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NEW TECHNOLOGIES
(Autonomous Vehicles and Robots- Cyber Risks- New Technologies and Insurance Process)

BELGIAN REPORT

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I. DRIVERLESS/AUTONOMOUS VEHICLES AND VESSELS

1. Are there any specific laws already adopted in your jurisdiction, or proposals for laws, relating to liability in tort for injuries inflicted by the use of such vehicles or vessels? If so, please provide a short explanation.

Comment: answers may include the liability of drivers, producers of vehicles and the suppliers of satellite technology

In general:

The lack of legislative and regulatory framework is often blamed for hindering the full blooming and hampering the full maturity of autonomous vehicle operation (motor vehicles, drones, vessels).

Despite many declarations of intent (The Roadmap for the integration of civil Remotely-Piloted Aircraft Systems into the European Aviation System– (June 2013) – Final report from the European RPAS Steering Group; Riga Declaration on remotely piloted aircraft, 6 March 2015; Declaration of Amsterdam on Cooperation in the Field of Connected and Automated Driving, Navigating to Connected and Automated Vehicles on European Roads, of the European Transport ministers, 14 April 2016), little tangible progress has been made. Studies are ongoing (ICAO (air), CMI and IMO (sea).

As air and marine traffic and transport are to a large extent international, the legislative and regulatory framework should not be national, but supranational. Even if the automated devices are not allowed to perform cross-border operations, they are susceptible of encountering foreign manned vehicles (aircraft and vessels) in a non-segregated environment.

Legislation and regulation issued on autonomous or remote controlled vehicles only indirectly impacts on liability.

The existing legal and regulatory framework is generally considered appropriate to solve (tort) liability questions flowing from self-steering craft. With respect to the liability regime, very little if any changes are required, as an automated vehicle is a vehicle.

If there is driver on board and if the driver is supposed to intervene in the driving process and is able to do so, the normal rules of tort liability will apply. If the driver is not supposed to intervene or cannot intervene (force majeure), there will be no liability. If the accident is due to the automated device not reacting timely or correctly so as to avoid an accident/collision, the device is defective and the liability rules on defective devices will apply (cfr. art. 1384 Civil Code in civil law countries based on the Napoleonic Code). In the medium term, the issue may initially turn out to be more complex as cars become increasingly semi-autonomous, but still would require driver intervention in the case of an emergency. This middle ground would make it more difficult to determine liability as both software and the driver play a role in the maneuvering of the vehicle.

The human error factor that accounts for 80 (maritime) to about 90 (road) % of traffic accidents will be eliminated by automated traffic.

In some countries (e.g. France, Belgium) there is an exception regime in force to protect vulnerable (non-motorized, such as pedestrians, cyclists, equestrians) road users against motor traffic accidents. The exception regime consists of a no-fault compensation duty by the Motor Third Party Liability Insurer of the involved motor vehicle of the loss from bodily injury in case of a traffic accident.

The rationale for this exception regime is the societal risk created by the perilous nature of motor vehicle traffic.

However once automated motor vehicle traffic shall eliminate the human error factor, the motor vehicle traffic loses its status of societal risk and for that reason the exception regime shall no longer be justified from the perspective of the equal treatment precept.

A shift from driver's liability to manufacturer's liability (malfunctioning/defect of steering software) is expected.

The product liability regime may be unsuitable for automated vehicles for several reasons: "state of the art" defence, non-corporeal nature of software, exemption for defect subsequent to entry into service, etc.

Directive 2010/40/EU of the European Parliament and of the Council of 7 July 2010 on the framework for the deployment of Intelligent Transport Systems in the field of road transport and for interfaces with other modes of transport contains a provision (article 11) on liability to the effect of referring to the incumbent EU law in general, to the Directive 85/374/EEC of 25 July 1985 on product liability in particular and to the national laws.

Specifically in the road mode:

At the request of i.a. Belgium, the Vienna Treaty of 8 November 1968 on road traffic was adapted on 23 March 2016 by the insertion of an art. 8.5bis to the effect that the operation of self steering road vehicles is permitted provided:

- either the human driver can take over the control of the vehicle or can disengage the automatic steering system

- or the vehicle meets the technical precepts in accordance with the UN/ECE Agreement of 1958¹ and the GTR Agreement of 1998².

The first scenario was previously already addressed by the Regulation 79 on technical precepts³, for it only authorises the operation of a self steering road vehicle provided its driver remains in primary control of the vehicle at all times (paragraph 2.3.4.) and may at any time and by deliberate action, override the automation system (paragraph 5.1.6.).

In other words the present versions of semi-automated vehicles do not immediately require changes of the law, because those systems can still be qualified as a support system, i.e. as automation that assists the driver. This qualification may apply to e.g. the “park assist” that parks a car automatically.

For motorcars that drive fully autonomously without driver, the rules of the road will require revision and the Vienna Treaty of 8 November 1968 on road traffic or at least the Regulation 79 will need amendment.

The Belgian Federal Ministry of Mobility issued a Code of Practice for the testing of Autonomous Vehicles in September 2016.

Specifically in the air mode:

The European Aviation Safety Agency (EASA) issued the NPA (Notice of Proposed Amendment) 2017-05 (A) for the Regulation EC 216/2008 on common rules in the field of civil aviation and establishing a European Aviation Safety Agency, and repealing Council Directive 91/670/EEC, Regulation (EC) No 1592/2002 and Directive 2004/36/E.

It proposes the adoption of a new regulation ('Regulation (EU) 201X/XXX') defining the measures to mitigate the risk of operations in:

- the open category through a combination of limitations, operational rules, requirements for the competence of the remote pilot, as well as technical requirements for the UAS⁴; and
- the specific category through a system including a risk assessment conducted by the operator before starting an operation, or the operator complying with a standard scenario, or the operator holding a certificate with privileges.

On the Belgian national level the Royal Decree of 10 April 2016 on the operation of remote controlled aircraft in the Belgian airspace was issued.

¹ Agreement concerning the Adoption of Uniform Technical Prescriptions for Wheeled Vehicles, Equipment and Parts which can be fitted and/or be used on Wheeled Vehicles and the Conditions for Reciprocal Recognition of Approvals Granted on the Basis of these Prescriptions, done at Geneva on 20 March 1958.

² Agreement concerning the Establishing of Global Technical Regulations for Wheeled Vehicles, Equipment and Parts which can be fitted and/or be used on Wheeled Vehicles, Geneva 25 June 1998.

³ Regulation nr° 79 of the Economic Commission for Europe of the United Nations (UN/ECE) - Uniform provisions concerning the approval of vehicles with regard to steering equipment, in accordance with the Agreement concerning the Adoption of Uniform Technical Prescriptions for Wheeled Vehicles, Equipment and Parts which can be fitted and/or be used on Wheeled Vehicles and the Conditions for Reciprocal Recognition of Approvals Granted on the Basis of these Prescriptions, done at Geneva on 20 March 1958.

⁴ Unmanned Aerial Vehicle.

The circular letter CIR/GDF-01 of 1 June 2005 of the Directorate-General Civil Aviation addresses authorisations for recreational and sportive model aviation (art. 1b) on air fields for model aviation.

Specifically in the space mode:

Belgium has ratified the Outer Space Treaty⁵ and the Space Liability Convention⁶. The Belgian Space Law Act dated 17 September 2005 (as amended) and the implementing Royal Decree dated 19 March 2008 contain the legal framework for space activities.

Most space activities are presently still unmanned.

The launching state incurs a liability for damage caused by space objects (art. VII Outer Space Treaty and art. II and III of the Space Liability Convention). The launching state means: either (i) the state that launches itself the space object or (ii) procures its launching or (iii) from whose territory or facility the launch takes place (art. Ic Space Liability Convention).

In its field of application the (state) liability is absolute (art. II Space Liability Convention) and for full compensation (art. XII Space Liability Convention) of all types of loss (art. Ia Space Liability Convention).

The Space Liability Convention (art. VIII and IX) addresses the liability for damage caused by space objects as a state-to-state matter⁷. This regime is symptomatic for an era when private interests and in particular the position of the third party liability insurer in space activities were not yet fully acknowledged and when one of the two signatory countries with space-faring capability, was a collectivist state.

On the other hand the Space Liability Convention waives the launching state's sovereign immunity (cfr. the maxim "*the king can do no wrong*"), but does not offer the sole cause of action and exclusive remedy, so that national state law-based claims are not pre-empted by the Convention and alternative recourse under the applicable national law is not precluded. Consequently others involved in the space operation are not immunized against liability. Also the state-to-state claims settlement procedure of the Space Liability Convention does not bar the institution of a direct action by the victim itself through the judiciary channels. Certainly a claim against the state under de Space Liability Convention can only be brought in accordance with the procedure of the Convention, i.e. via representation by the concerned state⁸, so that victims have no standing to bring themselves a claim against a foreign government⁹.

A claim outside the ambit of the Convention (based on another cause of action, according to domestic law could however be brought against a private operator and against the foreign state by the victims themselves.

⁵ Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies (1967) (Outer Space Treaty).

⁶ Convention on international liability for damage caused by space objects (1972) (Space Liability Convention).

⁷ T.GEHRING and M. JACHTENFUCHS, "Liability for Transboundary Environmental Damage Towards a General Liability Regime?", 4 *EJIL*, 1993, p. 102.

⁸ T. MASSON-ZWAAN and S. FREELAND, "Between heaven and earth: The legal challenges of human space travel", *Acta Astronautica*, 2010, nr. 66, p. 1598 and p. 1604.

⁹ D. FISHER, "Injury to Rights of Personality Caused by Satellite Programme Contents. Prospects of Relief under the Law of Outer Space", *Scandinavian Studies in Law*, 2000, volume 39, p. 428.

2. Are there any specific laws already adopted in your jurisdiction, or proposals for laws, relating to compulsory insurance coverage for injuries inflicted by the use of such vehicles or vessels? If so, please provide a short explanation.

Comment: answers may relate to motor vehicle insurance and product liability insurance.

Since automated vehicles are vehicles in their respective mode of traffic/transport, they come under the general regime of compulsory third party liability insurance.

For road motor vehicles, the regime is contained in the EU Directive 2009/103/EC of 16 September 2009 relating to insurance against civil liability in respect of the use of motor vehicles, and the enforcement of the obligation to insure against such liability, the Benelux convention of 24 May 1966 on motor vehicle liability insurance and the Belgian Act of 21 November 1989 on compulsory insurance in respect of motor vehicle liability insurance.

The EU Regulation EC 785/2004 on insurance requirements for aircraft operators addresses the insurance cover of drones in a negative manner by excluding from its field of application the model aircraft with a MTOM¹⁰ beneath 20kg (art. 2 b) and consequently from the insurance obligation. This exclusion was criticized because the damaging potential of a device does not depend so much on its use (recreational or professional). The cover ceiling based on the weight category of a device does not necessarily correspond with its damaging capability either. The mere mass (weight category) of the aircraft is not a suitable parameter for its risk profile as criterion for the insurance cover limitation, since in case of a mid-air collision, the extent of the loss is primarily caused by the speed of the aircraft struck¹¹ (e.g. a jumbo jet commercial airliner).

The Belgian Royal Decree adopted 10 April 2016 has set out the licensing and third party liability insurance (art. 97) cover regime for those devices that are not governed by the EU Regulation.

The circular letter CIR/GDF-01 of 1 June 2005 of the Directorate-General Civil Aviation imposes a third party liability insurance obligation on the operator of a model air field (art. 9) or on the organizer of a model aviation meeting on a temporary model air field (art. 11.2.d), provided that model planes can only evolve on a model air field for which an operating license was issued (art. 8 b) 1.).

The authorization of space activities is subject to a third party liability insurance obligation (art. 5 Space Law Act) and it grants a direct action right to the state against the third party liability insurer (art. 15§7 Space Law Act). This state direct action right can be explained by the principle of the launching state liability for damage caused by space objects (cfr. supra).

¹⁰ Maximum Take off Mass.

¹¹ According to the formula for kinetic energy $E_k = \frac{1}{2}mv^2$ (kinetic energy = half of the mass multiplied by the square of the speed).

3. How do you envisage the future of personal lines in motor vehicle insurance in the next 5-10 years in your jurisdiction?

Comment: you may wish to comment on the future of motor vehicle insurance and the plans being made by the industry for new products

As the motor third party liability insurance is entirely and motor vehicle property insurance is largely governed by the same regime in both personal lines and commercial lines, there is no distinction to make between personal lines and commercial lines.

Considering the disappearance of the human error factor in traffic accidents, a shift in the business model is expected from motor third party liability insurance to product liability insurance.

The distinction in applicable regime according to the mode of traffic/transport will disappear with the propagation of hybrid vehicles (see the looncopter¹²), that can drive, fly, sail and dive.

The differential regimes of traffic rules and insurance cover depending on the mode, will be harmonized.

The issue of the applicable legal regime to multimodal traffic/transport will disappear.

4. Driverless cars and autonomous vehicles apart, how do you assess the following technological developments that are expected to not only reshape the auto sector but also the insurance industry around it?

(a) connected cars (i.e., Internet enabled vehicles, (IEV));

(b) automated driver assistance systems (ADAS);

(c) car/ride sharing;

(d) alternative fuel vehicles.

Comment: answers may include identifying the legal and regulatory regime and provisions in your jurisdiction.

a) Connected cars are not new: via auto radio (entertainment, but also traffic, accident and weather information), mobile phone (communication), GPS (navigation) and telematic systems allowing emergency assistance calls in case of accidents (safety). More recent are remote diagnostics systems.

Present day internet connection extends the functions up to home or office level and has an effect in the relevant fields of: infotainment, safety (road side assistance and traffic, safety and collision warning), vehicle diagnostics, navigation and payments.

As those devices enhance safety, they will have a beneficial effect on the loss occurrence rate.

b) Automated Driver Assistance Systems (such as electronic stability control, anti-lock brakes, lane departure warning, adaptive cruise control and traction control) increase traffic safety and therefore decrease the loss occurrence rate in the motor third party liability insurance segment.

¹² See e.g. "Loon Copter": www.looncopter.com.

c) The sharing economy

The sharing economy is a business model that involves individuals sharing their resources with strangers, often enabled by a third party's online digital platform.

Preceded by B&B, time-sharing and car-pooling, the present day best known applications of the sharing economy consist of the "Uber" (for transportation) and "Airbnb" (for short time housing accommodation lease) phenomena.

In a vehicle sharing situation, the relevance of the insured's profile and characteristics as a risk assessment factor will decrease. The insurability problem of e.g. young drivers will become futile.

In a ride sharing situation, such as the Uber scenario, the driver's motor third party liability insurance cover must be adapted to the transportation for reward lest giving rise to the insurer's recourse action based e.g. on non disclosure.

According to the milestone ruling of the European Court of Justice of 22 December 2017, Uber is to be qualified as a transport service provider and not as a mere digital platform.

d) Alternative fuel vehicles

They represent a lower risk, as they usually are granted an insurance premium discount.

II. CYBER RISKS

5. Identify the concerns have emerged in your jurisdiction as a result of cyber risks. Is there any legislation in place or under consideration that might affect such risks?

Comment: possible matters include cyber-terrorism, hacking, computer or software failure and financial fraud.

In August 2016 the International Association of Insurance Supervisors (IAIS) published an issues paper on cyber risk to the insurance sector, providing best practices to national regulators on how to approach cyber risk, and it is likely that national supervisors will move to increase supervision.

Directive (EU) 2016/1148 of the European Parliament and of the Council of 6 July 2016 concerning measures for a high common level of security of network and information systems across the Union was adopted.

The Belgian Royal Decree of 10 October 2014 created the "Centre for Cybersecurity Belgium".

Cyber-security threats include the hacking of the steering signal of remote controlled and also automated craft.

A current form of cybercrime is ransomware claiming ransom to release (b)locked computers, servers, websites.

- 6. How has the insurance industry responded to cyber risks? In particular:**
(a) do property policies cover losses from cyber risks, or is special insurance required?
(b) is insurance and reinsurance readily available?
(c) are there any special restrictions imposed on cyber risks, e.g. event limits or deductibles?

a) In this respect it is important to distinguish the two main dimensions of the risk for the purpose of the definition and delimitation of the insurance cover, viz.: (i) the types of perils and (ii) the types of loss or damage.

Traditional insurance covers (both first party and third party) dating back from the pre-digital era generally do not expressly exclude the cyber peril as such as a cause of the loss (the so-called “silent” exposure to cyber risk – implicit within ‘all risks’ and other liability insurance), but via other limitations in the cover they exclude in practice the loss resulting from the cyber risk as they:

- focus on tangible, corporeal, material damage (hardware as opposed to software) and bodily injury and often exclude totally or at least to a large extent the (pure) immaterial or economic loss (financial loss). Even the “all informatics risks” or “all electronic risks” insurances cover primarily material loss of the ITC hardware.
- exclude external (as opposed to internal from within the insured company) scam, fraud, swindle, theft etc. as perils

Of course the immaterial type of loss is of particular relevance in the cyber risk: cfr. e.g. losses due to interruption of business activity, incurred third party liability, affected reputation, loss of customers, expenses for remedial and mitigation measures such as data reconstitution, crisis management and communication such as customer notification of personal data breach¹³, payment of ransom, etc. pursuant to loss of data or network connection.

E.g. the Assuralia (Belgian Professional Organisation of Insurance Companies) model insurance conditions for industrial property and business interruption risks exclude “*all loss or alteration of electronic data and software*”, irrespective of the cause.

But insurance conditions may also specifically exclude the cyber risk from the cover (e.g. clause CE001 “Exclusion of Cyber Attack” of the Belgian Association of Transport Insurers of 27 November 2003).

b) Since the turn of the century, the insurance sector has developed specific cyber risk covers, but this segment did not reach full maturity yet.

¹³ I.e. a “breach of security leading to the accidental or unlawful destruction, loss, alteration, unauthorised disclosure of, or access to, personal data transmitted, stored or otherwise processed” (cfr. art. 4(12) General Data Protection Regulation (EU) 2016/679).

The cyber risks insurance covers offered “à la carte” are i.a.:

First party:

- loss or corruption of data stored in the IT system (accidental by human error/technical failure/malfunction or malicious/criminal via hacking)
 - * data recovery, retrieval and reconstitution
- system breakdown/network interruption (accidental and criminal)
 - * system restoration
 - * business interruption
- theft
 - * of identity (via phishing)
 - * data : plagiarism, intellectual property
 - * scriptural money
- hacked telephone line bill

Third party:

- liability for customer breach of privacy (personal data), confidentiality (corporate data), loss of data, virus contamination/infection (malware)

For both types of cover :

- customer notification expenses
- extortion and ransom
- damage to reputation and loss of customers
- crisis management and mitigation expenses

The possible accumulation of losses may cause an insurability problem. The formation of pools of co-insurers may offer a solution.

Some enterprises prefer to set up a captive insurance company for the purpose of covering the cyber risk.

Reinsurance of the cyberrisk is available with Swiss Re and Munich Re.

c) Restrictions: the cyber risk cover is generally offered on an “all risks” basis, with express exclusions.

Of course coverage limits and sub-limits may apply.

Traditional business interruption cover limitations may also apply to losses caused by a cyber risk: deductible and ceiling expressed in the time order (waiting and maximum period).

The cloud computing (the use of external (distance) hard- and software entailing the access to and storage of data via telecom channels) increases the cyber risk and may for that reason be excluded from the basic cyber risk cover and require a special endorsement.

Loss of property, damage to physical assets and bodily injury are often excluded from the standalone cyberrisk policies. Assimilated with the war risk, also cyberterrorism (as opposed to cyber attack) may be excluded from the cover.

III. NEW TECHNOLOGIES AND THE INSURANCE PROCESS

7. To what extent have the availability of new technologies affected the way in which insurance policies are placed? In particular:

(a) has there been any effect on the traditional use of agents and brokers?

The internet medium and online communication channel has certainly stimulated the “direct writing” practice (the insurance company treats and deals directly with the customer without the intervention of an insurance intermediary). This distribution scenario is primarily used for standardized covers of consumers. It is less suitable for tailor made covers for professionals, where the intermediary plays a more active role in designing the terms and conditions.

(b) has the underwriting process been affected by the availability of information, particularly big data, from sources other than the applicant for insurance?

On the abstract anonymous collective macro level: information technology dramatically boosts the amount of information stored in insurer data bases. These big data can via data mining be usefully exploited for the purpose of risk assessment and modeling and for the disclosure of customers’ insurance consumption patterns.

On the concrete personalized micro level product customization and *a posteriori* premium personalization may be based on monitoring of the insured’s activity and behavior, rather than on his/her loss history.

Information technology offers more granular insights to insurers about consumer behavior, allowing them to offer products and prices more tailored specifically to individuals.

Ex-post risk assessment based on observation of the individual insured provides a far more undeniable segmentation criterion from the equal treatment (non-discrimination) perspective.

Black boxes in motor vehicles allow to observe the insureds’ (aggressive or docile) driving habits for the purpose of more accurate risk profiling.

Wearables, such as biometric sensors in smartwatches e.g. record parameters (e.g. heart rate, blood pressure, oxygen and glucose level, etc.) to diagnose chronic conditions (e.g. diabetes).

Insurance service expense (premium) may be fine tuned and pricing set at a more granular level via dynamic personalized coverage : e.g. a policyholder’s location feature on his/her smartphone could inform the insurer that his customer is abroad, at which point travel coverage is activated, while the car insurance premium simultaneously declines.

Usage-based insurance (UBI) for motor vehicle also known as “pay-as- you-drive” (PAYD) or “pay-as-you-go” car insurance and “mile-based” auto insurance and even “pay-how- you-drive” (PHYD) are types of vehicle insurance whereby the costs are dependent upon type of vehicle used, measured against time, distance, behavior and location.

Insurers active on the Belgian market are currently assessing the possibilities and (legal, actuarial and business) impact of the use of these technologies.

The use of telematics is still in an early stage, and, so far, used to provide a lower premium to young applicants accepting to install a black box or comparable device in the motor vehicle.

(c) has the means of providing information to policyholders changed significantly, e.g. are written documents provided or are policyholders directed to websites?

The topic of “online insurance” was the subject of the previous AIDA 2014 Rome World Congress questionnaire.

In e-commerce, three types of websites can be distinguished:

- Informative : for publicity purposes
- Interactive : for simulations and quotations
- Transactional : for concluding contracts

Many insurers only provide a quotation (tariff simulation) on-line, but consequently conclude the contract off-line¹⁴, in the traditional manner on paper medium.

An organised on-line insurance transaction website may be set up by the insurance company (or intermediary), but an incidental stand alone ad hoc transaction via the internet is also conceivable.

Website insurance distribution may be fully automated, machine generated on the side of the insurer, without any human intervention. Such automated interaction is more suitable for standardized (as opposed to tailor made, customised) insurance products.

Customized (tailor-made) insurance cover for more complex risks contain more variables to determine the terms and rates. They require the disclosure of characteristics/risk profile/loss history. It is not offered on an automated basis.

Very simple risks (whose profile and characteristics are irrelevant), such as travel insurance, are concluded on the basis of entering the policy holder’s identity data, the choice of cover formula and the period of cover on the insurance company’s interactive webpage.

The contract conclusion is effected without further formalities in an automated manner. The payment of the premium renders the cover effective.

Several insurance companies announce on-line insurance for other relatively standardized products such as Motor Third Party Liability Insurance, Fire Insurance, Legal Expenses (Assistance) Insurance.

¹⁴ JACQUEMIN, H., “Le formalisme du contrat d’assurance : analyse des règles en vigueur à l’aune des progrès techniques et de certaines pratiques contractuelles”, in *La loi sur le contrat d’assurance terrestre, Bilan et perspectives après 20 années d’application*, DUBUISSON, B. and CALLEWAERT, V., (eds), Brussels, Bruylant, 2012, p. 44, nr. 25.

But actually none of those insurance companies offers real on-line insurance. The electronic signature based on encryption is not used. Often the electronic medium is not used all the way and final confirmation from the policy holder is requested by the traditional postal mail and paper channel.

It illustrates that e-commerce in insurance services did not break through yet. The digitization is slow. It may be due to the distrust in the electronic medium, that is considered too volatile to provide reliable evidence and because the on-line systems are not user-friendly enough yet.

8. To what extent is genetic testing regarded as important by life and accident insurers? Is there any legislation in place or in contemplation restricting requests for genetic information, and are there any relevant rules on privacy that preclude its disclosure?

Genetic information is very important for insurers. Although it does not appear in the model questionnaire elaborated by Assuralia (the Belgian professional organization of insurance enterprises) some insurers still try and gauge or sound indirectly genetic information by requesting information about the health condition or decease of family members of the prospective insured.

Progress in medical science has dramatically enhanced the opportunities of forecasting future disorders via genetic testing.

EU legislation (General Data Protection Regulation (EU) 2016/679 (GDPR) protects genetic privacy by prohibiting the processing of personal (including genetic) data (recital 54 and art. 9). That prohibition may be lifted by the express consent of the data subject for specific purposes, save prohibition by national member state law (art. 9§2 (a).

Art. 1:208 PEICL (Principles of European Insurance Contract Law) ban genetic screening in principle, save the exception for adult personal insurance over € 300,000 or € 30,000/year.

Genetic data are completely taboo in Belgian insurance contract law: they are excluded from the duty of disclosure and cannot be taken into account for the purpose of risk assessment: cfr. Article 61 of the Insurance Act of 4 April 2014.

9. Has the assessment of claims been affected by the availability of data. In particular, are there any industry-wide arrangements in place whereby insurers can share information on fraud?

DATASSUR is an economic interest grouping set up by the Belgian insurance sector, for the purpose of keeping a data base on insurance fraudsters (and insurance premium defaulters).

It can be consulted by insurers. According to privacy law precepts persons listed in the database are informed and enjoy a right of access and correction.

Big data exploited via data mining may also disclose fraud patterns to insurers. Belgian insurance sector is assessing new fraud methods and models and industry-wide arrangements.

10. *Are there any other ways in which the new technologies have affected the insurance process in your jurisdiction?*

Free comparison portal sites, also for insurance services, allow on-line comparison shopping. Sometimes the impartiality of the comparison sites is however questioned.

Digital technology and internet distribution channels enable new business models and offer opportunities for inclusive insurance (by saving on overhead expenses), for product innovation (e.g. micro-insurance) and for new scenarios of mutual insurance and affinity group insurance (peer-to-peer (P2P)¹⁵ insurance models).

Drones may be deployed for loss adjustment and algorithms instead of people may be used for claims settlement, thereby saving on transaction expenses and speeding up the process.

Blockchain, the underlying technology first used in Bitcoin, is a new type of distributed consensus system that enables transactions to be quickly validated and securely maintained through cryptography, computational power, and network users, removing the need for a trusted centralized authority. The blockchain provides an immutable record and audit trail of transactions and agreements that are replicated on computers around the world, thereby eliminating a single point of failure.

One of the most intriguing applications blockchain technology enables is “smart contracts”. A smart contract is a contract captured in code which self-executes the obligations the parties have committed to in an agreement.

The term was coined in the mid-1990s though existed largely as a theoretical concept until the development of blockchain technology, which has provided the necessary elements for smart contracts to function effectively, including cryptographic security and immutability. Once two or more parties consent to all of the terms within a smart contract, they cryptographically sign and deploy it to a distributed ledger. When a condition specified in the code is met, the program automatically triggers a corresponding action. By removing the need for direct human involvement once a smart contract has been deployed onto a distributed ledger, the computer program could, in theory, help automate various procedures, including claims processing, and make contractual insurance relationships more efficient and economical with potentially fewer opportunities for error, misunderstanding, delay, fraud or dispute. For instance, upon verification of a policyholder’s passing, a life insurance smart contract could immediately release funds to the chosen beneficiary. The coded contract would establish the moment of disbursement by scanning online death registries in real time. Another example could include a smart insurance product linked to a real-time weather data source that triggers a crop insurance payout if rainfall amounts drop below a particular level in a certain area.

¹⁵ A risk sharing network where a group of associated or like-minded individuals pool their premiums together to insure against a risk.

In addition to supporting automation, this process of linking coded contracts with online devices may also provide product customization. For example, travel insurance plans could collect premiums only when a smart contract is notified via the policyholder's smartphone location feature that the person is indeed travelling. Similarly, smart insurance contracts could be linked to vehicles and collect premiums based on the driving habits of the owners.

IV. OTHER NEW TECHNOLOGY RISKS

11. Are there any other particular risks from the new technologies that have been identified in your jurisdiction? If so, is there any legislation in place or under consideration to regulate them?

Nanotechnology is considered to form a blind spot for insurers. At nano size the characteristics of some matter change. Hence the effect of particles at nano size is sometimes unpredictable.