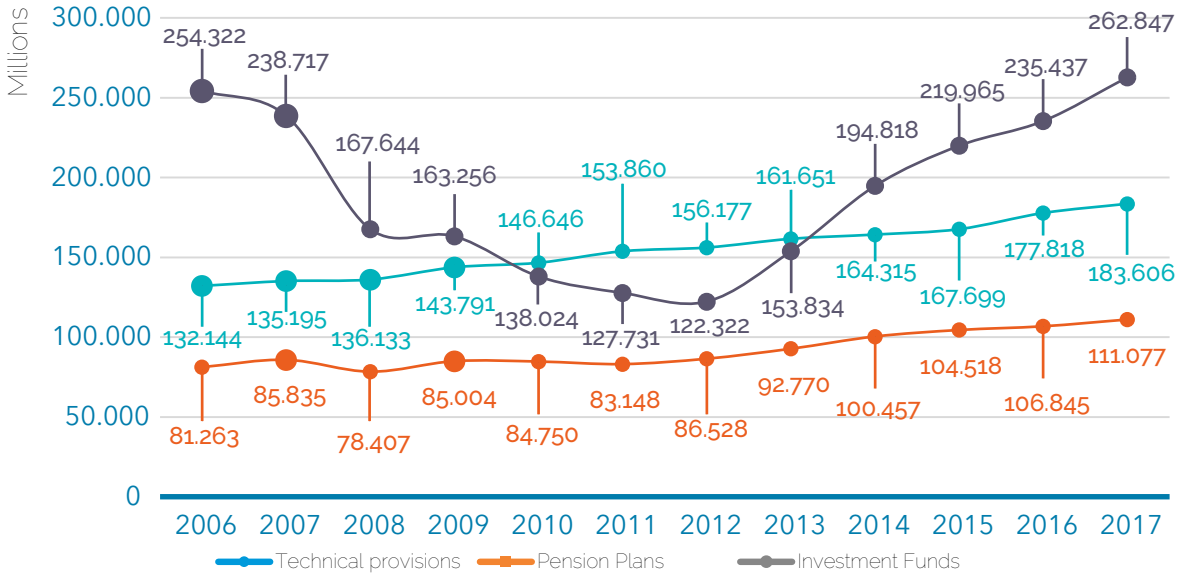


EXHIBIT 2.3: EVOLUTION OF LIFE INSURANCE PREMIUM VOLUMES. SOURCE: ICEA (2018)

In the non-life business, we saw a slowdown in growth almost from the outset of the crisis through to 2010, due primarily to two causes. The first was the setback suffered by the entire raft of insurance products linked to industrial and business activity, while the second was the decline in the auto insurance business. In the following phase between 2010 and 2013, the situation tended to stabilise and it was not until the third phase starting in 2014 when the sector returned to growth, supported by a range of factors. These included the positive behaviour of certain personal products, particularly health insurance, a degree of improvement in certain business activities and, later, the recovery of the auto insurance business, marked, as we will see, by the entry into force of the new Baremo covering compensation for motor accident victims.

Turnover for the non-life sector in 2017 was just over 34 billion euros, an increase of 4%, thereby consolidating this change of trend and the growth path of the last three years. When the business is broken down into its main segments, as shown in the graph, we can see that all sectors have experienced this trend change and positive evolution, with the exception of health insurance, which achieved positive business growth even in the worst years of the crisis. However, auto insurance remained the primary non-life insurance with a premium volume in 2017 of 10.9 billion euros.

Evolution of non-life business

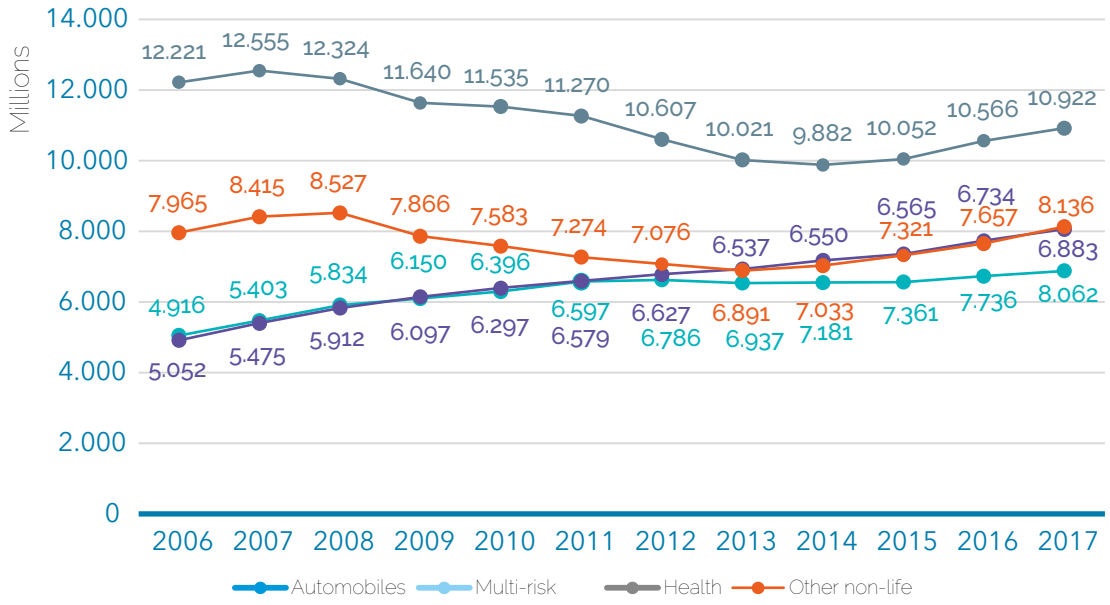


EXHIBIT 2.4: EVOLUTION OF NON-LIFE INSURANCE PREMIUM VOLUMES. SOURCE: ICEA (2018)

2.1 SITUATION AND EVOLUTION OF AUTO INSURANCE

Automobile insurance, the largest non-life segment, was one of the hardest hit by the crisis. There were two major phases throughout this period: the first, which ran between 2008 and 2014, and the second, running from 2015 to the present day.

The first phase was characterised by a continuous reduction in the average annual premium down to its lowest point in 2013. The onset of the crisis caused a drastic reduction in family funding and a significant rise in unemployment, which led to a marked reduction in disposable income.

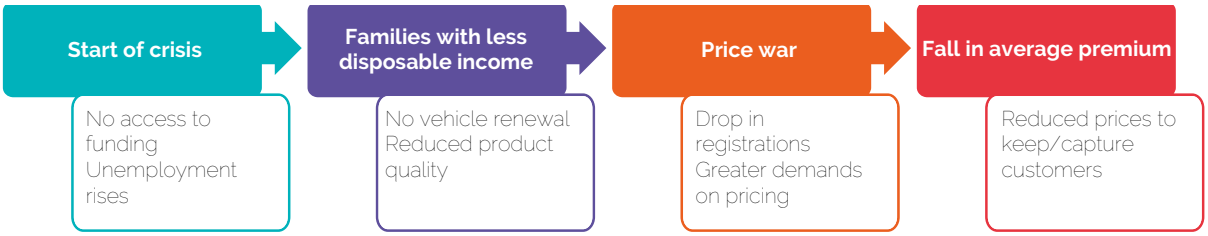
Average annual premium has showed a continuous reduction from 2008 to its lowest point in 2013

This had a negative effect because there was a fairly sharp decrease in sales of not only private cars but all vehicles. This created a delay in renewal of the vehicle fleet, which was already old compared to those in the largest countries in the EU. This situation had two important consequences for the insurance sector, which were manifested very negatively in terms of business development, thereby cutting short the long boom period it had enjoyed, as outlined above.

Firstly, fleet stagnation meant that many policies with a high level of coverage were transformed into simpler products with the resulting decrease in premiums and lower turnover. Secondly, the gradual decrease in registrations of new vehicles, despite government efforts to implement purchase stimulus plans, made potential new policies scarce, leading companies to intensify their commercial policies to capture customers. This increased competitiveness directly determined the aforementioned reduction in average premiums and, consequently, lower turnover for the automobile insurance sector.

However, it should be noted that this competitiveness over a long period time was not a random outcome. Rather, two factors coincided to help and enable insurance companies to reduce premiums.

- The impact of the crisis on the economy reduced traffic intensity, which improved accident frequency rates, impacting directly on companies' loss ratio.
- Meanwhile, the sector was highly profitable and therefore there was room to manoeuvre when it came to narrowing margins and results.



In the second phase, which began in 2015, the situation began to change. The Spanish economy began to show signs of recovery, with the consequent increase in purchasing power of families. This meant a slow but constant rebound in new registrations.

Evolution of auto insurance segment

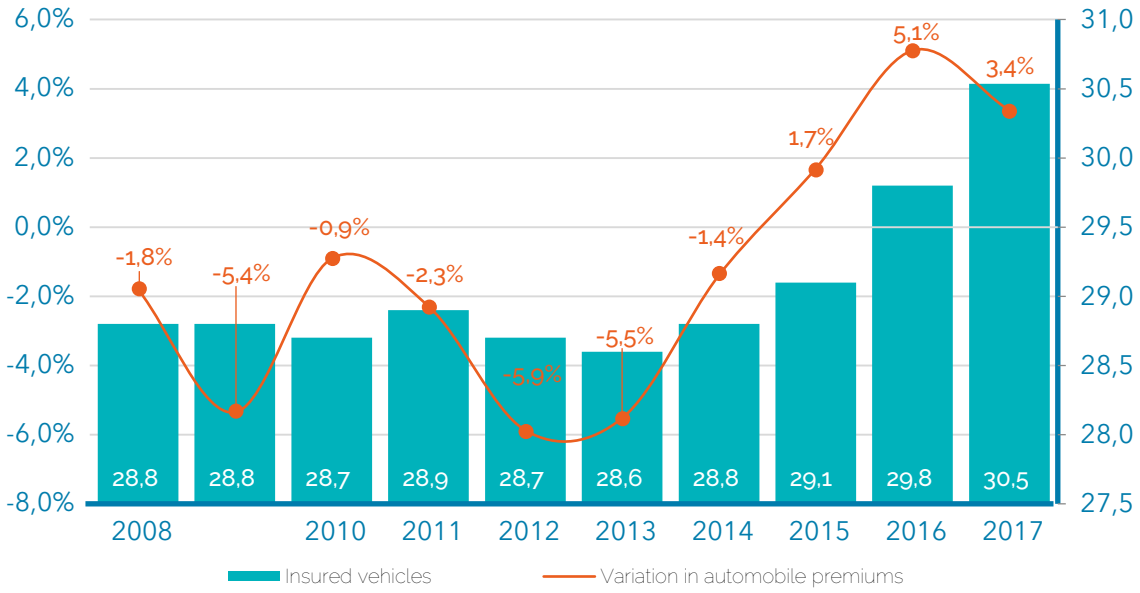


EXHIBIT 2.5: EVOLUTION OF AUTOMOBILE INSURANCE. SOURCE: ICEA (2018)

Another fact that contributed significantly to this change of trend was the approval and implementation of the new motor accident victim compensation system, known colloquially as the "new Baremo"[6]. This increased compensation costs for personal injury. Prior to this, companies were pressured and conditioned to raise premiums, which directly led to increased turnover and subsequent consolidation.

In terms of the future, in an environment where the use of vehicles with a high technological component begins and takes hold, auto insurance turnover may be affected very significantly.

- On one hand, in the short term, these vehicles may enable a better understanding of driving habits, leading to an expansion of new usage-based insurance products, which could reward the good driving behaviour of insured drivers, reducing their premiums.
- The inclusion of new safety elements, eventually resulting in fully autonomous vehicles (level 5), should reduce premiums considerably due to the reduced risk of accidents.

6 On 1 January 2016 the new motor accident victim compensation system – new Baremo – came into force, a consequence of the ageing previous system. Its aim was to adapt the majority of compensation to the social reality and to reduce a set of very common injuries that lent themselves to certain fraudulent behaviours. There was a predicted increase in the total compensation amount, for which companies had to prepare. This was seen with the premium increases in 2016 and 2017 when the measure was in effect.

2.2 EVOLUTION OF THE COMBINED RATIO AND THE TECHNICAL-FINANCIAL RESULTS

Auto insurance has achieved an average technical account result above 7.4% over the last 10 years, largely due to financial results. As stated above, this was a primary reason why insurers were able to adjust their prices. However, it is equally true that this situation cannot last indefinitely. Premium adjustment was gradually deteriorating the combined ratio, which exceeded the critical 100% value in 2015 and 2016.

Evolution of auto insurance results

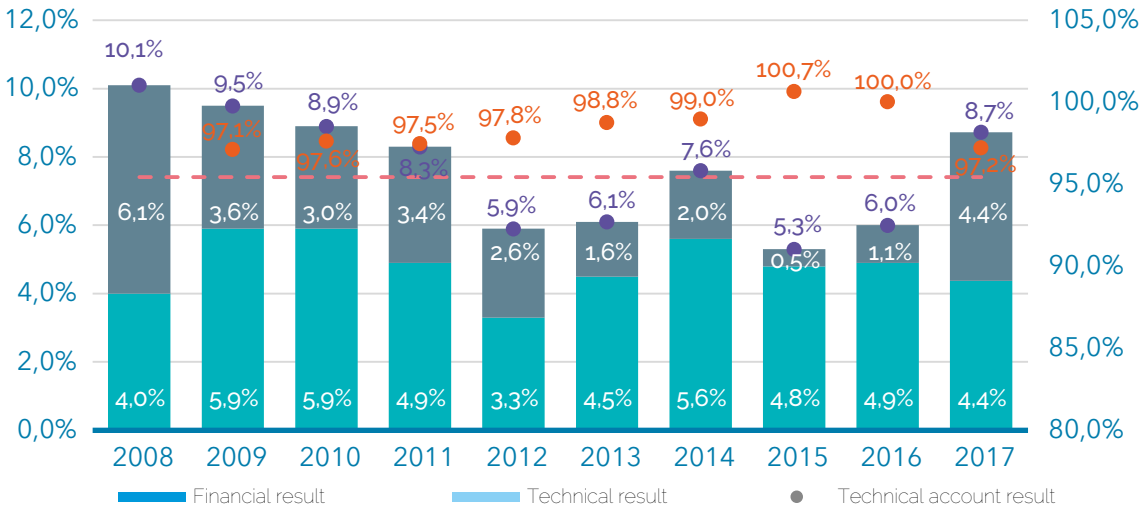


EXHIBIT 2.6: EVOLUTION OF THE COMBINED RATIO AND SECTOR RESULTS. SOURCE: ICEA (2018)

Along with this, we also need to take into account the rebound and recovery in vehicle use, as evidenced by both an increase in fuel consumption and the frequency of civil liability claims from 2014. To compensate for this rebound, products with a deductible that transferred part of the loss to the customer reduced the frequency of claims under this type of coverage from period to period.

Evolution of accident frequency and fuel consumption

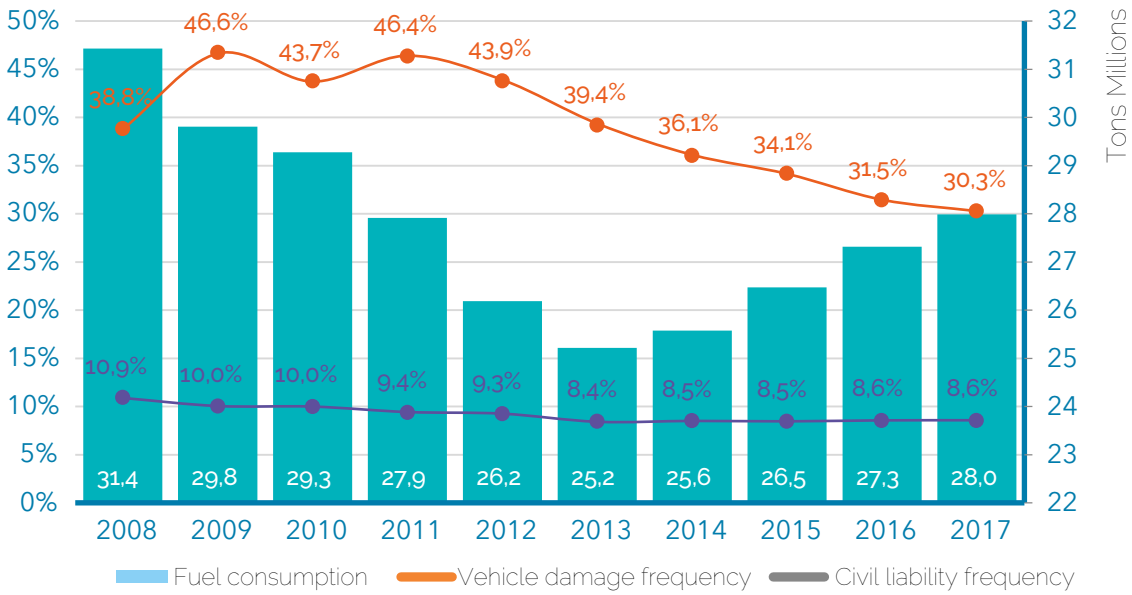


EXHIBIT 2.7 SOURCE: FREQUENCY: ICEA. FUEL CONSUMPTION: CORES (CORPORATION RESPONSIBLE FOR STRATEGIC RESERVES OF PETROLEUM PRODUCTS IN SPAIN)

However, if the Spanish economy continues to improve, increased vehicle usage and sales will raise the risk exposure levels of insurance company portfolios, increasing insurers' costs.

This means that any price reductions in the coming years will be in place for less time, given that auto insurance company margins have been cut.

2.3 PRINCIPAL PLAYERS IN AUTO INSURANCE

Currently around 50 companies offer auto insurance in Spain, of which 10 insurer groups account for more than 85% of the market. We are therefore facing a highly concentrated market where the size of the company may be increasingly relevant – something similar to what happened in other industries such as banking and telecommunications.

Moreover, the ongoing pressure on margins in the sector will force management to be ever more efficient, which may be an important factor favouring market concentration. Larger companies with greater resources and investment capacity will be able to face these efficiency improvement plans with greater guarantees. They will also have a greater ability to innovate and will thus adapt to the new market conditions brought by the vehicles of the future with their ever growing technological capacity.

Growth and market share of the 10 largest groups-2017

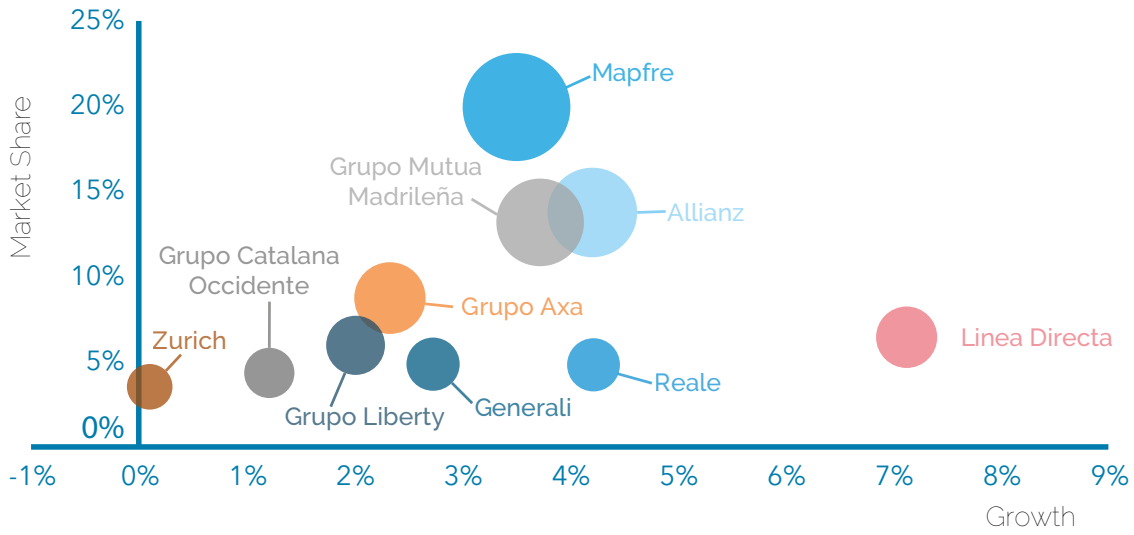


EXHIBIT 2.8: DISTRIBUTION OF BUSINESS GROUPS. SOURCE: ICEA (2018)

In addition, because of the emergence of the new technologies we are witnessing and will continue to witness, the birth of digital native startups with disruptive business models may create situations where large companies with less innovative flexibility will outsource innovation or opt to acquire the aforementioned startups.

Lastly, if some insurers start to record losses, the concentration of companies may be further stimulated, potentially creating takeover options for better-positioned companies with greater financial capacity.

We will only find out how this scenario resolves itself over the coming years, discovering whether the concentration of the sector materialises.

3. CAR OF THE FUTURE AND THE REFORMULATION OF AUTO INSURANCE INDUSTRY

This chapter analyses how the appearance of the car of the future and new technologies will enable the insurance industry reformulation that we are seeing gradually with the different cases garnering attention in the sector.

We will use three strongly interconnected points to achieve this:

- Firstly, we will describe the car of the future, which for us is a combination of the connected car and the autonomous car, and set out how it could benefit the insurance industry. This could be through new sales targets, new sources of risk to insure or new ways of operating. Collaterally, there may be benefits for other industries, such as content and retail, as the car will become an extension of our offices or living rooms. We will be able to use this new space to consume information, check our email, view streamed content and even make e-commerce purchases.
- Secondly, we will introduce the traditional value chain of an insurer, reviewing the key functions of the business and supporting functions.
- Lastly, we will talk about the new technologies that are emerging in the insurance industry (and in others) and how these will impact (or are already impacting) operations within the sector. We are talking about robots serving insureds or other examples, such as well-known cases involving the use of blockchain with its smart contracts.

These days we frequently read a number of stories about connected and autonomous cars in the media but do we really know what they are?

THE CONNECTED CAR

The connected car uses sensors and Internet access to employ various technologies to provide the driver and passengers will an improved travelling experience. It offers benefits such as customisation, better performance, safety and entertainment.

The technologies becoming available in this type of car can be classified into five categories: mobility management, vehicle management, user experience, safety and service centre.

The impact of the connected car on the auto insurance segment is shown in the graphic below[7], which details significant cost savings, such as a reduction of between 5% and 15% in claim management costs due to improved accident response (automatic eCall[8] and the virtual black box)

Connected car impact

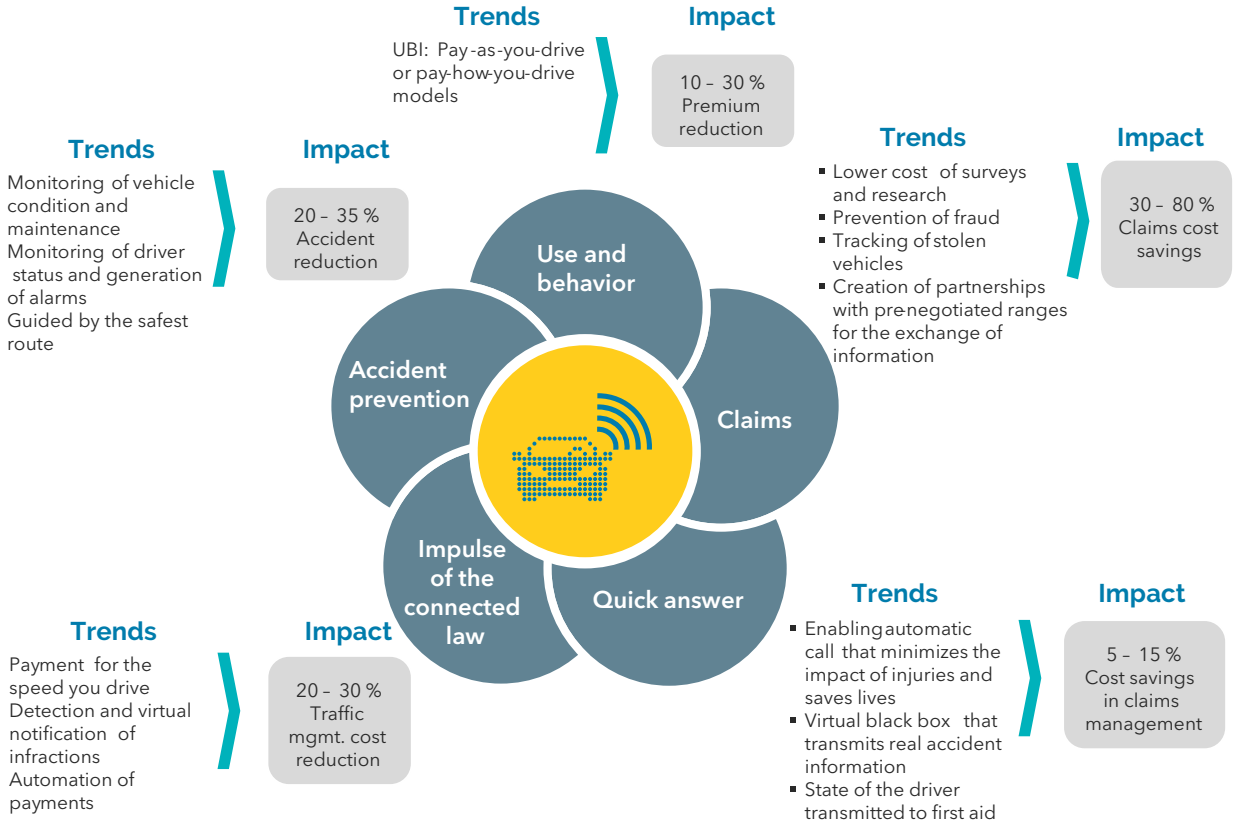


EXHIBIT 3.1: CONNECTED CAR IMPACT

7 Source: Altran Consulting and Cisco
8 This system must be incorporated in every vehicle sold in the EU from 1 April 2018

THE AUTONOMOUS CAR

The autonomous car has the technology needed for automated driving. There are five levels of automation that respond to the safety advances provided by assisted driving innovations, which ultimately determine the degree of human intervention or supervision required.

The following illustration[9] shows how different levels of autonomy can impact on the auto insurer. The accident risk reduction for the highest level is 95% due to the elimination of human causes (distractions, wrong decisions, performance etc.). This effect would then impact how premiums are calculated, reducing them considerably.

The accident risk reduction for the highest level (L5) is 95% due to the elimination of human causes

Autonomous car impact

Accident causes

	Driver	Vehicle	Environment	Unknown causes
%	94	2	2	2

Breakdown of accidents caused by the driver

	Distraction	Wrong decision	Skill
%	41	33	11
	Low performance	Other	
%	7	8	

There are a large majority of accident / collisions caused by human failures, so reducing human activity in driving will reduce the total number of accidents

Impact of autonomous vehicle on accidents

Level	Description	Steering wheel acceler.	Env. control	Reaction to failure	Accident risk reduction
Assisted driving	The system supports some driving tasks such as steering Wheel or braking	Human driver	Human driver	Human driver	15%
Driver assistance	Steering and breaking tasks are performed by the system in an unassisted manner	System	Human driver	Human driver	30%
Partial autonomy	The autopilot performs driving tasks in some circumstances (reduced speed)	System	System	Human driver	55%
Conditional autonomy	The autopilot performs driving tasks, in certain circumstances, if the driver does not respond	System	System	System	75%
Total Autonomy	The driving tasks are executed only by the system, no human interven-tion is required	System	System	System	95%

Human driver System

EXHIBIT 3.2: AUTONOMOUS CAR IMPACT

9 Source: Altran Consulting and US Department of Transportation

The other point to bear in mind is the traditional value chain of the sector. Below, we briefly cover several perspectives, from marketing to capital management and reinsurance.

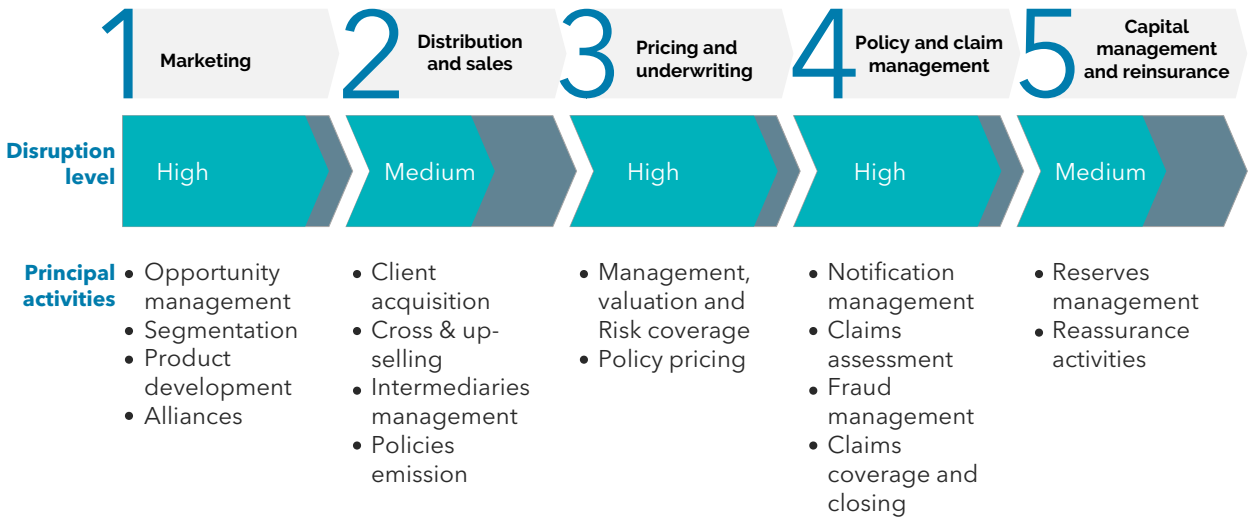


EXHIBIT 3.3: TRADITIONAL VALUE CHAIN FOR AUTO INSURANCE

- **Marketing:** Marketing is responsible for structuring the potential market, for seeking new segments into which products can be introduced and, lastly, for ensuring policyholder satisfaction and retention. In addition, the search for new customer needs enables and motivates the development of new products necessary for the sector's constant evolution.
- **Distribution and sales:** Once products have been developed for target segments, we look for the most effective channels for insurers. The channels currently available include agents, insurance brokers and banking-insurance but the online channel is the one that has grown most in recent years, with analysis showing that this is set to continue into the future.
- **Pricing and underwriting:** Policy prices are based on the associated risk and the different coverages underwriting the policy. In this phase, insurers run studies to find the optimal pricing for their products based on market knowledge, the demographic details of policyholders and their accident histories, and the technical features of their vehicles.
- **Claim management:** This is where insurers must manage a range of operations. These include accident studies, the work of loss appraisers and services to be outsourced, such as roadside assistance and compensation payouts. In short, this phase involves managing operations from the time a claim is opened through to its closure.
- **Capital management and reinsurance:** The main work carried out in this phase involves managing reserves and dealing with reinsurance matters. On the first point, every financial year insurers must have access to their own equity, the amount of which must be greater than a figure based on their type of business and turnover. Secondly, in accordance with the Spanish Insurance Act (Ley General de Seguros), insurers must have a reinsurer that guarantees their solvency in the event of claims greater than forecast or that they can technically support. There are examples of assets that are very costly to insure where the insurer covers a minimum percentage of the risk and the reinsurer supports the rest, with the benefits proportional to these amounts.

There are two streams of thought on whether to include policy administration (PA) as a core element. While it is true that PA is a very important operational element for insurers, we consider it a business support function. In this sense, it is on the same level as financial, IT, legal and human resources matters.

Regardless of the discussion on whether to include some elements or others within this definition, there is one point on which all market analyses converge: the fragmentation of the value chain. There are several causes of this split. On one hand is the appearance of insurtechs with functions that provide great value to insurers, while on the other are the technological disruptions that have caused highly significant changes to operational models.

OEMs, Telco and big techs would have a great acceptance level into the auto insurance industry which could suppose at least a reduction of 30% of total market share

Now that we have introduced the car of the future concept and the key functions of the value chain, we will focus on the different industrial perspectives associated with auto insurance, looking at them holistically to introduce and highlight the points or paradigm shifts resulting from our analyses.

The elements we define come from three major perspectives: market, policyholders and operations.

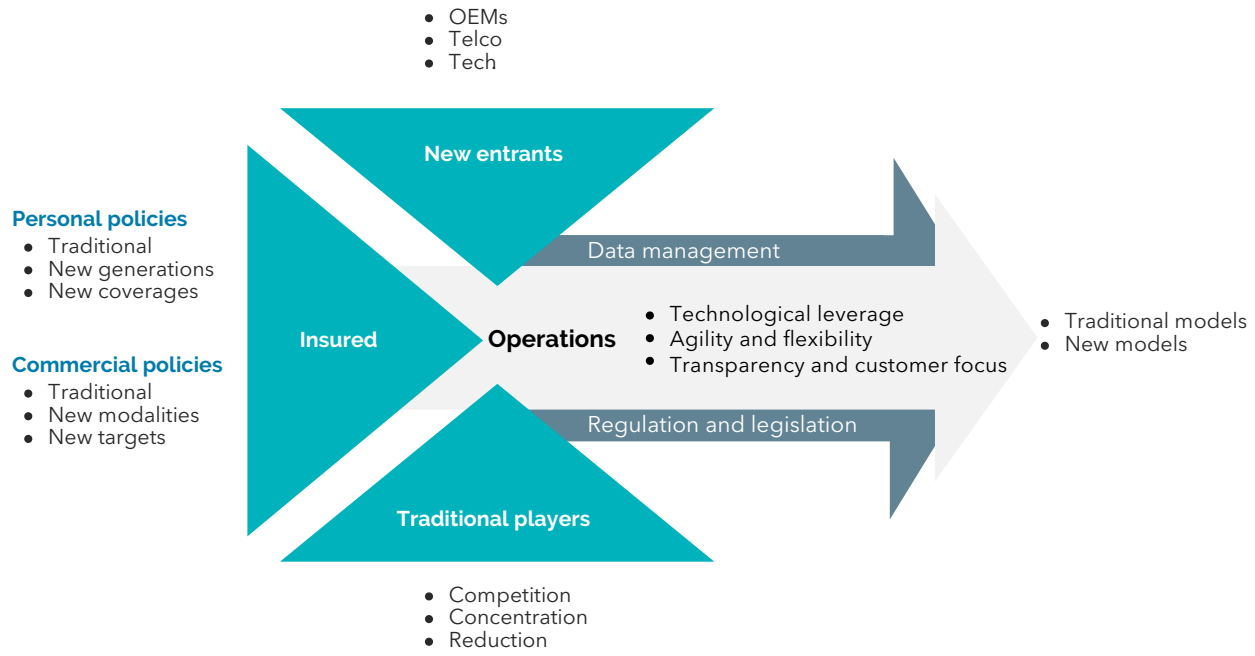


EXHIBIT 3.4: INDUSTRIAL PERSPECTIVES FOR AUTO INSURANCE

3.1 MARKET: NEW ENTRANTS

The fragmentation of the value chain has caused the reduction/elimination of traditional market barriers in the insurance industry. We remarked earlier on the effect of insurtechs. However, various groups (OEMs, big tech, telcos) are immersing themselves at different points along the traditional value chain.

Now that insurers are not the exclusive holders of knowledge about customers, due to greater accessibility to the information generated by drivers, the doors to the sector have opened. The creation of company ecosystems around the connected and autonomous car has meant a paradigm shift that directly affects traditional insurers. We have identified three principal groups of companies that represent the greatest threat to the auto insurance segment: OEMs, big tech and telcos.

Below we show the acceptance level results for new competitors globally[10], where almost 40% of consumers state that they would be willing to be insured by an OEM. There is no particular preference for either big tech, telcos or insurtechs, with all having acceptance levels around 30%.

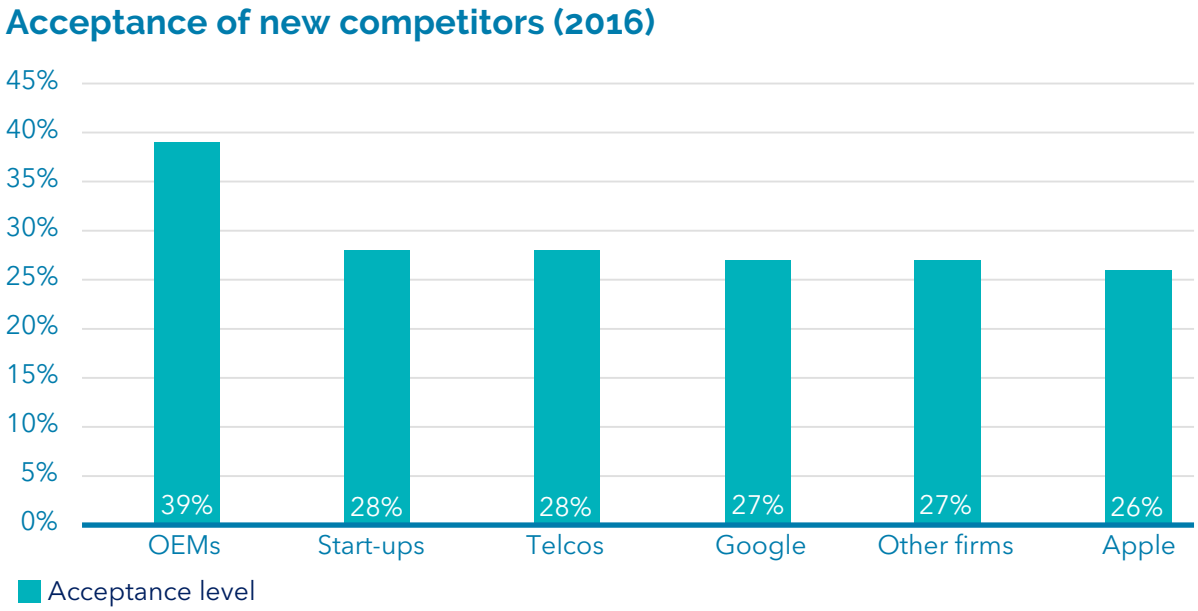


EXHIBIT 3.5: ACCEPTANCE OF NEW COMPETITORS

OEMs have made significant investments in the development of the connected car and in turn are introducing shared mobility services: Daimler (Car2go), PSA Group (Emov) and Renault in conjunction with Ferrovial Servicios[11] (Zity).

10 Survey carried out by Morgan Stanley in 2016
11 December 2017 press (Ferrovial)

Both of these factors afford OEMs an advantageous position compared to the other new entrants (big tech and telcos), as they have attained easy accessibility to driver-generated data. All of this has placed this group of companies in a position to use and monetise first-hand data along the length of the traditional insurer value chain, from underwriting to claim management. The possession of large volumes of information could enable them to underwrite risk in the future, issuing ultra-personalised premiums that are attractive to policyholders. If we focus on distribution, the dashboards of connected cars could be aimed towards the functions of a marketplace for the insured, with the aim of providing the added value services so demanded by customers. In terms of claim management, trends could be focused on offering comprehensive services, managing such things as roadside assistance, replacement cars, repairs etc.

Big tech companies such as Google, or Amazon are also starting to position themselves to provide an auto insurance offering. The development of autonomous cars, such as Googlecar, the high penetration of smartphones, the usability of navigation applications such as Waze and Googlemaps, and the wealth of knowledge that these companies possess about the behaviour and habits of their customers makes them a significant threat to traditional insurers. Another potential key to success for these companies are their brand images, which give them credibility, security and loyalty, all factors that are indisputably involved in any purchase decision.

What sort of offer could Big Tech launch to steal market share and remain attractive and profitable?

The first movements have already begun. Google has purchased an insurance comparison business and Amazon has begun offering auto insurance quote services in the UK.

In the case of Google, it is possibly making a strategic move to start creating its own information database to exploit in the future. The Amazon case is much clearer. After hiring one hundred insurance specialists in the UK[12], it informed the world that the European market is one of its defined targets. If its objective is to create an insurer led by operational excellence, which could dominate based on technology, data and its enormous flexibility, this would enable it to reduce its management costs radically. Adding this to the knowledge that Amazon has about its end customers, Amazon becomes a threat for the insurance sector to consider. We would like to pose the following reflection: the combined ratio of insurers comprises the sum of their management costs (approximately 20%) plus the costs of claims (approximately 75%). If Amazon were able to cut its management costs in half, what sort of offer could it launch to steal market share and remain attractive and profitable?

Lastly, telecommunications companies also want their share of the sector. As with the tech companies, the opportunity for access lies in the accessibility of the data generated, both from users and from the new connected cars. Remember that telcos have strengthened their business models by offering service packages and, more specifically, by including the content part that has been so well accepted. The adjacent movements of telcos towards other industries are clearer. Recently, news was published that Telefonica and Huawei have completed the first assisted driving tests using 5G[13] with a clear objective: communications for automation and transport. Elsewhere, Vodafone's purchase of Cobra Telematics to launch its Vodafone Automotive unit, which is focused on safety and telematics for driving, with vehicle location, UBI solutions and fleet management examples of some of its services.

From our point of view, communications companies' greatest potential lies in the risk underwriting and pricing stage due primarily to the extrapolation of the good practices of their highly complex, real-time pricing engines. We should also point out that the penetration of the telcos should give them a significant advantage in terms of distribution.

12 November 2017 press release (insurtechnews, insurancetime, insurancebusinessmag, among others)
13 February 2018 press release (Telefonica, elpais, among others)

After analysing the principal threats to the auto insurance segment, we believe that startup technologies deserve a special mention, with their disruptive business models that make them a powerful source of innovation for the sector. Below, we list some examples of insurtechs that are achieving excellent acceptance in markets outside of Spain.

- Lemonade (Allianz). Focused on P2P insurance with an excellent user experience. After taking its fee, it gives the amounts left over after paying claims to charity
- Insurpal. Uses blockchain technology and PSP endorsements to improve segmentation, reduce premium costs and offer incentives to policyholders based on good behaviour
- Root. The first insurance company to insure only good drivers, offering more competitive rates due to fewer claims. Using its technology, it runs a three-week test to identify user driving patterns and accepts only those who display good habits (it rejects around 30%14 of users)
- Metromile. An insurtech pioneer that offers auto insurance under the pay as you drive model. This insurer offers payment per mile; in other words, you pay the corresponding amount based on the miles you drive in your car
- Cuvva. Offers microinsurance with hourly or minute-based coverage via digital applications
- Snapsheet. Startup that focuses on claim management from a photo of the damage caused by a car accident

Value chain fragmentation is a fact, and technology and InsurTechs have provided the rise of new ways of work totally unknown till now

The separation of functions is becoming clearer as insurers draw nourishment from players outside of the industry to complement, cover or replace features that were hitherto impossible for them to provide.

The following figure shows the different players that could operate within the segment and where they are expected to generate their greatest impact, taking into account the different links in the value chain.

14 The rise of real-time, context-based insurance, Enrique Dans (2017)

Value Chain Disaggregation

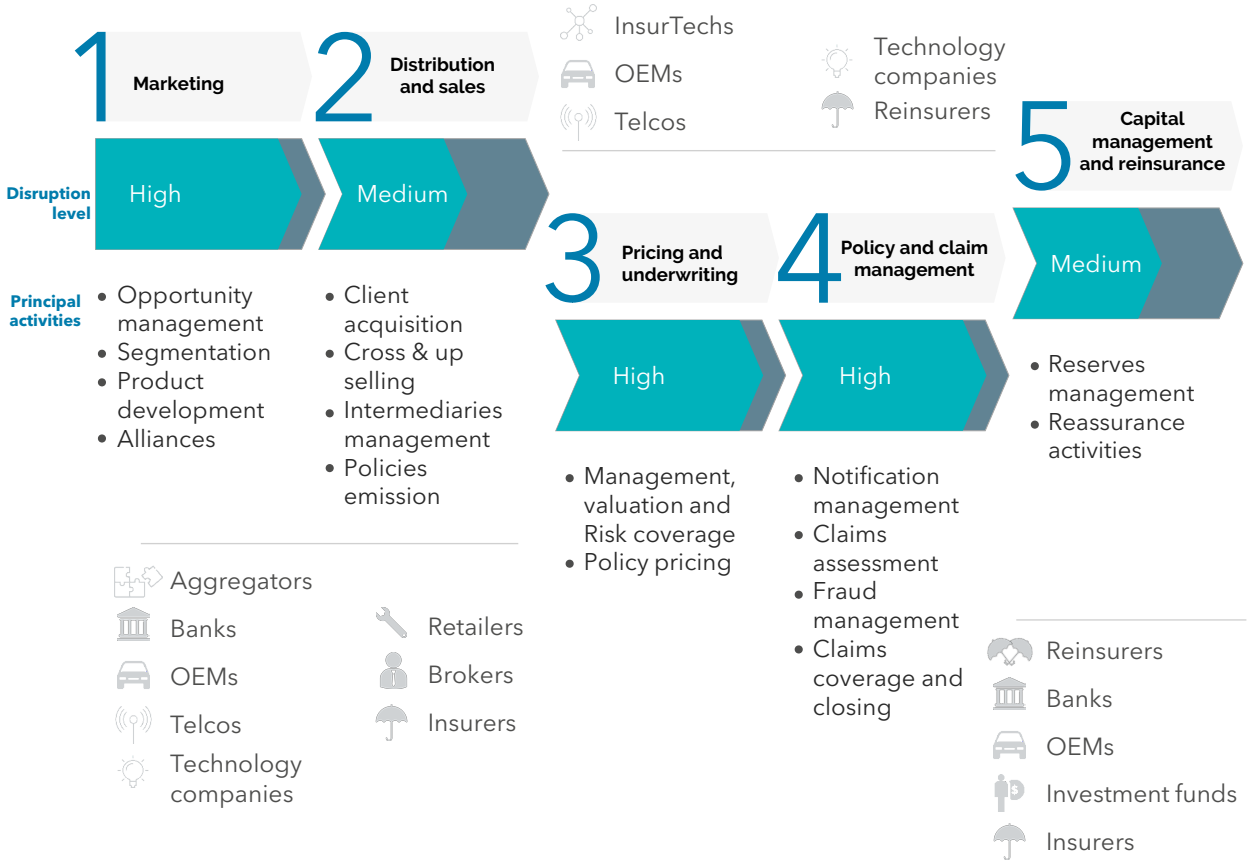


EXHIBIT 3.6: VALUE CHAIN DISAGGREGATION

Given the potential new players in the auto insurance segment and the good positioning that some of them hold in the minds of consumers, and taking into account that many customers are happy to switch companies, how might these new entrants impact in terms of market share?

3.2 MARKET: TRADITIONAL COMPETITORS

We had the opportunity to use the knowledge of various key companies in the industry when preparing this section. We held various panels with automation, legislation and technology experts, as well as executive representatives from these companies (from Business directors to IT directors). These sessions gave us a range of value reflections that we would like to share in this report.

Car of the future is not a threat, but an opportunity to change traditional models and position insureds in the center of business

Asked whether they perceived a threat in the sector linked to the car of the future, 100% of participants said that, far from being a threat, they took it as an opportunity, something that pleasantly surprised us. In their opinion, they need to take advantage of the moment to change their highly traditional ways of operating and become more focused on the customers, understanding their real preferences and positioning them at the centre of their business. However, everyone also agreed that their companies were not agile enough in the face of these changes and that this was a very good opportunity to face the evolution.

Furthermore, everyone agreed on the positives that a technological disruption of this calibre could bring in terms of the benefit to society. This would be primarily due to fewer accidents and mortalities, a line closely linked to the ethical behaviour of the companies they represent.

Analysing the course of the sessions and quantifying the responses of the attendees as to what they thought would be the fundamental aspect of their work in the coming years, 40% of them believed that the excellent management of their policyholder data was key. Another 40% were focused on making their organisations more agile and the remaining 20% were focused on innovation as a way of differentiating themselves with new products and services on the market.

The car of the future and new technologies will generate a lot of data, our so-called Holy Grail. This data will be fundamental to product customisation and adapting to customer needs. To this end, different lines of debate were opened. These included how to approach the analysis of all this information and obtain differentiated conclusions regarding the competition, who will own the data, how to offer what the customer really expects, how to forecast, how data use regulations will be adapted etc.

The key can be found in how to provide authentic value to consumers by using this data (monetisation) in the form of genuine price improvements and new adapted services. Reference was made to the UBI case in Italy, which was successful because it was widely accepted. It was clear that the business model was based on a significant lowering of premiums (around 50%) from the time the policy is issued. The models being developed in Spain are much more conservative and market approaches are a long way from the Italian model. They offer lucrative discounts after a data collection period that normally lasts a year, leading to forecasts of a poor take up in Spain.

From the insurer's point of view, the conclusion was that information will be used ethically and always in favour of the customer. The role of the legislator was also discussed, as data may pass through various sectors (telcos, manufacturers etc.) that have different regulations to those that govern the insurance industry. This will create the need for rules of the game that are the same for everyone involved and that allow for the coexistence of collaborative models among everyone.

In terms of making organisations more agile, most comments focused on the lack of flexibility that characterises large corporations and how they suffer when it comes to incorporating new market demands. While agility is certainly in fashion and there are ever more examples of "digital natives", such as Spotify with its digital tribes, insurers have to face a change of mindset to manage their day-to-day activities differently. They have to avoid bureaucracy, obtaining more short-term results and testing new products that have been designed by different areas of the company (using design thinking, for example), all the while taking consumers' preferences into account.

40% of attendees believed that customer data management was key, another 40% were focused on making their organisations more agile and the remaining 20% were focused on innovation

The comments on innovation discussed how companies could differentiate themselves in the market, delivering a value that insurance customers can really see. This might include creating new business models around car sharing, microinsurance or use-based insurance, which feel like a potential occasion for the industry. Companies could even establish strategic partnerships with service companies acting alongside the car world, such as petrol stations and shops, and even incorporate new coverage designed to cover the experiential layers of users.

The participants wanted to highlight other associated risks and the role to be played by insurers.

- The potential to hack cars has increased exponentially because the new cars are connected through networks. The participants stressed that OEMs are making great efforts and drawing up plans to manage cybersecurity by providing an unconnected emergency switchboard that, if a vulnerability was detected, would take control by deactivating the connected switchboard and performing an emergency stop.
- The security of infrastructure that helps mitigate the risks linked to hacking (traffic lights, signals etc.). The entry of this new variable allows a new risk pool to be insured but insurers are still cautious when it comes to expressing an opinion.

The period during which traditional and autonomous cars coexist, which will probably mean an increase in claims relating to traditional cars on one hand and a migration to much lower premiums on the other, eroding the industry's combined ratios

3.3 POLICYHOLDERS

Immediacy, ease of use and customisation are some of the adjectives that define the services and products demanded across all industries by the consumers of the new digital era

Immediacy, ease of use and customisation are some of the adjectives that define the services and products demanded across all industries by the consumers of the new digital era. The new habits or needs acquired by policyholders are shaking the foundations of the traditional business models of auto insurers. The demand for digital channels, coverage simplicity, the return of transferred data, the use of shared economies and mobility services in large cities are some of the trends gaining traction among current policyholders.

Insurers do not currently have a fluid channel with their customers, limiting contact between insurer and customer primarily to the issuing of the policy and the processing of claims.

Given the current digital age and the importance of a true customer focus, insurance companies need to strengthen the points of contact with their customers and project a new image. Altran is committed to reinforcing its distribution channels and the services it provides, with the aim of changing its position as a simple risk carrier.

Our conclusion passes through a reformulation of the business industry, changing from the classic linear model to a new circular model featuring various relevant points to consider:

- New determining factors to quantify risk thanks to the use of advanced analytical models able to correlate new variables
- Obtaining data in real time, providing dynamic support to premium calculation and offering prices tailored to each customer based on their data
- A more fluid, continuous relationship between insurer and insured, employing new channels or new forms of interaction between both
- The role of insurers as influencers or risk assessors, suggesting new consumption habits that could result in premium improvements for the people they insure and indirectly reduce the insurer's risk exposure

New Insurance Model will transform the position of Insurers from a simple risk carrier to a risk assessors

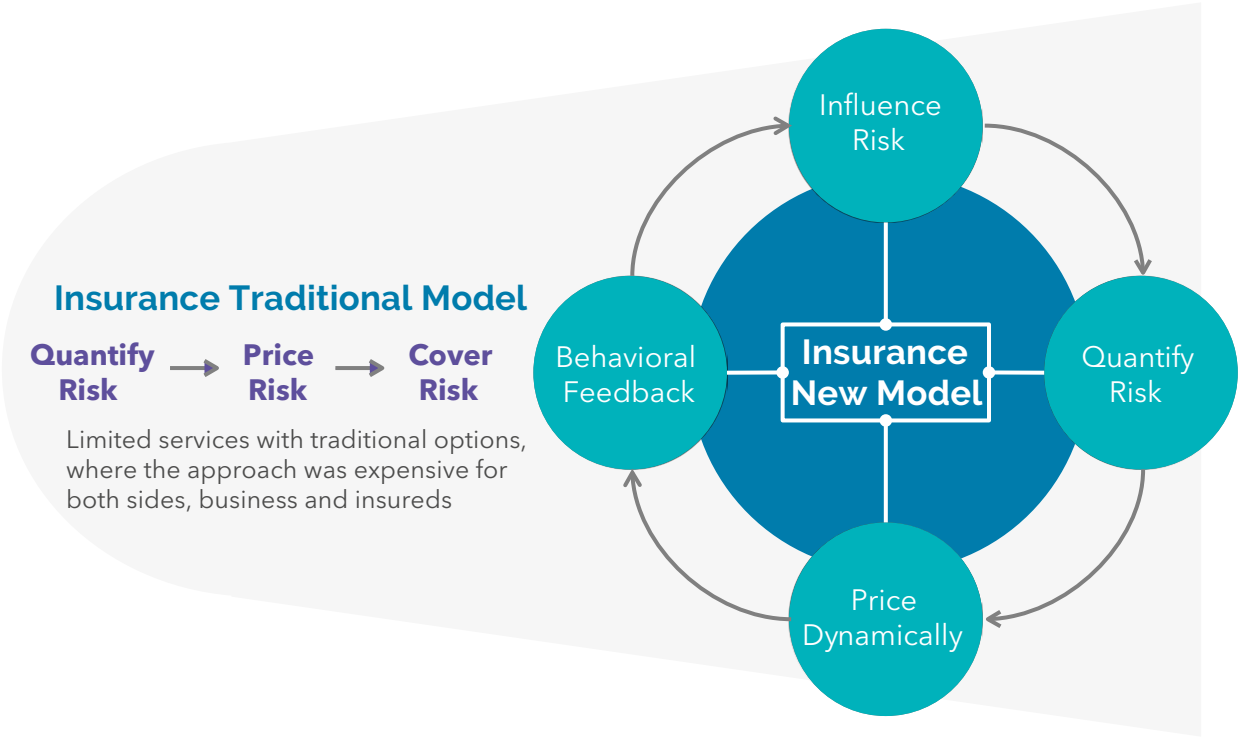


EXHIBIT 3.7: NEW INSURANCE MODEL

3.4 OPERATIONS

New technologies have come to stay, which is demonstrated by the way that insurers continue to adopt them. Companies now have to evolve to be able to adopt and embed these technologies into their daily operations, since they require high levels of adaptation in order to be applied effectively.

Below, we provide a brief review of the technologies that we have identified as having a high potential impact within the value chain of the auto insurance segment.

- **Artificial intelligence:** Artificial intelligence is the simulation of the human intelligence process using machines, with the aim of automating complex, repetitive tasks throughout business processes. It has a range of applications in the insurance field, such as automated risk underwriting, automated claim management, robo-advisors (digital brokers are brokers focused on developing the broker's role within social networks) and providing virtual assistants in online platforms to support customer decision-making in various areas (policy management, product portfolio etc.). Robotic process automation (RPA) is a method based on the automation of processes based on pre-prepared logical rules to obtain answers. It does not involve physical robots but software that feeds off a business user and supports him or her in simple tasks. This technology could have a significant impact in the insurance industry, enabling substantial back office cost reductions. It also reduces management times as far as possible, allowing more requests to be processed.

- **Blockchain:** A blockchain is a database formed by nodes, which may be insurers, customers, third parties etc. This network is shared by all participants, who decide to whom they wish to grant access to their node. The main characteristics of this system are security, integrity, reliability, speed and traceability. They are currently used to generate smart contracts (codified contracts that self-execute the obligations that the parties have committed to in an agreement).

- **Big Data & Analytics:** Big data and analytics bring together the storage, structuring and large-scale processing of data with the aim of obtaining valuable information to predict actions or optimise businesses. Advanced analytics enables insurers to anticipate and understand the needs of their customers and their preferences. It can also help detect fraud by identifying certain patterns.

- **IoT & Telematics:** The Internet of Things is a sensor-based technology that enables the monitoring of the performance of physical assets, which can then be used to predict future behaviours, to model risk or for maintenance. The implementation of telematics in cars will enable the recording of data on driving behaviour, degree of use, weather conditions – basically an overall context enabling risk models to be adapted and real-time pricing.

This introduction enabled us to map the different technologies and the impact that each has on an insurer's work, highlight usage case, impact levels and time of application. Note that not all the technologies are at the same stage of development.

The technologies are on various paths. The IoT is the most fully developed but has a shorter outlook, while blockchain is still a very immature technology, producing highly disruptive applications, but has a longer timeframe.

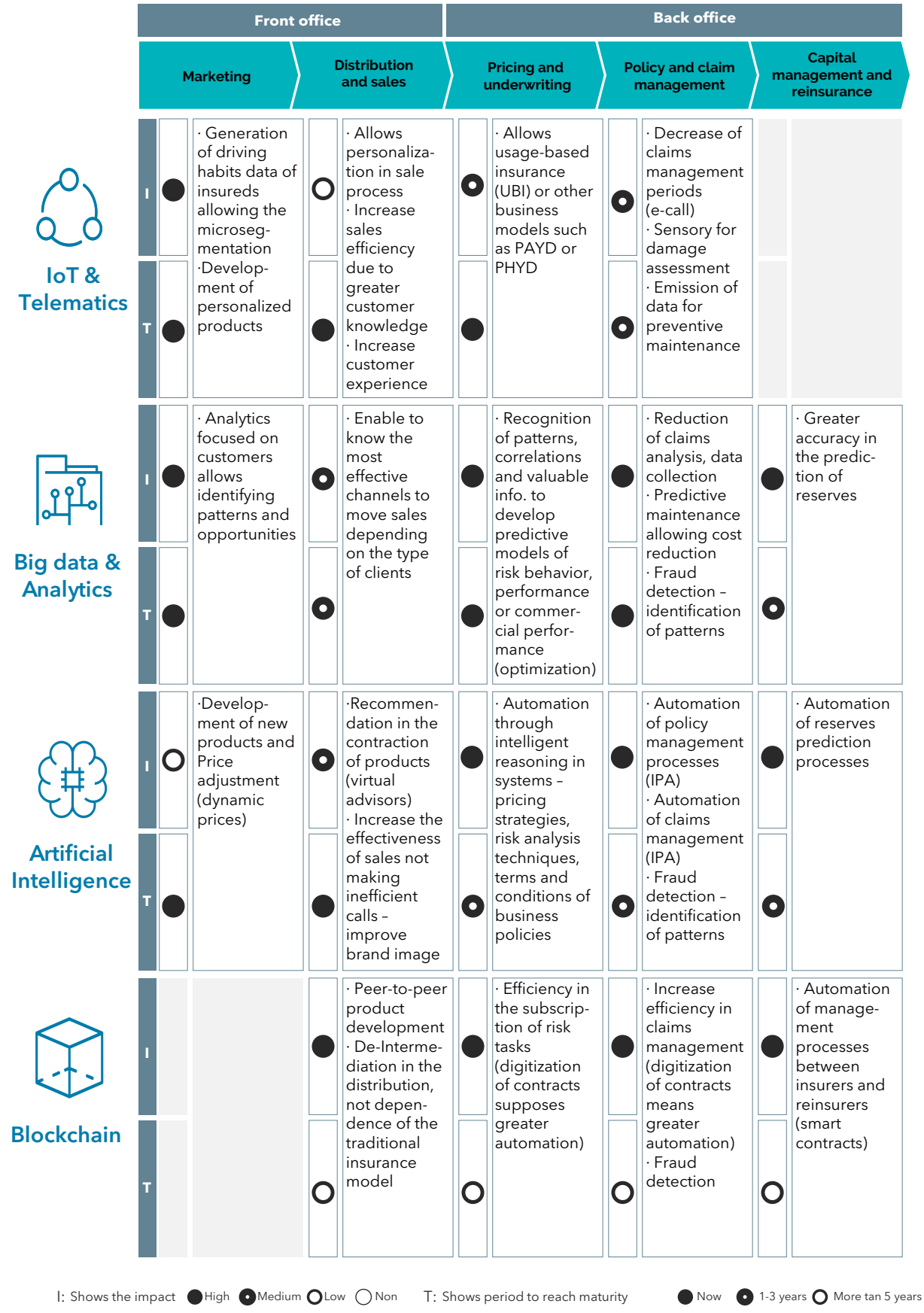


EXHIBIT 3.8: TECH DISRUPTION CASES INTO THE VALUE CHAIN

The matrix above shows the various applications of the technologies under discussion at each link in the auto insurance value chain. Below, we describe certain applications identified for each technology/value chain crossing.

The IoT and telematics seek ways to identify, monitor and exploit consumer data in the search for news types of relationship and thereby achieve greater financial returns:

- They enable a new type of insurance called UBI, which defines policies based on how much customers use their vehicles and how they use them. Thanks to a better understanding of policyholders (driving behaviour, times, routes etc.), insurers can reward their customers with lower premiums, while seeking to reduce their risk exposure and claims.
- Insurers use the IoT to design new price setting strategies for each customer and to provide additional services that improve the experience of policyholders.
- In terms of claim management, the implementation of advanced sensors in the connected car will speed up processes thanks to applications such as eCall, an automatic call in the event of an accident, and real-time loss appraisal without the need for experts.

Big Data and Analytics can be applied in a wide range of areas and in different ways:

Edge Analytics will be placed into auto and will process decision making for autonomous and connected cars avoiding the data overload in IT infrastructures

- Big Data enables an improved 360-degree view of the customer by incorporating both internal and e+xternal sources of information. This improved view is a holistic approach that takes into account all the available significant information about the customer, in order to promote better long-term commitment and loyalty. A customised offering is developed by segmenting the market and establishing effective communication and distribution channels.
- The use of Big Data and predictive, prescriptive analytics to improve the efficiency of claim management processes by anticipating claims, the administrative workload and information gathering.
- The use of claim analysis has enabled the use of predictive models for claims, to identify fraud patterns, to accelerate claim settlement and to improve the customer experience by speeding up the claim process.
- Focusing on risk underwriting, insurers can use analysis to drive commercial underwriting with a focus on customisation, create predictive models that support underwriting and develop dynamic policies based on the versatility of the analysis.

Artificial intelligence and its various technological offshoots (intelligence process automation, virtual assistants etc.) have a great impact throughout the value chain:

- Virtual assistants play a vital role in helping insurers avoid failed sales calls, which devalue the brand image. These intelligent virtual assistants provide accurate, coherent, consistent information throughout the sales process and listen to call centre staff to ensure they do the same.
- In the underwriting phase, artificial intelligence gives insurers automation capacity when making decisions involving risk and commercial underwriting. Artificial intelligence can incorporate intelligent reasoning into business systems, selecting appropriate thresholds for policy terms and conditions, price setting strategies, sales management, risk analysis techniques to advise on the appropriate actions to take in sales processes, and risk underwriting and information.
- In terms of claim management, the technology can accelerate claim settlement by automating brokerage tasks, such as handling queries and resolving claims, processing invoices etc., as well as recognising fraud patterns to identify fraudulent activities.

Robotic Process Automation will apply not only in backoffice functions but in frontoffice, which will impact directly to the core of the insurance business

The final technology to highlight is blockchain, a technology that is currently in an embryonic phase but which has the potential to be applied very widely in disruptive ways. The decentralisation, disintermediation and virtualisation of contracts enables highly efficient, agile management and gives rise to new, hitherto unthought of business models:

- The technology enables process automation at the different phases of the value chain. The digitalisation (i.e. less use of paper), transparency and reliability that it affords contracts enables agile, automatic process management, from distribution to managing contracts with reinsurers.
- Blockchain will lead to P2P15 insurance (a new business model) in which insurers will be grouped together, based on a collaborative economy concept, and will support one another financially in the event of claims. However, instead of an administrative policy where people process new policy and claim requests, P2P insurance will only be managed by an intelligent contract code, which will significantly cut costs and accelerate payment, improving the policyholder experience.
- This innovation will help reduce fraud using knowledge of the authenticity, ownership, origin and trajectory of products and documents throughout the value chain, recognition of the people who participate in transactions and the date and time that the policy is issued.

As we have shown, technology is having and will have a major impact on the way insurers do things. They will need to adopt this technology gradually in order to streamline processes and cut costs, generate new business models and glean a better understanding of the customer.

15 Peer to peer

Technological disruption in the value chain

EXHIBIT 3.9: TECHNOLOGICAL DISRUPTION IN THE VALUE CHAIN

3.5 REGULATION AND LEGISLATION

All technological disruption that enables a new evolution involves updating regulations and legislation. The emergence of new trends involving connected and autonomous cars has caused a new paradigm with potential barriers, vacuums and questions inside the current legal framework.

For the moment, there are two levers to adjust. Firstly, countries need to adapt their laws to enable the use of machine-driven cars. Secondly, we need rulings on who is liable for an accident caused by a car under the control of an autonomous driving system.

To date, the first regulatory obstacle encountered to implementation of the autonomous car in Europe has been the Vienna Convention on Road Traffic. This convention states that autonomous intervention is only permissible in a vehicle's steering system and that it cannot take total control of any vehicle driving faster than 10km/h. The many countries that are signatories to the convention do not include the US or Spain. Partly because of this, the US has been the first country to adopt its own measures aimed at granting the relevant permits for test drives of this type of vehicle on certain roads.

In Spain, a non-signatory to the convention, the DGT (Spanish directorate general of traffic) has initiated measures to adapt to the new reality created by these vehicles. To this end, it has recently announced the launch of a public competition to create an information platform for connected vehicles in an effort to improve road safety. Likewise, in late 2017 the same body announced its strong commitment to developing new regulations that grant legal coverage to the existence and use of autonomous vehicles, making Spain a European leader in this area. In fact, it was in Spain that the PSA group conducted an autonomous driving test from its plant in Vigo to Madrid.

On a global level, the UNECE (United Nations Economic Commission for Europe) updated the Vienna Convention approximately two years ago, enabling the use of vehicles with automated driving systems, provided that they were under the supervision of a driver.

Lastly, we need to address the high degree of uncertainty surrounding the question of responsibility in the event of an accident cause by an autonomous car (level 5). There are three possible actors on which this weight may fall: the driver, the vehicle manufacturer and those responsible for developing and supplying the software.

From the outset, it is almost certain that drivers will not be held responsible, as they do not physically drive the car, as long as the autonomous driving system is activated in the permitted spaces and conditions. Under this scenario, OEMs such as Audi and Volvo have announced that they will take full responsibility for incidents that occur during their current testing, while not affirming that they will do likewise once the products are fully tested.

This raises serious dilemmas for legislators on how to address liability for accidents involving autonomous cars. There is a legislative dichotomy, as there is no physical person to charge in case of an accident:

- Responsibility may lie with the manufacturer, under the umbrella of "defective product" regulations; however, current legislation does not require manufacturers to have liability insurance.
- Another option is that owners of autonomous vehicles will be responsible for their assets (in this case, the vehicle), requiring them to have liability policies.

The latest trends point to the possible installation of black boxes (event data recorders), the same as those contained in aeroplanes. This would enable data from the incident to be extracted in an attempt to clarify objectively who is liable. Many questions remain, which will only be resolved in the future.

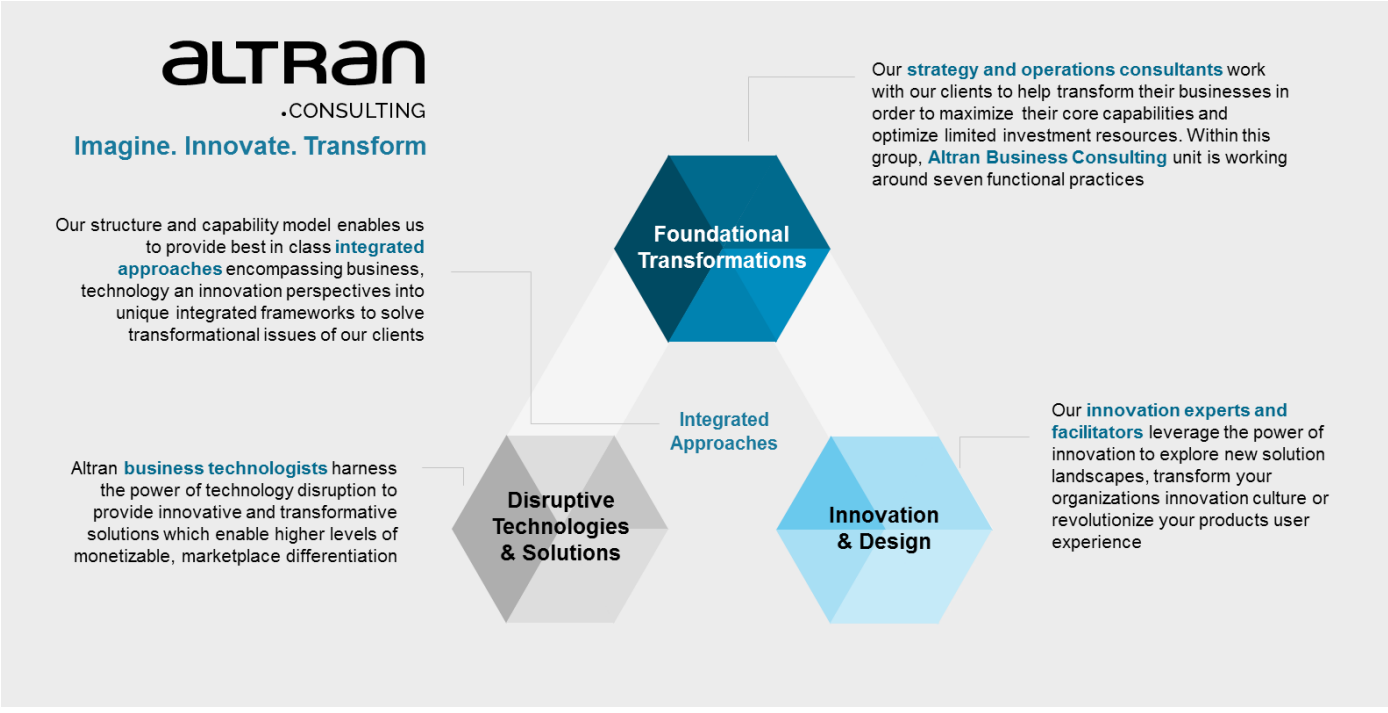
In short, we are still in a period where technological advances and their repercussions on day-to-day activities are a long way ahead of the legislative systems that govern the way they function and interact with humans. Although there are already initiatives and ideas on where regulatory frameworks may trend, the reality is that everything is still at a very early stage and that we still need to clarify the vast majority of unknowns currently being raised.

ABOUT ALTRAN CONSULTING

Altran Consulting brings it all together by providing integrated services, which meet the needs of today's disruptive, complex, data centric, highly interconnected business and solution landscapes.

Altran Consulting answers the "What should I do" questions of our clients regarding their most critical challenges and aims at regrouping our best-in-class experts across the teams or existing management consulting-oriented organizations to provide our clients with a 'solve and hand over' mindset, spot-on consulting in 3 domains, around which our practices are built:

- Foundational Transformations
- Innovation & Design
- Disruptive Technologies & Solutions



Today, more than 200 management consultants from Altran help leading organizations to explore new opportunities for growth, overcome crucial strategic challenges, enhance key organizational capabilities and increase its corporate efficiency

Seven functional practices vertebrate the service portfolio of Altran Business Consulting, covering a wide range of challenges faced by our clients

Altran Business Consulting – Functional Practices

Strategy & Growth

Device and execute strategies that deliver sustained shareholder value in In a highly exigent and uncertain environment driven by industrial convergence, hyper-competition and disruption

- Corporate Strategy
- Business Strategy
- Market-Entry Strategy
- Financial Management
- Mergers & Acquisitions
- Alliance Management
- Business & Financial Planning

Marketing & Customer Mgmt.

Improve customer value propositions, adjust client targeting, deliver best-in-class experiences and enhance overall corporate go-to-market and commercial structures

- Market Analysis & Segmentation
- Product & Portfolio Strategy
- Strategic Pricing
- Sales & Channel Management
- Customer Experience Management
- Brand Architecture & Strategy

Performance Improvement

Align and enhance corporate operations and supply chain performance to ensure best in class, efficient and effective product / service delivery

- Supply Chain Management
- Procurement & Sourcing Strategy
- Service Operations
- Quality & Compliance Assurance
- Complexity in Processes & Projects
- Business Process Reengineering

Organization & Leadership

Design and establish high performance environments that boost those "soft" factors required to achieve above-the-average results

- Organizational Diagnosis & Design
- Reward Systems & Total Compensation
- Knowledge Management
- Cultural Assessment & Transformation
- Effective Decision Making
- Managerial Dexterity Assessment

Information Management

Plan and use information technologies and enterprise information to create and support competitive advantage

- IT Strategy
- IT Sourcing & Shoring
- IT Performance Management
- IT Organization & Processes Optimization
- IT Program & Project Management
- Data Management
- IT Risk & Security Management
- Enterprise Architecture

Strategic R&D Management

Boost innovative product / service development capabilities to ensure continuous & sustainable corporate innovation and reduce time-to-market

- Fast Right Product Development
- R&D Strategy
- R&D Portfolio Management
- R&D Performance Measurement and Management
- R&D Due Diligence
- R&D Organization
- R&D Sourcing & Shoring
- Structured Idea Management

Risk & Forensics

Support in-house teams or corporate advisors in crafting solid litigation strategies

Trace funds, assets, companies, etc. to successfully resolve commercial disputes

- Enterprise Intelligence & Analysis
- Damage / Asset Valuation
- Unfair Competition Analysis

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