Emerging Risks 2035

At the Limits of Insurability

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EDITORIAL

Our global environment is undergoing major transformations in a context of great uncertainty. From the direct and indirect effects of climate change to cyber risks, from the increased socio-economic precarity of individuals to the ever greater number of threats to health, people and their property are becoming exposed to new risks that are increasingly severe in their scope and intensity.

Is the insurance sector sufficiently prepared to deal with emerging risks? The experts consulted in this foresight study generally believe not, and present a multitude of solutions for us to consider as insurers.

By understanding combined effects, developing a systemic approach to risks and rethinking mutualisation we can become better prepared for polycrises. Furthermore, the diversity of life paths and exposures encourages us to extend the personalisation of certain offerings and to make them evolve over the course of a lifetime. Finally, prevention is undoubtedly a key area for redesigning current insurance systems to deal with emerging risks.

This second edition of the CNP Assurances foresight report is a new contribution by the Strategic Transformation department to a major social issue. It provides public and private actors with a non-exhaustive selection of trends in emerging risks and scenarios of systemic risks. It also highlights the diversity of risks that people and their property may face by 2035.

This report places foresight expertise at the service of strategic action for the benefit of the public interest. It is a resource to be shared.

Sonia Barrière, Group EVP Head of Strategic Transformation, CNP Assurances

What could be more difficult than to predict the risks that could emerge by 2035 – climatic, health, economic, technological and now cross-cutting risks? And not only to predict them, but to assess their potential? CNP Assurances decided to take up the challenge and devoted a year of investigation, discussion and reflection to this task, mobilising more than 160 internal and external experts from all fields. Investing in research is urgent for all actors in order to guarantee the future of people and their property.

What could be more urgent than to anticipate and prepare for polycrises, developing tools for prevention and innovating in our solutions with our partners around the world? This means rethinking mutualisation – a fundamental expertise of CNP Assurances – to continue to protect the greatest number of people and to push back the limits of insurability while guaranteeing the sustainability of our models.

What could be more civic-minded than to share this material with all actors and experts who are driving forward the insurance of people and property? This new foresight report is a concrete expression of CNP Assurances' desire to be the most useful insurer for all its stakeholders, and fulfils its promise to insure a more open world.

I hope you find it an enjoyable and stimulating read.

Stéphane Dedeyan, CEO of CNP Assurances

ACKNOWLEDGEMENTS

This foresight report was produced by the CNP Assurances Research and Strategic Foresight department, under the direction of **Anani Olympio**, in partnership with Futuribles. It involved some sixty experts and collaborators, whom we would like to thank for their contribution and their time.

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SUMMARY

Objectives and method

Many international institutions and companies in the insurance sector periodically produce reports on future risks. With this foresight report CNP Assurances contributes to this trend, but adopts an original approach through the combination of three specific elements:

- we are interested here in **risks for individuals**, rather than for companies or organisations, in keeping with the mission of CNP Assurances: "to promote an inclusive and sustainable society with our partners by providing solutions that protect and facilitate all life paths";
- **the approach** chosen for selecting and studying risks combines the essential work of reviewing different points of view with a rigorous foresight analysis that makes it possible to evaluate the developments examined;
- this in-depth analytical and foresight approach makes it possible to identify **specific "emerging" risks**. Thus, climate change is not a risk, but a certainty, whereas its impacts, which are currently known to greater or lesser degrees, constitute emerging, evolving or developing risks for people and their property. Like all risks, they are characterised by uncertainty as to their degree of impact and their time horizon.

This work is the result of a year of reflection. It is based, among other things, on interviews with a number of external experts and on several surveys conducted within CNP Assurances and with risk and actuarial specialists.

First, it provides a background, showing the overall movements and potential causal factors of new or evolving risks to people and their property (part 1). It then identifies nine major trends, leading to 35 emerging risks for people and their property by 2035 (part 2).

Nine major trends, 35 emerging risks

The nine major trends presented below, which were identified through our foresight analysis, have led to the selection of 35 emerging risks by the year 2035. Our work, although it does not claim to be exhaustive, highlights the diversity of risks that people and their property may face over the next fifteen years. We believe that addressing these phenomena and their probable interaction with one another will help prepare our societies and their insurance systems for a world of new risks.

Trend 1. Increase in extreme weather events

Risk 1. Excess mortality in older European populations due to more frequent heatwaves

Risk 2. Increasing exposure of unprepared and uninsured populations to unprecedented extreme weather events

Risk 3. High vulnerability of populations living in French overseas territories that are particularly exposed to extreme weather events

Risk 4: Increasing difficulty of access to natural hazard insurance for the people most exposed to precarity

Trend 2. Increase in the number of health crises

Risk 5: High excess mortality in urban populations due to infectious diseases

Risk 6: Exposure to tropical viruses of people living in Mediterranean regions

Risk 7: Increasing exposure of Europeans to the risk of a further coronavirus pandemic

Risk 8: Increase in mortality in the general population due to antibiotic-resistant bacteria

Trend 3. Chronicisation of diseases, increase in multimorbidity and associated dependencies

Risk 9: Growth in the prevalence of chronic diseases in the general population

Risk 10. Increasing incidence of multimorbidity in the elderly

Risk 11. Increasing precarity of people with chronic diseases

Risk 12. Increasing material and psychological difficulties for friends and family acting as carers

Trend 4. Increase in mental health problems

Risk 13. Increase in the prevalence of anxiety and depression in the French population

Risk 14. Growth in the number of isolated people at risk of mental illness

Risk 15. Increase in mental health problems among young people

Risk 16. Increase in addictions in the general population

Trend 5. Increase in precarity

Risk 17. Growing and persistent precarity among the French population

Risk 18. Increasing number of temporary situations of precarity in the population

Risk 19. Increasing accumulation of vulnerable populations in certain territories

Risk 20. Worsening precarity among people suffering from digital illiteracy

Trend 6. The increasing disengagement of some young people in France

Risk 21. Increase in the number of socially, economically and politically excluded and disengaged young people

Risk 22. Increase in the number of young people affected by long-term precarity

Risk 23. Worsening of isolation and mental health problems among young people (see trend 4, "Increase in mental health problems")

Risk 24. Increasing radicalisation of some young people

Trend 7. The increasing precarity of French workers and new insecurities at work

Risk 25. Increase in the proportion of French workers with precarious career paths and without associated insurance

Risk 26. Increasing exclusion of precarious workers from the labour market due to lack of continuous safety training

Risk 27. Increase in the population affected by psychosocial risks and musculoskeletal disorders due to poor implementation of technology in the organisation of work and production

Risk 28. Vulnerability of certain workers in the context of the development of new industrial production methods

Trend 8. Cryptoassets and the weakening of the traditional financial system

Risk 29. Precarity of people who have used cryptoassets as a safe haven

Risk 30. Loss of savings among people who have put money into cryptoassets

Risk 31. Theft and/or loss of the digital portfolios of uninsured people

Risk 32. Financial exclusion of a part of the population without access to adequate digital tools

Trend 9. Increase in personal data breaches

Risk 33. Increasing exposure of individuals to personal data breaches

Risk 34. New costs for victims of data theft

Risk 35. Disclosure of increasingly sensitive personal data

Key messages for the insurance sector

The panorama of emerging risks presented in this foresight report is not intended to be exhaustive. However, it illustrates the diversity of risks that individuals may face in the future. It leads to seven key messages to help the sector better anticipate these risks.

Rethinking mutualisation

Several risks will become more widespread, affecting many more people than before, regardless of age, gender, geographical location or standard of living. This is particularly true of serious health crises. Thus, the mutualisation of a certain number of these risks will continue to be necessary. Insurance and reinsurance arrangements for terrorist acts could even be extended to new categories of risk. However, the limits of insurability will have to be reconsidered as risks become more and more certain and fall outside the scope of insurers' expertise.

Preparing for polycrises

In a world in turmoil, multiple crises are bound to arise, and even to compound one another. The concept of polycrisis will become essential in defining insurance offerings in the future, and particularly in anticipating their higher cost.

Understanding cocktail effects, developing a systemic approach, investing in research and participating in meetings between stakeholders and experts

The concept of the cocktail effect is also becoming central to a better understanding of all the causes that are likely to generate one or more risks for an individual. This involves monitoring over time the different exposures of individuals to several potential risk factors (pollution, lifestyle, work-related strain, etc.) and combining this with an analysis of individuals' specific characteristics to better understand their risk profile. This requires the creation of spaces for exchange and cooperation with experts in several fields.

Pushing back the limits of personalisation

It is clear from this study that a number of criteria specific to each individual (life path, age, gender, area of residence, etc.) have and will continue to have a very strong impact on their exposure to risks. For example, people living in the French overseas territories are subject to very high environmental risks. Similarly, the elderly are more affected by chronic diseases and multimorbidities. This calls for the ever increasing personalisation of certain offerings.

Producing more intuitive and flexible offerings

It appears from the analysis that a proportion of citizens will in future be subject to chaotic life paths. Thus, more and more people may experience temporary situations of precarity. This development calls for adaptable, modular and evolving offerings throughout an individual's life.

Designing new insurance services

For certain risks (in the field of work, cryptoassets, etc.), people currently appear to be poorly covered. Insurers can therefore design new insurance offerings based on a classic model to protect individuals against these risks.

Focus on prevention

Faced with the emerging risks that are expected to take shape by 2030-2035, insurers could play an increasingly fundamental role in prevention. This involves a major reorganisation for part of the insurance system, which could benefit from new partnerships with public bodies and associations.

This foresight report was produced by the CNP Assurances Research and Strategic Foresight department, under the direction of Anani Olympio, in partnership with Futuribles.

INTRODUCTION

Ambitions and objectives

Many institutions periodically produce reports on future risks. The annual *Global Risks Report* of the World Economic Forum[1] is one of the best known. Major reinsurers (Swiss Re, Munich Re, etc.), France Assureurs (formerly the Fédération française des assureurs) and several insurance companies also contribute to these reflections through regular publications.

With this foresight report CNP Assurances contributes to this trend, but adopts an original approach through the combination of three specific elements:

- we are interested here in **risks for individuals**, rather than for companies or organisations, in keeping with the mission of CNP Assurances: "to promote an inclusive and sustainable society with our partners by providing solutions that protect and facilitate all life paths";
- **the approach** chosen for selecting and studying risks combines the essential work of reviewing different points of view with a rigorous foresight analysis that makes it possible to evaluate the developments examined;
- this in-depth analytical and foresight approach makes it possible to identify **specific "emerging" risks**. Thus, climate change is not a risk, but a certainty, whereas its impacts, which are currently known to greater or lesser degrees, constitute emerging, evolving or developing risks for people and their property. Like all risks, they are characterised by uncertainty as to their degree of impact and their time horizon.

The panorama of emerging risks presented here is not intended to be exhaustive. Nevertheless, we consider that the emerging risks that have been identified are not currently being addressed in an optimal way. Paying specific attention to these risks and their possible – or even probable – interaction would be a first major step in preparing our societies and their insurance systems for a world of new risks. Although we can never prepare for everything, we can at least try to prepare for a variety of plausible future configurations and situations.

The structure of this report reflects the organisation of the process of reflection that has taken place.

The first part outlines the major transformations that society as a whole must prepare for by 2030-2035. They form the backdrop for our reflection and constitute potential factors of new or evolving risks for people and their property.

In the second part, we focus on nine major trends that could lead to new risks for people and their property by 2035. Although it is non-exhaustive, this detailed analysis is intended to illustrate the diversity of risks that individuals may face in the future. It allows us to understand the link between global transformations and the concrete realities of the resulting risks for individuals. It also aims to help insurers identify the means to prepare themselves and the population for these risks.

Three systemic risk scenarios round off this analysis. Based on interviews with the experts consulted as part of the process, they describe crisis situations that are highly uncertain in terms of their likelihood of occurring, but which would have a very strong impact if they were to occur, whether in economic, health, social or political terms. This is why we call these risks "systemic". The magnitude of their potential consequences for people warrants our attention. These scenarios also serve to illustrate the combination of risks that insurers may have to face in the future.

To conclude, we present some key messages in the form of cross-cutting issues for the insurance sector with regard to the various risks identified.

[1] *https://www.weforum.org/reports/global-risks-report-2022*

Working method

This work is the result of a year of reflection within CNP Assurances. It took place over several stages:

- **identification of phenomena that could lead to risks** for people and their property in the next 10 to 15 years, based on a preliminary survey conducted among CNP Assurances' internal experts, members of the 120 Network;
- **selection of eleven major trends** that appear to be priorities (with the greatest impact on people and the lowest overall level of preparedness), through 12 interviews with internal and external experts;
- **assessment of the likelihood and impact of the major trends** and identified emerging risks for people and their property, and of the degree of preparedness of the insurance sector for these risks, through a survey of experts from the 120 Network and a panel of risk management specialists, members of the French Institute of Actuaries;
- **a refined selection of the nine highest-priority trends** (those with a high likelihood, high degree of impact on people and a low degree of preparedness of the sector) through a survey;
- **in-depth foresight analysis** on each of these nine structuring trends, leading to the formulation of a total of 35 hypotheses of emerging risks for people and their property by 2030-2035.

THE WORLD IN 2035: A PANORAMA OF MAJOR GLOBAL TRANSFORMATIONS

By 2035, the world is likely to change very significantly. Some of these changes will be the result of slow but far-reaching "silent transformations",[2] while others will be the result of more spectacular crises.

Numerous irreversible changes are underway, some of whose consequences are known, but have still not been properly taken into account: this is the case with environmental degradation, demographic ageing and the rise in power of certain states. Like gradual shifts in plate tectonics, these relatively slow developments can give rise to instabilities and shocks. In fact, it is undoubtedly one of the major characteristics of the years to come that we will see an increase in the proportion of the unforeseen in the structure of our lifestyles.

The overview presented here is a synthetic and necessarily partial panorama of the major global transformations that form the backdrop to the emerging trends and risks that we describe in the rest of the report.

An intensified degradation of the environmental situation with increasingly significant consequences for our way of life

Environmental degradation is the result of excessive pressure from human activities on the ecosystem. Today, this is manifested mainly through climate change, the collapse of biodiversity and tensions over access to vital natural resources (air, water, land, etc.).

Climate change

The years 2011-2020 were the warmest on record since the start of the industrial era. Temperatures in 2021 were, on average, 1.1°C above the average temperatures recorded between 1850 and 1900.[3] Climate change is happening faster than expected, with irreparable consequences for populations. Already, some 3.6 billion people are highly vulnerable to the effects of climate change.[4] Given the inertia of the planetary system, most of the anticipated transformations between now and 2035 are inevitable. The effects of measures taken today to combat these phenomena would only be felt in 20 to 30 years. For the moment, however, these actions remain largely insufficient, as the IPCC report published in February 2022 reminds us.[5] The global temperature could therefore increase by 2°C between now and 2040-2050.

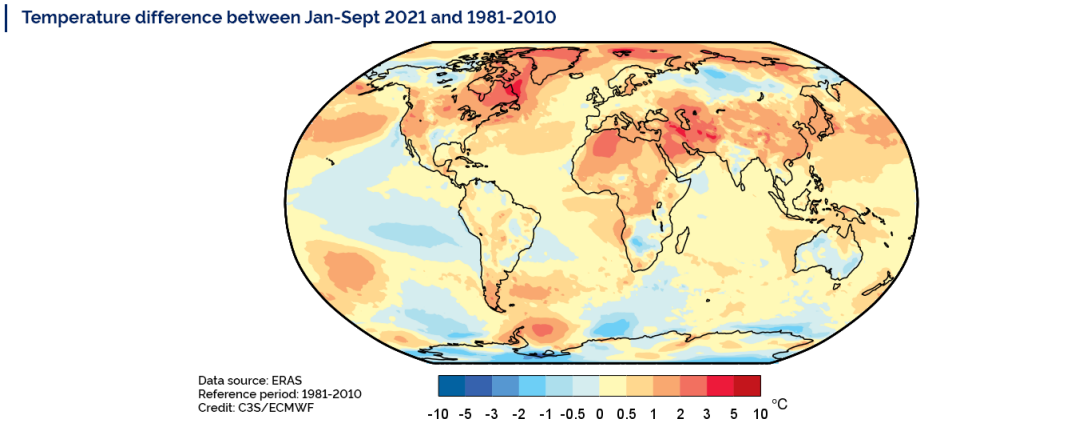


Figure 1 – Differences in mean near-surface air temperature between the months of January to September 2021 and the period 1981-2010. Data are from the ERA5 reanalysis results. Source: C3S/ECMWF [6]

[2] *François Jullien,* Les Transformations silencieuses*, Paris, Grasset, 2009*

[3] *https://public.wmo.int/fr/medias/communiqu%C3%A9s-de-presse/%C3%A9tat-du-climat-en-2021-des-ph%C3%A9nom%C3%A8nes-m%C3%A9t%C3%A9orologiques-extr%C3%AAmes-et-de*

[4] *https://www.ipcc.ch/report/sixth-assessment-report-working-group-ii/*

[5] Ibid.

[6] *https://public.wmo.int/fr/medias/communiqu%C3%A9s-de-presse/%C3%A9tat-du-climat-en-2021-des-ph%C3%A9nom%C3%A8nes-m%C3%A9t%C3%A9orologiques-extr%C3%AAmes-et-de*

Climate change has foreseeable and anticipated consequences, including increased temperatures, changes in precipitation patterns, rising sea levels, etc.

It is known that it also leads to an increase in extreme and inherently unpredictable weather phenomena: heatwaves, intense droughts, storms, mega-fires, floods, etc. (see the detailed analysis of trend 1, "Increase in extreme weather events", in part 2). These phenomena are already widely observed today.

More generally, the expected future increases in average temperatures have not been observed for more than 100,000 years and we lack the information to fully anticipate their consequences. They therefore open up a period of great uncertainty.

Change in global surface temperature (decadal average), as reconstructed (1-2000) and observed (1850-2020)

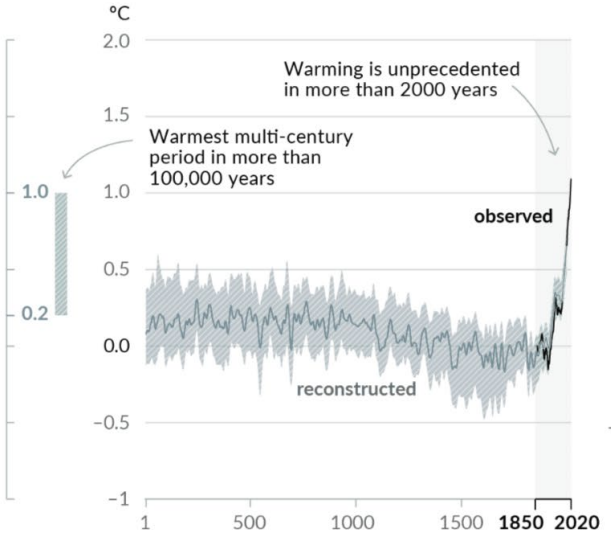


Figure 2 – Source: IPCC 2021, https://www.ipcc.ch/report/ar6/wg1/figures/summary-for-policymakers/figure-spm-1 [7]

Biodiversity

Since the beginning of the 20th century, the average abundance of native species in most major land-based habitats has fallen by at least 20% (UN Report, 2019). One million species are threatened with extinction in the coming decades. [8] Most importantly, the rate of their decline is unprecedented.

This collapse of biodiversity is the combined result of several phenomena. In addition to rising temperatures, the increasing pollution of all environments (chemical pollution – plastics, pesticides, solvents, etc. – has already far exceeded the threshold beyond which it represents a major danger to life on Earth)[9] and the artificialisation and deterioration of the soil (75% of the planet's land has been altered by humans, and 66% of the marine environment) are also responsible for the disappearance of wild flora and fauna.

Although less well known than climate change, the consequences of biodiversity loss are also very important. [10] They reduce the richness of ecosystems and their capacity to produce and to regenerate themselves. This concerns soil (and therefore food), water, air, etc.

Among other consequences, these phenomena contribute to the development of the threat posed by health crises, which are likely to increase in number and even compound one another in the next decade (see the detailed analysis of trend 2, "Increase in the number of health crises", in part 2).

[7] *Figure SPM.1, IPCC, 2021: Summary for Policymakers.* In: Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change *[V. Masson-Delmotte, P. Zhai, A. Pirani, S.L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M.I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J.B.R. Matthews, T.K. Maycock, T. Waterfield, O. Yelekçi, R. Yu, and B. Zhou (eds.)], Cambridge, New York, Cambridge University Press, pp. 3-32, doi:10.1017/9781009157896.001*

[8] *https://www.un.org/sustainabledevelopment/blog/2019/05/nature-decline-unprecedented-report/*

[9] *https://pubs.acs.org/doi/10.1021/acs.est.1c04158*

[10] *https://www.sciencedirect.com/science/article/pii/S2212041614001648*

Growing tensions over access to vital natural resources (air, water, land, etc.)

Climate change and biodiversity losses are shifting crop areas at a rate that is difficult for farming systems to keep up with. They are also increasing the frequency and severity of extreme events (whether direct or indirect, such as the loss of pollinators, locust swarms, etc.) that can lead to the reduced availability of resources (water, food).

Environmental degradation is systemic and operates at different scales, both global and local. By 2035, territories and populations will be very unevenly affected. The vulnerability of ecosystems and individuals varies significantly between and within regions. Africa, South America and South Asia are particularly exposed to the effects of climate change because of their intrinsic climatic characteristics, making them susceptible to heatwaves and extreme droughts. Similarly, islands and coastlines are more vulnerable to the risk of flooding. More broadly, a major role in the degree of people's exposure is played by socio-economic development factors, industrial policies for exploiting land and marine resources, the extent of inequalities and the political situation of countries.

The hardening of global power relations and growing geoeconomic and geopolitical instabilities

For several years, international tensions have been intensely manifested in the economic sphere, particularly in the Sino-American confrontation, and have recently been embodied in the geopolitical field with the war in Ukraine. These tensions are part of a landscape in which some "new" powers are asserting themselves, in ways that defy or challenge Western, and particularly American, hegemony. We seem to be witnessing the end of economically liberal globalisation.

Geoeconomics

After a phase of expansion of international trade, and therefore of globalisation, since the 2010s there has been a decline in the growth of world trade (as a proportion of GDP), and a rise in protectionist discourses and measures. The rise in trade tensions between China and the United States over the past few years is part of this trend. The Covid-19 crisis has also contributed to an increase in the desire for independence on the part of states in sectors deemed to be strategic (primarily health), again contributing to a growth in protectionism.

The economic complementarities and interdependencies between the major poles of the world economy are as important as ever, but the competition between these poles, particularly between the United States and China, is leading to increasingly explicit tensions. This situation has contributed to the failure of the proposed *EU-China Comprehensive Agreement on Investment* (CAI) in May 2021, which had been under negotiation for seven years. The European Union chose to side with the United States by participating in sanctions against China, which were imposed in response to the situation of the Uyghurs.[11]

Several trends are therefore driving a change in the pattern of economic geography and the structuring of value chains. Legislation may follow the political movement towards guaranteeing more strategic independence through greater autonomy, thus leading to the strengthening of tariff and non-tariff barriers to international trade. Fundamental differences in values could also lead to a divergence of regulations in certain fields that are important for technical innovation, particularly in the life sciences and digital technology. These differences in approach may result in the development of ethical as well as technical standards at the regional level.

If regulations become more regional, and consumer expectations and production patterns similarly become more localised, there will be less incentive for large companies to consider global deployment. We could see an increasing regionalisation of the economic playing field with some areas of free competition (somewhat resembling the current situation of digital technologies). From this perspective, we could see economic actors grouping together in large clusters. The links between states and major economic operators would then be strengthened, even in Europe.

The war in Ukraine and the games of cooperation and alliances that are structured around this conflict are acting to accelerate these trends.

[11] *https://www.mwe.com/fr/insights/the-preliminary-failure-of-the-eu-china-comprehensive-agreement-on-investment/*

Geopolitics

The hegemony of the Western countries that emerged victorious from the Second World War is increasingly being challenged. Russia, China and several emerging countries are seeking to establish the legitimacy of their often undemocratic political models. The speech given by the Chinese Foreign Minister on the redefinition of the concept of human rights at the United Nations in February 2021 is an example of this project. [12] These countries are calling into question the functioning of the international institutions established in the middle of the 20th century that are supposed to be the guarantors of multilateralism and the maintenance of peace and security in the world. They are asserting their role as major powers in view of their demographic and/or economic growth.

This ideological battle is partly expressed in the economic field, as discussed above. It is also embodied in the strengthening of political and military alliances: that of NATO, but also that of the Shanghai Cooperation Organisation, which has linked Russia and China since 2001, and should soon include Iran.[13]

The open conflict triggered by Russia's invasion of Ukraine on 24 February 2022 has put war back at the centre of European concerns. It also reflects the growing importance (once again) of ideologies and nationalist sentiments in the outbreak of conflicts. The war in Ukraine is reinforcing the structuring of "camps" and accentuating the structuring of the world into blocs. China's attitude will be a determining factor in the future. The reactions of developing countries, for example in South America and in some African countries, show their desire for emancipation from Western power.

The war in Ukraine is leading to an increase in military spending and tensions, which is likely to last for several years. As of spring 2022, questions regarding the extension of the conflict and the start of possible new wars (such as in Taiwan) remain very open.

Globally, confrontations between actors are becoming increasingly hybrid and involve the physical and virtual world, states and their armies, but also companies and populations that may be direct or indirect victims. Whatever their form, these struggles therefore contribute to global instability.

For Europe, all these developments raise the question of its cohesion, sovereignty and autonomy. EU Member States were able to respond collectively to the Covid-19 health crisis and then to the outbreak of war in Ukraine. However, many challenges remain, in terms of energy and food independence, the EU's defence capacity, shared values and common policies on migration. In light of the political and economic tensions, the risk of a gradual dissolution of the European Union in the next ten years should not be ruled out.

Ever more powerful and invasive technologies

The development of new technologies continues at a steady pace. This development is partly the result of R&D policies financed by states, private groups and research centres, intended both to serve scientific interests and to achieve economic objectives and/or keep companies and countries at the highest level in a highly competitive environment.

The great disruptions caused, in particular, by the development of microelectronics, computers and the internet have contributed to the growth and spread of technological tools in almost all sectors and regions of the world. At the same time, scientific advances, particularly in understanding and manipulating the genome, are paving the way for potential revolutions in controlling our environment and health. More broadly, many technologies are combining and beginning to converge to form increasingly complex systems, sometimes even beyond human understanding.

The miniaturisation and falling costs of many technologies (particularly digital technologies, but also genetic engineering) could make them increasingly accessible to private actors, or even individuals, whereas, 50 years ago, public or related actors were dominant.

The development of the applications of such technologies is outstripping the capacities of political, ethical, legal and citizen regulation. The development of digital technologies and their applications, which have become essential and ubiquitous, has left little room for carefully considered approaches and traditional regulatory mechanisms, which take too long to implement when faced with the urgent needs of the moment.

New technologies are accompanied by promises with varying degrees of ambition, even to the point of an attitude of techno-solutionism, which considers that technologies could solve, for example, some of the problems linked to global warming (through geoengineering, genetic manipulation, etc.). [14] But technologies – or more precisely their increasing number and ubiquity – also carry risks. Digital technologies create a large number of vulnerabilities for economic, political and social systems. One example is the rise of cryptocurrencies, which are weakening the economic and financial system (see the detailed analysis of trend 8, "Cryptoassets and the weakening of the traditional financial system", part 2). For individuals, this can also mean a growing increase in personal data breaches (see the detailed analysis of trend 9, "Increase in personal data breaches", in part 2).

The development of digital technologies also faces a number of limitations. In particular, they are highly resource-intensive. Digital technology is already responsible for 3.5% of greenhouse gas emissions (2019) and its impacts are increasing

[12] *https://thediplomat.com/2021/02/can-china-change-the-definition-of-human-rights/*

[13] *http://french.china.org.cn/foreign/txt/2022-03/31/content_78139663.htm*

[14] Vigie 2020 Report, *Futuribles International, chapter 3: https://www.futuribles.com/fr/document/vigie-2020-report-summary/*

by 6% each year, which is incompatible with the targets set by the Paris Climate Accords. Furthermore, some technologies currently being developed could increase these harmful effects even more abruptly. This is the case for the latest generations of telecommunication networks (5G), blockchain, computing technologies and metaverse projects, which involve storing vast quantities of data in data centres, which then require large amounts of energy for their operation and cooling.[15]

Contribution of digital technology to global GHG emissions

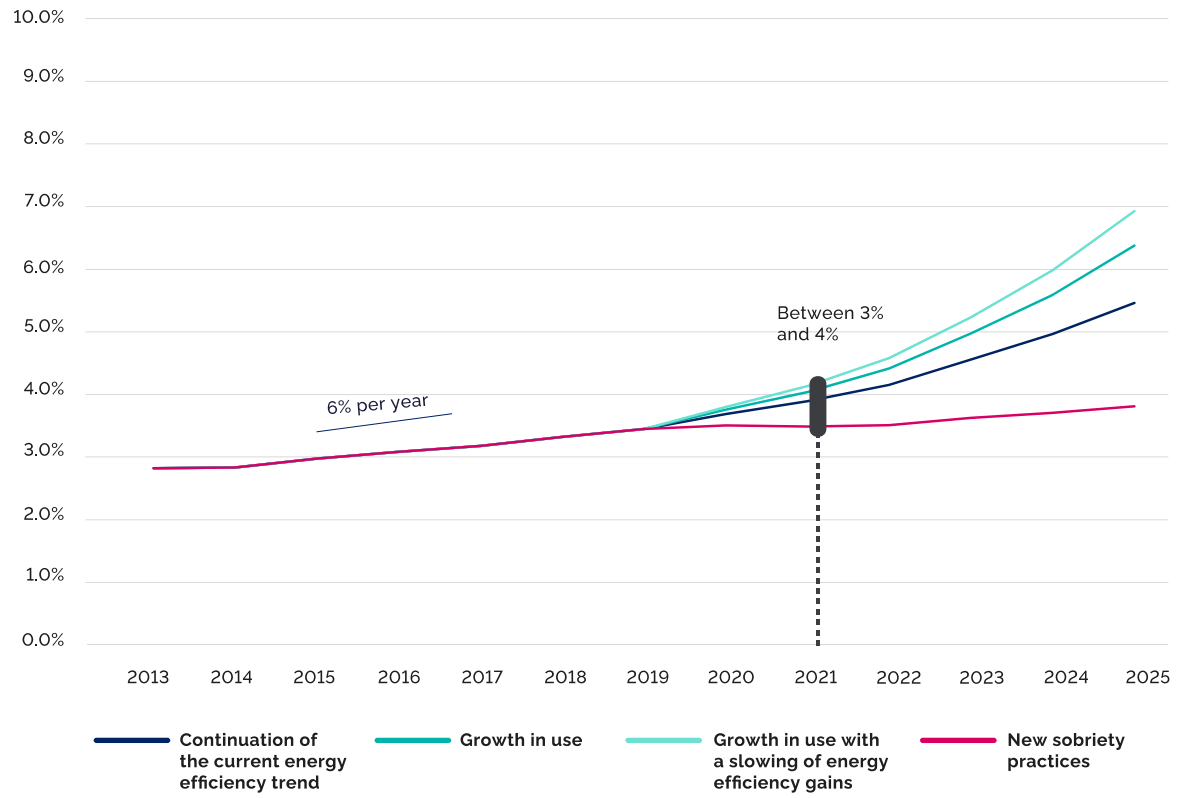


Figure 3 – Evolution 2013-2025 of the contribution of digital technology to global GHG emissions (The Shift Project – Forecast Model 2021)

Several technologies also raise ethical questions. This is the case with advances in genetics in the fields of diagnosis and medical treatments. It is also the case with developments in artificial intelligence (AI), which especially require us to rethink our approach to the concept of responsibility, as shown by the European Commission's numerous studies on the subject.[16] The use of AI for the purpose of hyper-segmentation could also call into question the very principle of mutualisation, which is one of the fundamentals of insurance.

Thus, it would seem that we have entered an era of major transformations, where we have to find a balance between technological advances, preservation of our environment and respect for certain social values, which are the basis of democratic systems.

[15] *https://theshiftproject.org/article/impact-environnemental-du-numerique-5g-nouvelle-etude-du-shift/*

[16] *https://ec.europa.eu/futurium/en/ai-alliance-consultation.1.html*

Space pollution: a meta-risk

Space pollution is constantly increasing, thereby adversely affecting the conditions of access to space. The growing demand for important – even vital – space applications and satellite services, both civil and military, is causing a frenzy of activity from both state and private actors.

Warnings about space congestion have been growing since the 2000s, due to new plans to launch mega-constellations of telecommunication satellites in order to reduce the number of geographical areas without an internet connection. However, the existence of such large numbers of satellites in orbit generates risks:

- *the risk of collision between objects (debris, satellites, space stations), threatening the quality of operation of space activities (e.g. standard frequency and time signal service, geolocation);*
- *the risk of potential conflicts between states in the event of violent clashes with serious consequences (the destruction of satellites or space stations);*
- *the risk of a degradation in the quality of space observations and more particularly of Earth observation, which is essential for scientific research, but also for the prevention and management of crises linked to meteorological, seismic or geopolitical events, etc.;*
- *by their very nature, these risks are therefore very significant because they are likely to generate many other risks in a chain reaction.*[17]

"A global, systemic, short/medium/long-term analysis is needed to work effectively on the prevention, management and reduction of risks."
Isabelle Tisserand, Head of Foresight and Research at La Poste group

Societies "in transition" and subject to volatile changes

Populations and social models are undergoing profound changes. Some of these are linked to demographic and biological mechanisms that are beyond the control of public authorities. This is the case of demographic ageing, a phenomenon now faced by almost all countries in the world, especially by the OECD countries, but also by China, which has been unable to counteract it despite an unprecedented change in its policy on the subject.[18] Demographic ageing is in itself a major social transformation, whose global repercussions were explored in the foresight report published by CNP Assurances in 2021.[19]

Migratory trends, which are harder to predict, are also likely to contribute to changing the landscape of some societies. Environmental, economic and political instabilities are combining to increase the risk of sudden, large-scale migratory movements. In 2020, international migration already involved 281 million people, or about 3.6% of the world's population. This figure has been rising slowly but steadily since the 2000s. While the majority of migrants leave their countries of origin for economic reasons, the proportion of forced migratory movements doubled between 2000 and 2020. Over the same period, the number of those fleeing conflicts, crises, persecution, violence or human rights violations rose from 17 to 34 million.[20] As we have seen, the risk factors are set to increase.[21] By 2050, the International Organization for Migration estimates that one billion people could be forced to migrate as a result of climate change alone.[22] Such population movements may also generate tensions between and within countries.

At the same time, lifestyles are changing, sometimes with significant consequences for health. The excessive use of digital technologies is believed to have a harmful impact on the cognitive abilities of young people. Unsuitable eating habits (particularly excessive sugar intake), difficulties in accessing good quality food and an excessively sedentary lifestyle have contributed to a global obesity epidemic. With the exception of populations in Sub-Saharan Africa and Asia, more people are obese than underweight. Between 1976 and 2016, the proportion of overweight children and adolescents aged between 5 and 19 years increased from 4% to 18% globally.[23] This situation, combined with that of ageing, makes individuals more vulnerable to chronic diseases and even to the accumulation of pathologies leading to dependence (see the detailed analysis of trend 3, "Chronicisation of diseases, increase in multimorbidity and associated dependencies", in part 2).

[17] *https://www.futuribles.com/en/article/encombrement-spatial-et-risques-lies-aux-ambitions/*
[18] *https://www.un.org/fr/global-issues/ageing*
[19] *https://www.cnp.fr/en/cnp/content/download/9569/file/Cahier-de-Prospective-version-anglaise.pdf*
[20] *https://news.un.org/fr/story/2021/01/1086872*
[21] *https://www.dni.gov/index.php/gt2040-home/gt2040-deeper-looks/future-of-migration*
[22] IOM Outlook on Migration, Environment and Climate Change, *International Organization for Migration (IOM), 2014*
[23] *https://www.who.int/fr/health-topics/obesity#tab=tab_1*

Recent years have also seen a rise in mental illnesses. The phenomenon of eco-anxiety, in particular, has been observed on a global scale and mainly affects young people. All over the world, an awareness of the effects of global warming, the realisation that we live in an increasingly degraded environment and the instability of economic and political models are generating a sense of meaninglessness and a generalisation of behavioural disorders among individuals,[24] particularly among the youngest (see the detailed analysis of trend 4, "Increase in mental health problems", in part 2).

There are considerable inequalities in individuals' exposure to risks, and these inequalities have been growing steadily in recent years. Since the financial crisis of 2008, the number of billionaires has more than doubled. 82% of the wealth created in the world in 2018 is estimated to have gone to the richest 1%. In many countries, inequalities have increased within populations, especially in Eastern Europe. [25] The Covid-19 pandemic has played a major role in revealing and exacerbating these underlying trends, pushing an additional 120 million people into extreme poverty worldwide.[26] In the summer of 2021, Oxfam warned that global inequalities have never been more extreme, with the wealth of the ten richest individuals increasing by $413 billion over the same period.[27]

Yet the concept of inequality is not limited to its economic dimension. Inequalities are also based on socio-professional status, gender, racial discrimination and the density of interpersonal ties. Unsurprisingly, it is the most precarious individuals who are most exposed to health, environmental, economic and political risks, in all countries without exception. They are also the people who will face the greatest difficulties in adapting to the "transitions" in production and consumption models that are required for a shift towards an economy that is less carbon-intensive and that respects ecosystems (see the detailed analyses of trend 5, "Increase in precarity", trend 6, "The increasing disengagement of some young people in France", and trend 7, "The increasing precarity of French workers and new insecurities at work", in part 2).

Inequalities and injustices are becoming less and less tolerated, and are generating increasingly strong and unpredictable social reactions, as the latter are less confined to traditional social movements (political parties, trade unions, etc.). The acceptance of inequalities is decreasing as the level of education increases, as information circulates more freely, and as individuals aspire to greater individual fulfilment and place less value than before in abstract collective identities such as the nation, religion, etc. The phenomenon of individualisation described by sociologists[28] is leading to both greater tolerance of others and greater intolerance of injustice.

The importance of addressing multiple scales

This brief panorama of the major global transformations at work today shows that it is impossible to devise a suitable approach to future risks without taking into account a diversity of geographical and temporal scales.

Thus, global phenomena such as climate change are manifested in extremely variable ways in different countries and even within territories. Similarly, the extent of structural inequalities in our societies means that the reality of risks varies dramatically according to socio-economic status, place of origin, skin colour, gender and age.

The systemic links between these phenomena therefore require us to develop an approach that is both global, in order to understand the relationships between them, but also more granular, in order to analyse their concrete repercussions on people and their property.

[24] *https://www.who.int/fr/health-topics/mental-health#tab=tab_2*

[25] *https://www.un.org/fr/un75/inequality-bridging-divide*

[26] *https://www.imf.org/external/pubs/ft/fandd/2021/06/inequality-and-covid-19-ferreira.htm*

[27] *https://www.oxfam.org/fr/le-monde-face-une-nouvelle-pandemie-les-conflits-le-coronavirus-et-la-crise-climatique-menacent-de*

[28] *https://www.futuribles.com/fr/revue/443/europe-des-valeurs-en-evolution-mais-toujours-auss/* and *https://www.futuribles.com/fr/revue/431/les-valeurs-des-francais-en-tendances-plus-de-libe/*

Results of the survey on major trends leading to emerging risks for people and their property by 2030-2035

The main principles

Between March and April 2022, CNP Assurances' Research and Strategic Foresight department conducted a survey of some forty internal employees, members of the 120 Network, as well as more than one hundred actuaries and risk management experts.

These two complementary panels were invited to reflect on eleven major trends, previously identified through exchanges with the 120 Network and experts, in the environmental, health, social, political and economic fields, which were considered likely to generate new risks for people and their property by 2030-2035 in France and Europe.

The objective of this survey was to select the major trends with the highest priority, by asking the panels to assess their likelihood of developing by 2030-2035 and the degree of preparedness of the insurance sector for the emerging risks that they might entail. The questionnaire also included a systemic dimension aimed at identifying more global risks, termed "systemic risk scenarios".

The respondents' contributions led to the selection of the **nine priority trends and the three systemic risk scenarios** presented in this foresight report. For each trend, an in-depth foresight analysis was carried out to formulate the emerging risks to people and their property, amounting to **35 emerging risks** in total.

The survey also made it possible, thanks to more than 300 comments from contributors, to outline the means that the insurance sector could use to prepare itself and the population for these emerging risks. These are presented in the form of "possible actions" alongside the discussion of each risk, and these practical solutions are also summarised at the end of this report.

The hypotheses and proposals submitted to survey respondents

The panels were asked to assess the following eleven key trends associated with emerging risks:

- an increase in extreme climatic events;
- an increase in health crises;
- the chronicisation of diseases and increase in multimorbidity and associated dependencies;
- an increase in mental health problems;
- an increase in precarity;
- the disengagement of some young people in France;
- an increasing precarity among French workers and new insecurities at work;
- the development of the cryptoasset market and weakening of the traditional financial system;
- an increase in personal data breaches;
- the growing personalisation of risk management systems;
- an increase in loss of savings and devaluation of assets.

They were also asked to respond to the prospect of one of the following five risk scenarios occurring by 2035:

What if a very large-scale disaster strikes the French territory? **Scenario 1**

What if a massive cyber attack paralyses the IT systems of all AP-HP establishments (the Paris hospitals system), including administration and medical equipment, for several days? **Scenario 2**

What if Europe experiences a situation of sustained armed conflict on its periphery, with significant migration flows and major economic repercussions? **Scenario 3**

What if, faced with increased public debt, the French state refocuses its resources on its core sovereign functions, withdrawing from social protection and risk-pooling mechanisms? **Scenario 4**

What if France leaves the eurozone? **Scenario 5**

For each of these items, the panels were asked:

- to evaluate the likelihood of the major trend or scenario developing by 2035, together with the emerging risks that they might entail for people and their property (from 1: "not at all likely", to 4: "very likely", or 0: "no response or no opinion");
- to assess the degree of preparedness of the sector (from 1: "not at all prepared", to 4: "fully prepared", or 0: "no response or no opinion").

Summary of the survey results

The major trends and their related emerging risks were considered likely overall, but with differences in assessment between the two panels.

The two panels did not arrive at the same assessment of the likelihood of the proposed phenomena.

The panel of **CNP Assurances' 120 Network** assessed the average likelihood of all trends and related emerging risks as being high (3.03), with low volatility (variance of 3.8%). The three trends considered most likely were **"an increase in precarity"**, **"an increase in personal data breaches"** and **"an increase in the social and economic disengagement of some young people"**. This prioritisation reflects the significant attention paid to social and economic risks by individuals at CNP Assurances.

Likelihood – 120 Network panel

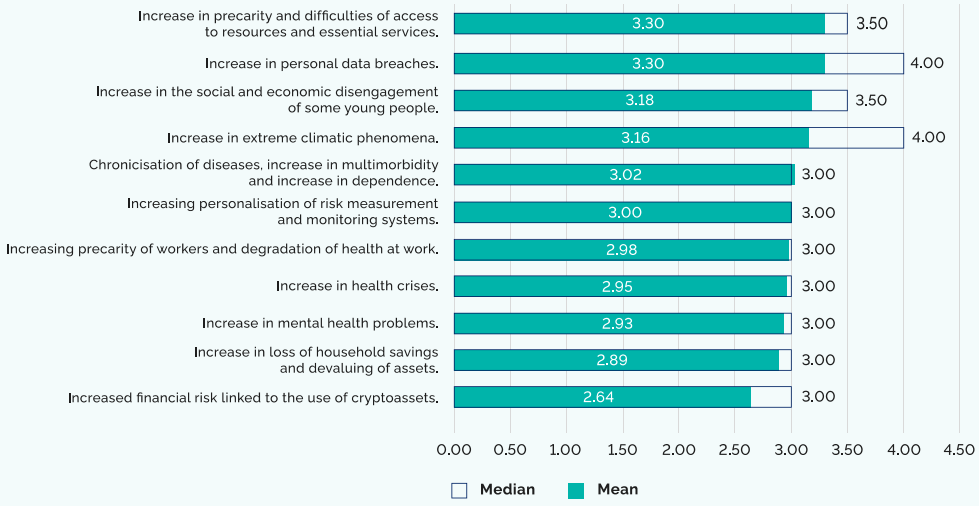


Figure 4 – Source: Research and Strategic Foresight, CNP Assurances

The panel of **actuaries and risk management experts** made a greater distinction in their assessment of the different trends (average of 2.43 and variance of 16%). This higher volatility can be explained by the wide range of profiles represented in this panel. The three factors judged to be most likely were **"an increase in extreme climatic phenomena"**, **"an increase in personal data breaches"** and **"an increase in mental health problems"**.

Likelihood – Panel of actuaries and risk management experts

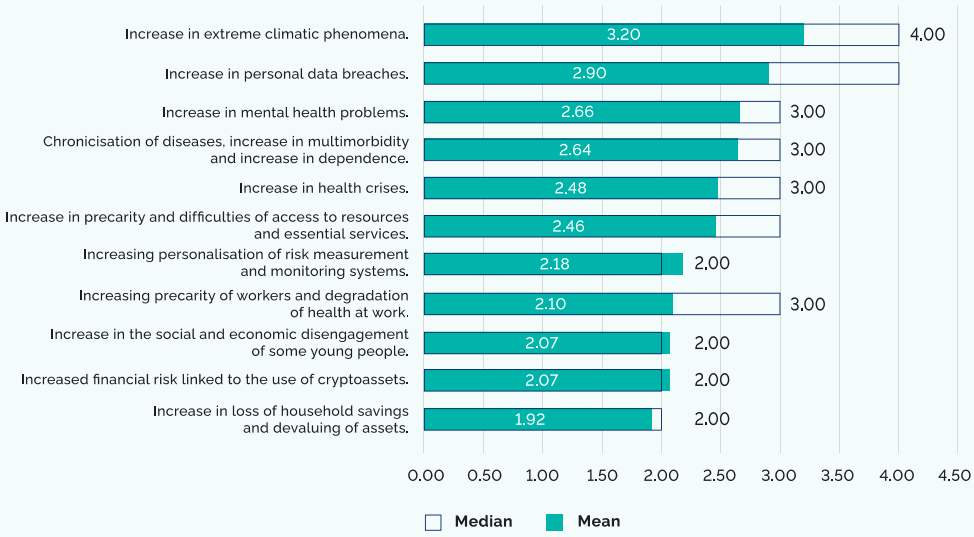


Figure 5 – Source: Research and Strategic Foresight, CNP Assurances

Nevertheless, **both panels judged that there is a high likelihood for more than half of the major trends and related emerging risks**, thus confirming the need to address them.

Insufficient preparation from the insurance sector

The two panels were in agreement in their assessment that the insurance sector currently has a low level of preparedness for these phenomena (an average of 1.91 from the 120 Network and 1.73 from the panel of actuaries and risk management experts). According to the respondents, the emerging trends and risks for which the sector is least prepared are: the **"the financial risk linked to the use of cryptoassets"**, an **"increase in mental health problems",** an **"increase in the disengagement of some young people"** and **"the increasing precarity of workers"**.

By cross-referencing these results, we decided to retain the nine major trends that are analysed below, while eliminating "the increasing personalisation of risk measurement and monitoring systems" and the "increase in loss of household savings", which are considered less likely or are already anticipated by a higher degree of preparedness by the sector.

Risks for people and their property by 2035
Likelihood and degree of preparedness

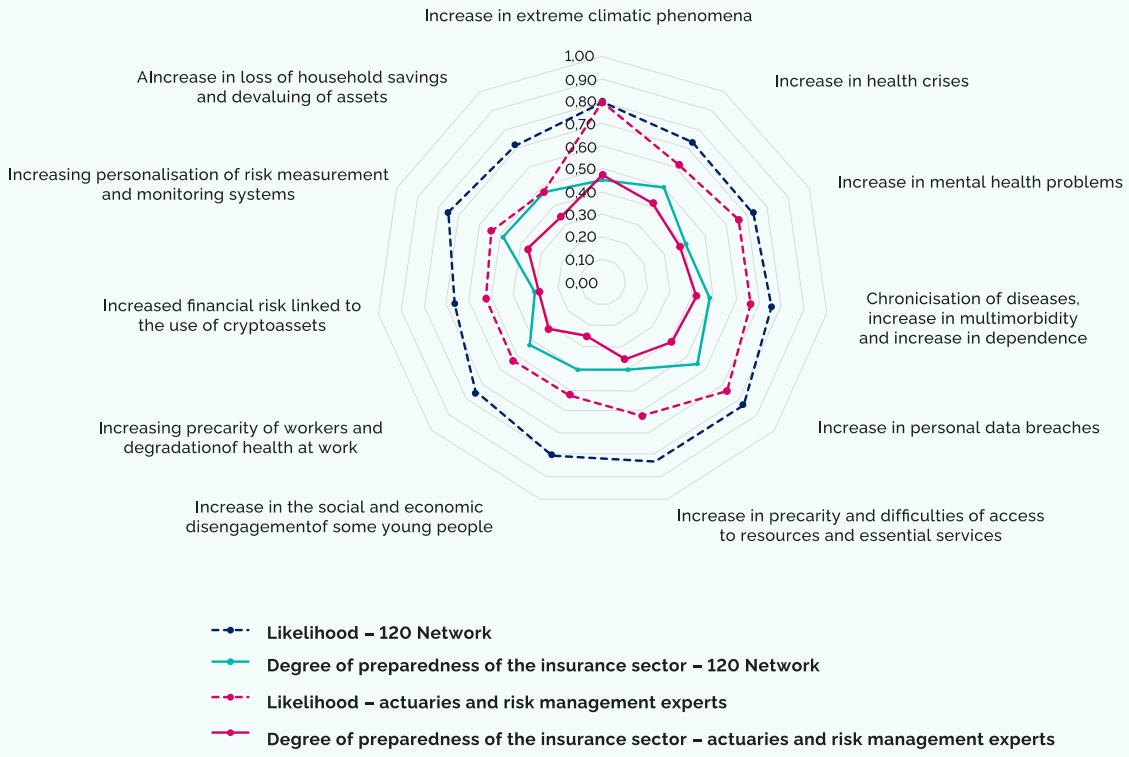


Figure 6 – Source: Research and Strategic Foresight, CNP Assurances

Three high-priority systemic risk scenarios

The two panels arrived at similar analyses of the systemic risk scenarios that were presented to them. Two of these – **"France leaves the eurozone"** and an **"end of the welfare state" –** were considered less likely, especially by the 120 Network.

On the other hand, the scenarios in which **"a large-scale disaster strikes the French territory"**, **"a massive cyber attack paralyses the IT systems of all AP-HP establishments"** and **"Europe experiences a situation of sustained armed conflict on its periphery"** were assessed as being **very likely** and with an insufficient degree of preparedness by the sector. This is why they have been retained in this report.

TRENDS AND EMERGING RISKS FOR PEOPLE AND THEIR PROPERTY BY 2030-2035

This section details nine major trends that are considered important to address because they entail emerging risks for people and their property by 2030-2035. They were selected through surveys and interviews with experts both within and external to CNP Assurances.

For each trend, there is a description of current developments **(findings)** and an analysis identifying the **emerging risks** to people and their property by 2035.

This analysis is not intended to account for all possible emerging risks, but rather to illustrate the diversity of risks that individuals may face in the future.

It focuses on perceived changes in France and Europe, with insights on a global scale where possible. It draws connections between broad transformations and the concrete realities of the resulting risks. It also aims to alert insurers to the challenges of the future and to encourage them to identify the **means that will** enable them to prepare themselves and the population for these risks.

This section also presents three systemic risk scenarios. Based on surveys and interviews with a number of experts, these scenarios describe crisis situations that are highly uncertain in terms of their likelihood of occurring, but which would have a very strong impact if they were to occur, whether in economic, health, social or political terms. This is why we call these risks "systemic". The magnitude of their potential consequences for people warrants our attention. These scenarios also serve to illustrate the combination of risks that insurers may have to face in the future.

Trend 1. Increase in extreme weather events

What are we talking about?

The term "extreme weather event" defines any unexpected, unusual, severe and/or unseasonal natural event that may occur in a given country or geographical region. These events can have varying dynamics. Some take place over a very short period of time (a few hours or a few days), but are unusual in their high degree of intensity (cyclones, rainfall, floods, hurricanes, etc.). Others may persist for several weeks or months (heatwaves, droughts, etc.).

Here, particular attention will be paid to **heatwaves**, which correspond to an episode of high temperatures over a prolonged period of time, **fires (including forest fires)** exacerbated by drought and high temperatures, **floods and torrential rains,** which are the main natural risks in France, and, finally, **cyclones and hurricanes.**

What are the findings?

Finding 1. The increase in extreme weather events is a phenomenon that has been demonstrated on a global scale by scientific observations over the last few decades.

Since the mid-1980s, an increasing number of weather anomalies compared to the pre-industrial era have been recorded around the world. This is particularly illustrated by the change in temperature records in France over the period 1951-2018. On average, since the beginning of the 21st century, the number of warm records that have been broken has been twice the level that would be expected in a stable climate, whereas there have been four times fewer cold records broken than expected. This trend continues to grow: in 2019, nine warm records were broken, but not a single cold record.[29]

Change in warm and cold records broken, based on French mean temperatures over the period 1951-2018

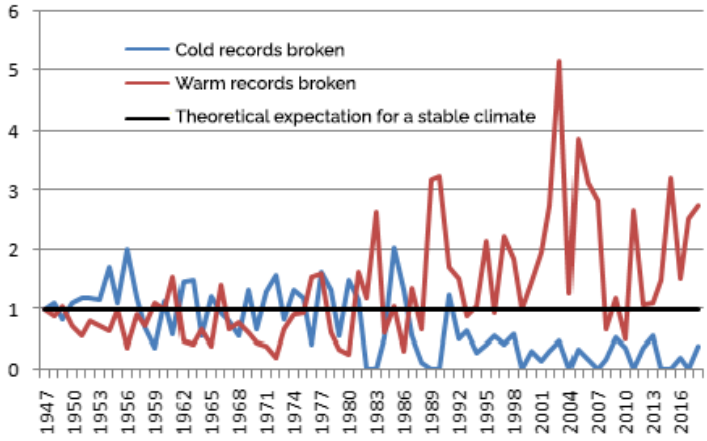


Figure 7 – Sources: https://meteofrance.com/changement-climatique/observer/changement-climatique-et-vagues-de-chaleur, https://donneespubliques.meteofrance.fr/?fond=produit&id_produit=117&id_rubrique=39

[29] *https://meteofrance.com/changement-climatique/observer/changement-climatique-et-vagues-de-chaleur*

This rise in temperature has been accompanied by an increase in droughts and precipitation (as shown in Figures 8 and 9).

Global mean temperature difference from 1850-1900 (°C)

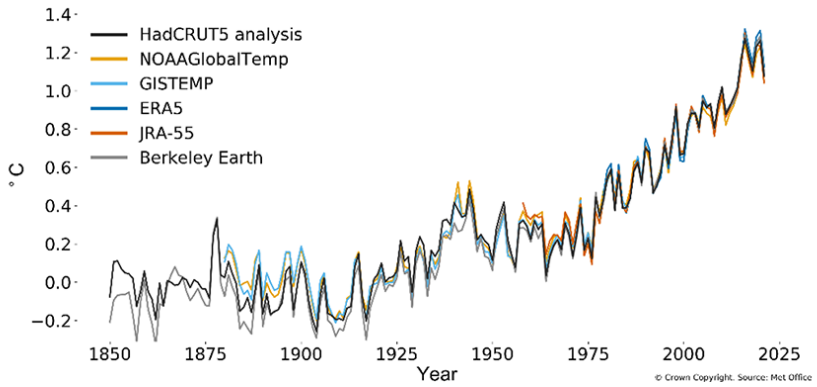


Figure 8 – Global mean temperature difference relative to pre-industrial times (1850-1900) with data from six different sets. https://www.researchgate.net/figure/Global-mean-temperature-difference-from-1850-to-2020-and-its-forecast-in-2025_fig1_349712079

Precipitation Anomaly, 2021, Jan-Sep

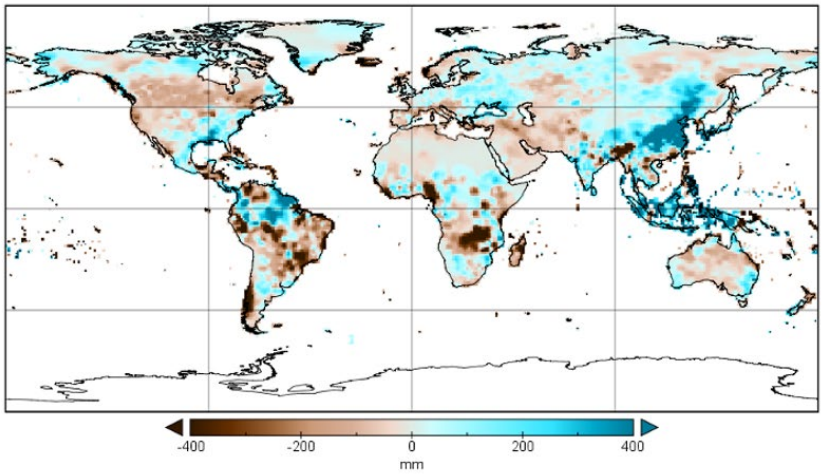


Figure 9 – Total precipitation anomalies from January to September 2021, compared to the 1951-2000 reference period. Blue indicates higher precipitation than the long-term average. Brown indicates less precipitation. The intensity of the colour reflects the extent of the deviation from the average. https://www.dwd.de/EN/ourservices/gpcc/gpcc.html

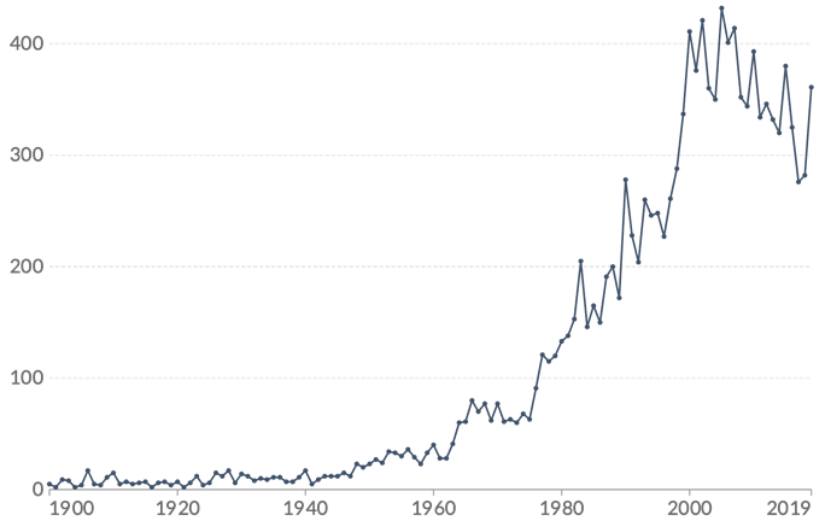
Similarly, large-scale fires are becoming increasingly frequent. According to the Food and Agriculture Organization of the UN (FAO), 350 million hectares of forest burn every year around the world, the equivalent of six times the surface area of France.[30] Floods linked to climate change are also becoming more frequent.[31] On a global scale, they caused 25 times more damage in 2010 than in 1970. Overall, according to a study by Munich Re,[32] the number of extreme events increased by more than 60% between 1980 and 2019.

[30] *https://www.consoglobe.com/incendies-causes-effets-rechauffement-3282-cg*

[31] *https://www.oxfamfrance.org/climat-et-energie/inondations-pluies-torrentielles-la-lutte-contre-les-changements-climatiques-est-essentielle/*

[32] *https://www.munichre.com/en/risks/natural-disasters-losses-are-trending-upwards.html#-1624621007*

Number of recorded natural disaster events, All natural disasters, 1900 to 2019



Number of natural disasters recorded worldwide per year, including droughts, floods, extreme weather events, heatwaves, landslides, dry mass movements, forest fires, volcanic eruptions and earthquakes.

Figure 10 – Source: EM-DAT, CRED / UCLouvain, Brussels, Belgium – www.emdat.be, reproduced on ourworldindata.org/natural-disasters, CC BY

Finding 2. By 2035, the trend towards an increase in the number of extreme events is unlikely to be reversed. It is even likely to increase and intensify, regardless of the environmental policies that are implemented, due to the inertia of climate systems.

Global temperatures have risen by an average of 1.1°C since 1850, as a direct result of massive greenhouse gas emissions. Despite the various warnings issued by scientists over the past 30 years, governments and industry have done little to curb these emissions. In 2022, the IPCC estimates that, in the absence of proactive policies, the threshold of 1.5°C beyond which the Earth will become increasingly unlivable could be reached as early as 2025.[33] Furthermore, even if emissions are reduced and the temperature increase is kept under control, the risks of extreme events are nevertheless likely to increase significantly. As climate scientist Hervé Le Treut points out, in terms of climate scenarios, and whatever decisions governments make, the next 30 years are already largely locked in. The rise in temperatures is unavoidable between now and 2050.

Finding 3. Extreme weather events are becoming increasingly costly on a global scale, in terms of material damage, but also in terms of human lives, with serious consequences for people's housing, financial and food security.

According to a report by the European Environment Agency, heatwaves, floods and other extreme weather events killed more than 142,000 Europeans between 1980 and 2022.[34] The 2003 heatwave alone accounts for 57% of the total. The cost of these disasters is estimated at €510 billion. Over the same period, the United States experienced more than 300 extreme weather events, with an estimated cost of $2,155 billion. On a global scale, extreme events have increased fivefold in 50 years, with a total of around 200 million deaths.[35]

As we can see, all countries are affected by the increase in extreme weather events. France is ranked fourth worldwide in terms of deaths linked to these phenomena over the period 1999-2018.

[33] *https://www.novethic.fr/actualite/environnement/climat/isr-rse/rapport-du-giec-non-il-ne-nous-reste-pas-que-trois-ans-avant-la-fin-du-monde-150712.html*

[34] *https://www.novethic.fr/actualite/infographies/isr-rse/en-40-ans-les-catastrophes-climatiques-n-ont-pas-epargne-l-europe-150565.html*

[35] *https://public.wmo.int/fr/medias/communiqu%C3%A9s-de-presse/les-catastrophes-m%C3%A9t%C3%A9orologiques-se-sont-multipli%C3%A9es-au-cours-des-50*

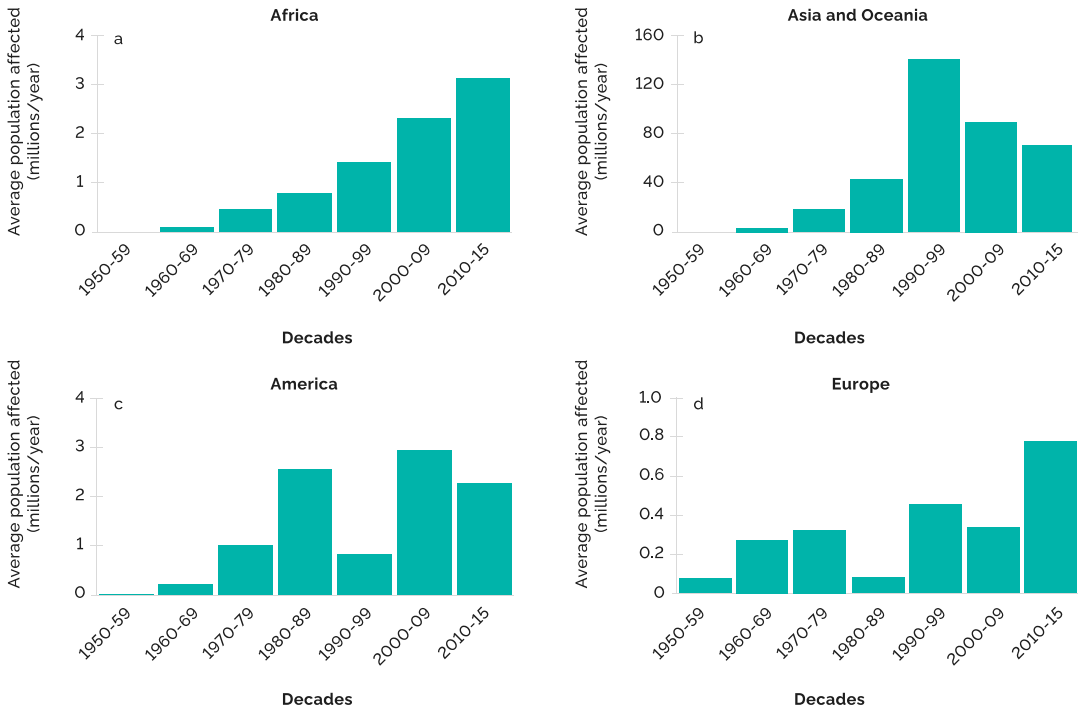


Figure 11 – Source: http://dx.doi.org/10.18063/ESP.2016.01.002

In addition to directly causing deaths and material damage, extreme weather events also have harmful impacts on agricultural yields and prices by reducing fertility or destroying crops. On a global scale, certain types of production could fall by up to 50%, with consequences for the income of part of the population, as well as for situations of famine and increased precarity.

Finding 4. Inequalities in exposure between territories and populations.

Although the increase in extreme weather events can be observed on a global scale, there are wide disparities between countries and within populations in terms of exposure, prediction, prevention and adaptation to these risks.

Firstly, certain geographical areas are more vulnerable by their very nature. For France, this is the case for the overseas territories (which are particularly exposed to the risks of cyclones and flooding), mountainous areas (which are experiencing an accelerated rate of climate change, with an increase of 2°C recorded since 1950 in the Alps), coastal and river areas (1.5 million French people live in flood-prone areas) and forest areas (with a risk of mega-fires).

Secondly, these disasters represent a greater burden for developing countries, which often combine high levels of precarity, weak governance and a lack of infrastructure and crisis management capacity. According to the NGO Germanwatch,[36] between 2000 and 2019, eight out of ten of the countries most affected in the long term by a climate disaster were in the developing world. Between 1980 and 2020, more than 91% of disaster-related deaths occurred in these same countries.[37]

[36] *https://www.germanwatch.org/fr/19777*

[37] *https://public.wmo.int/fr/medias/communiqu%C3%A9s-de-presse/les-catastrophes-m%C3%A9t%C3%A9orologiques-se-sont-multipli%C3%A9es-au-cours-des-50*

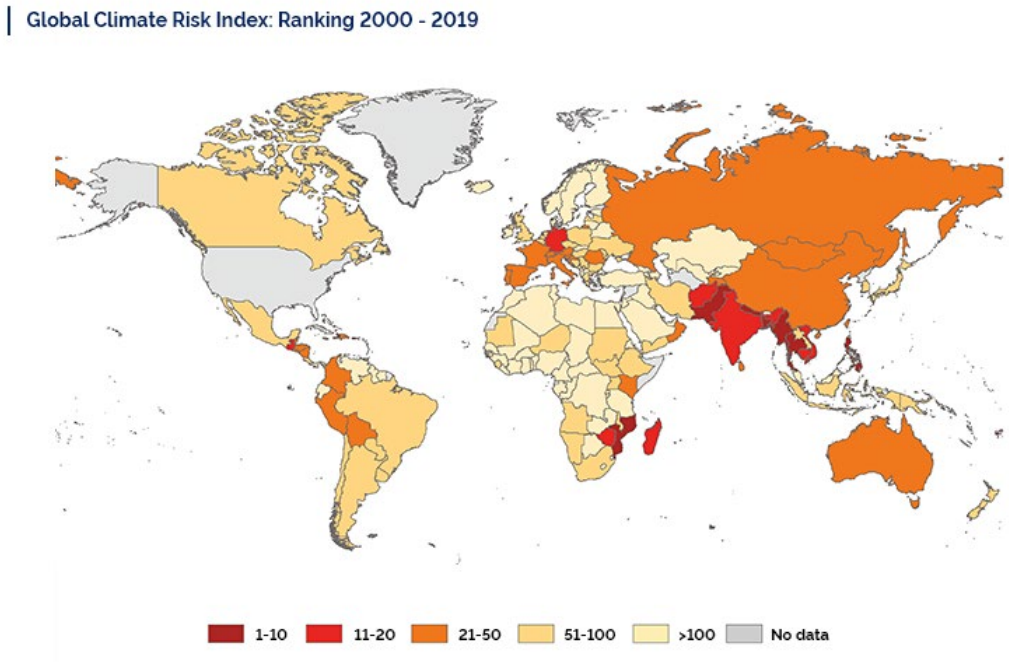


Figure 12 – Source: https://www.germanwatch.org/en/19777

This situation is reflected in population movements within countries and between regions: China, the Philippines, India and Bangladesh recorded between 4 and 5 million new displaced persons in 2020 alone as a result of cyclones, monsoons and typhoons.[38]

Finally, the exposure of individuals varies according to their standard of living. Within the European Union itself, there are major differences: Germany, France and Italy are the most exposed countries, but the Croatian, Lithuanian and Romanian populations are the least well insured when such events occur (less than 5% of material damage covered by insurance, compared with more than 50% in Denmark or the Netherlands, for example).[39]

Finding 5. Policies aimed at reducing emissions and improving prediction and adaptation are still insufficient for addressing the risks.

Antonio Guterres, the United Nations secretary-general, warned that, over the coming decade, "current climate pledges would mean a 14% increase in emissions". The IPCC report condemns this inaction by leaders as "criminal".[40]Similarly, in August 2021, the World Meteorological Organization noted that only half of its 193 members had early warning systems in place.[41] Climate observation networks are still insufficient, with some areas of Africa, Latin America, the Pacific and the Caribbean still not covered.

[38] *https://www.oxfamfrance.org/climat-et-energie/les-evenements-climatiques-extremes-quand-la-planete-semballe/*

[39] *https://www.novethic.fr/actualite/infographies/isr-rse/en-40-ans-les-catastrophes-climatiques-n-ont-pas-epargne-l-europe-150565.html*

[40] *https://www.latribune.fr/entreprises-finance/transitions-ecologiques/climat-le-rapport-du-giec-denonce-l-inaction-criminelle-des-dirigeants-905043.html*

[41] *https://public.wmo.int/fr/medias/communiqu%C3%A9s-de-presse/les-catastrophes-m%C3%A9t%C3%A9orologiques-se-sont-multipli%C3%A9es-au-cours-des-50*

What are the risks for people and their property by 2035?

Risk 1. Excess mortality in older European populations due to more frequent heatwaves

As temperatures rise, heatwaves similar to the one experienced in Europe in 2003 will become increasingly common. Due to demographic ageing, a greater proportion of the population will be exposed to this risk.

Risk 2. Increasing exposure of unprepared and uninsured populations to unprecedented extreme weather events

Continued climate breakdown may gradually expose people to previously unknown risks. For example, large-scale fires are gradually moving northwards in France, into regions that were previously unaffected, due to soil degradation and increasingly long and severe periods of drought. Similarly, flash floods could become increasingly common.

Risk 3. High vulnerability of populations living in French overseas territories that are particularly exposed to extreme weather events

The French overseas territories are particularly vulnerable to climate risks due to their geographical characteristics (location, situation as islands, etc.). In the next decade, their populations will have more and more specific needs in terms of anticipation, prevention and crisis management due to the scale of the phenomena they will face.

Risk 4: Increasing difficulty of access to natural hazard insurance for the people most exposed to precarity

The insurance model is struggling to adapt to the increase in extreme weather events. Many insurance companies are already warning of the risk of not being able to cover all risks or of having to increase premiums. Without specific support, the populations most exposed to precarity could find themselves excluded from the protection system.

What actions can insurers take?

The following actions can help in becoming better prepared for these risks:

Communication, prevention

- **participating in raising the awareness of the population and public authorities** to these problems, especially in territories that are not yet very exposed;
- **investing in prevention;**

Innovation

- **developing new services for policyholders that have risk management built into every stage of their design and implementation,** such as systems for alerting the elderly in the event of a heatwave;
- **setting up dedicated compensation funds,** especially for providing protection for the most disadvantaged;

Investment

- **developing policies of socially responsible investment**;
- **conducting research and development activities** on a sectoral basis to make better use of available data and to expand on existing studies.

Systemic risk scenario 1. What if, by 2035, an earthquake strikes the Nice region?

Reminder: This scenario describes a situation with a low likelihood of occurring but a high impact if it were to happen, and therefore deserves attention.

The Nice metropolitan area is "the only agglomeration in mainland France with more than one million inhabitants exposed to the average level of seismic risk". In a report published in 2019, the French Conseil général de l'environnement et du développement durable (General Council for the Environment and Sustainable Development, CGEDD) highlighted the importance of this risk and warned of the lack of preparation on the part of both the public authorities and the population.[42]

Description of the situation

Summer 2034. In the middle of the night, an earthquake measuring 6.2 on the Richter scale hits Aspremont, a town a few kilometres north of Nice. Despite the technological developments of recent years, earthquakes are still not predictable. The violent shockwave hits the city of Nice head-on. The sleeping inhabitants do not receive instructions from the emergency services in time.

How did we get here?

Nice is located in close but not immediate proximity to the two tectonic plates of Africa and Eurasia, which makes it vulnerable to maritime seismic events. There are also regular earthquakes in the Alpine chain, which are not very violent but occur too close to the surface to allow the wave energy to be absorbed before it reaches human dwellings (CGEDD, 2019). The topography of the urban area increases its vulnerability. As it is densely concentrated it is subject to a "peninsula" effect and risks seeing its essential networks interrupted (the airport, the bridge over the river Var and the electricity network). Finally, although earthquakes of a magnitude greater than 6 have struck the region in the past (in 1564 and 1887 in particular), and although there is established scientific knowledge regarding this risk, little action has been taken to prepare the city and its inhabitants for such an event. The population itself seems to be unaware of the risk and is not sufficiently prepared for it. The degree of exposure of the city of Nice to the risk of a mega-disaster is therefore high and its degree of preparedness still seems too low.

What are the consequences?

In a 2018 study,[43] *the Bureau de recherches géologiques et minières (Office of Geological and Mining Research, BRGM) considered the worst-case scenario described above, which could result in up to 2,500 deaths and 200,000 being left homeless. The study estimates the cost of the disaster at* ***between €14 and €29 billion to be disbursed*** *by the state and insurance and reinsurance mechanisms, not including the costs of rescue operations, harm to people and damage to the means needed to sustain economic activity.*

How can we prepare for it?

In the view of both BRGM and CGEDD, it is essential to better coordinate the work and discussions of technical experts, to develop local and shared governance to understand the risks and to consolidate the metropolitan strategy. Greater awareness-raising actions for the population should be carried out, as well as specific studies addressing the points of greatest vulnerability (roads, networks, bridges). At the same time, the state should implement a plan aimed at better adapting buildings to the risk. As for the insurance industry, it could play a larger role in prevention (communication, training), in partnership with the authorities, local communities and emergency services. They could also develop specific insurance schemes for people and their property.

"It is important to distinguish between trends and risks that we can analyse, and, on the other hand, sudden events that throw a population into a state of shock."
Jean-Christophe Merer, Group Chief Risk Officer of CNP Assurances

[42] *https://cgedd.documentation.developpement-durable.gouv.fr/notice?id=Affaires-0011197*
[43] Ibid.

Trend 2. Increase in the number of health crises

What are we talking about?

Health crises are defined here as any epidemic or pandemic that has serious effects on the health of individuals and is likely to interrupt the flow of people and goods, either temporarily or on a long-term basis, within a country or region or on a global scale, due to the illness' high degree of transmissibility and/or mortality.

It is now estimated that 60% of known viruses causing infectious diseases in humans are of animal origin.[44] Health crises linked to zoonotic infectious diseases – those that can be transmitted to humans by animals, either directly (bite, sting, respiratory transmission, physical contact) or indirectly (through food) – are therefore the focus of particular study.

Other matters of concern are epizootics (the equivalent of an epidemic in non-human animal populations) and antibiotic resistance. These health crises affect populations unequally, with people's exposure varying depending on their age, state of health and socio-economic situation.

The Covid-19 pandemic has raised awareness among authorities and populations of the new reality of the health threat. The risk of health crises is not new in itself, but we must prepare for an increase in their number, resulting in a series of such events, or even combinations of them.

What are the findings?

Finding 1. The increase in zoonoses and epizootics is a major trend.

Almost all the pandemics known to mankind (including Spanish fever, HIV and Sars-CoV-2) have been caused by zoonoses.

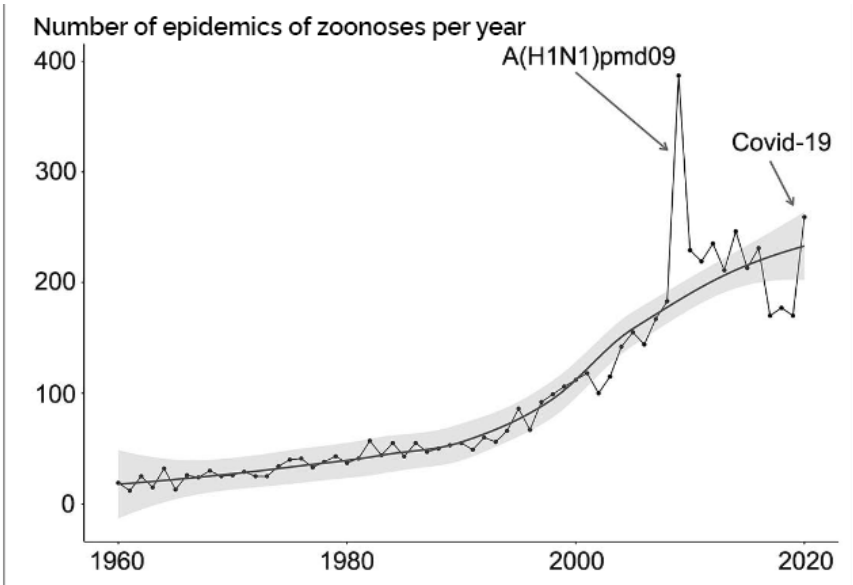


Figure 13. Number of epidemics of zoonoses over time

See main text for selection criteria. The year corresponds to the year in which an epidemic was declared on GIDEON, until June 2020. The solid line corresponds to the smoothed mean, the grey zone corresponds to the confidence interval of the smoothed mean trend (© Serge Morand).

Figure 13 – Source: Gwenaël Vourc'h, François Moutou, Serge Morand, Elsa Jourdain, Les Zoonoses. Ces maladies qui nous lient aux animaux, *Versailles, Éditions Quæ, 2021*

[44] *https://ipbes.net/sites/default/files/2020-11/20201029%20Media%20Release%20IPBES%20Pandemics%20Workshop%20Report%20FR_Final_0.pdf*

In addition to zoonoses, epizootics are also increasing in livestock farming. African swine fever, for example, spread to all continents between 2007 and 2015 with a mortality rate of almost 100%.[45] Although harmless to humans, this virus poses a direct threat to food security.

Finding 2. Several major trends that increase the risk of health crises are unlikely to be reversed or reduced by 2035.

- ***Global warming***

Rising temperatures favour the extension of the geographical range of zoonotic vectors, such as ticks and mosquitoes. One example of this is the emergence of dengue fever in mainland France, carried by the *Aedes Albopictus* mosquito (tiger mosquito) since the end of 2010.[46]

Map of the tiger mosquito's presence in Metropolitan France in 2007 on the left, and in 2022 on the right[47]

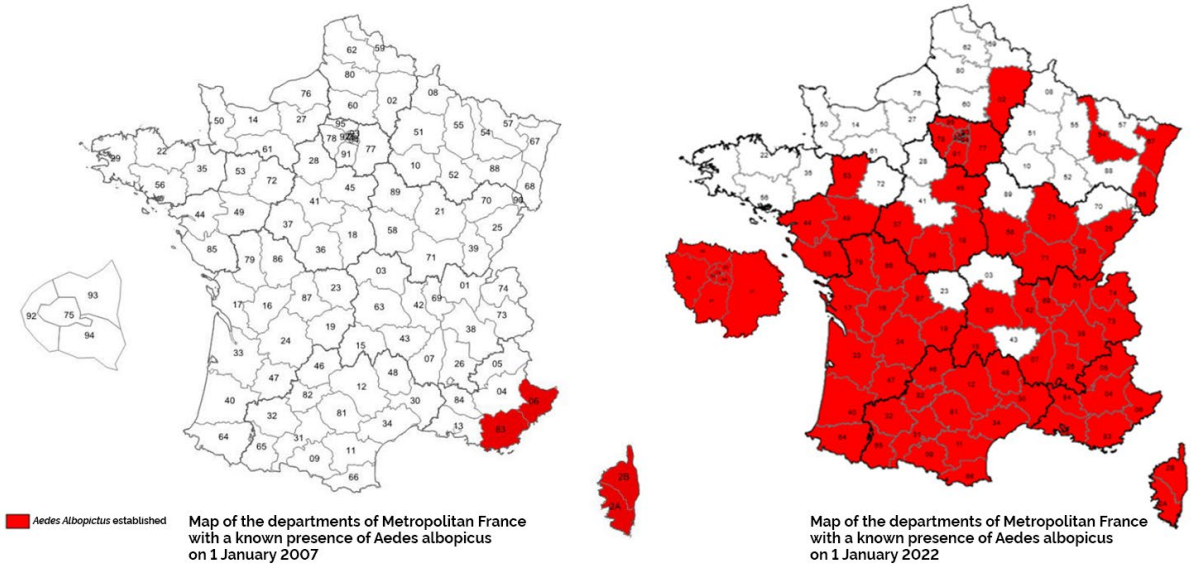


Figure 14 – Source: https://solidarites-sante.gouv.fr/sante-et-environnement/risques-microbiologiques-physiques-et-chimiques/especes-nuisibles-et-parasites/article/cartes-de-presence-du-moustique-tigre-aedes-albopictus-en-france-metropolitaine

- ***Loss of biodiversity***

Whether as a result of increasing urbanisation, pollution, climate change or the proliferation of invasive alien species, the loss of biodiversity favours the transmission and mutation of viruses between species. However, by 2035, it is unlikely that these trends will change.[48] The latest IPCC reports highlight the inertia of environmental systems. Similarly, over 50% of humanity already lives in cities and this proportion could rise to 70% by 2050.

- ***Rising global food consumption and the associated intensification of livestock and crop production***

Since the 1960s, 30% of all new zoonotic diseases are believed to be the result of land use change.[49] According to the FAO, an additional one billion hectares of land may be transformed by humans by 2050.[50]

[45] *https://www.oie.int/fr/maladie/peste-porcine-africaine/*

[46] *https://solidarites-sante.gouv.fr/sante-et-environnement/risques-microbiologiques-physiques-et-chimiques/especes-nuisibles-et-parasites/article/cartes-de-presence-du-moustique-tigre-aedes-albopictus-en-france-metropolitaine*

[47] Ibid.

[48] *https://biodiversite.gouv.fr/en-quoi-la-biodiversite-est-elle-menacee*

[49] *https://ipbes.net/sites/default/files/2020-02/ipbes_global_assessment_report_summary_for_policymakers_fr.pdf*

[50] *https://news.un.org/fr/story/2022/01/1113212*

- ***The development of international trade and the large-scale transmission of viruses***

24% of terrestrial vertebrate species [51] are traded between countries. Virus transmission can occur within animal population reservoirs, but can also result from the unintentional spread of exogenous vectors into new environments. For example, the appearance of the tiger mosquito in Europe is believed to have been the result of a shipment of used tyres from Asia.[52]

- ***Demographic ageing***

The recent Covid-19 pandemic has demonstrated that the prior health status of those infected has a determining role in their chances of survival. [53] Older people are more vulnerable to viruses and infections. [54] Yet populations are ageing rapidly, particularly in OECD countries.

Populations are ageing rapidly
Number of people over 65 years old for every 100 people of working age (20-64)

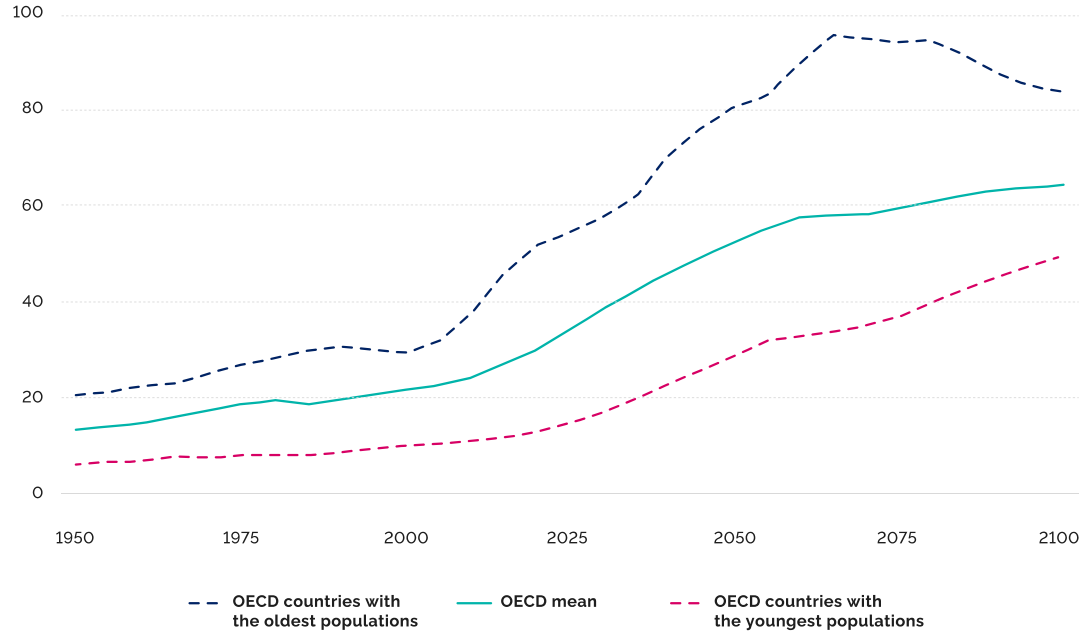


Figure 15 – Source: Pensions at a Glance 2021: OECD and G20 Indicators, OECD, Paris, 2021: https://doi.org/10.1787/ca401ebd-en

Finding 3. Antibiotic resistance is already a major public health issue.

Antibiotic resistance refers to the tendency of bacteria to become resistant to antibiotics. [55] Although this is a known phenomenon, still too little attention has been paid to it. [56] Currently, 1.5 million people die each year as a result of antibiotic resistance.[57] It could cause up to 10 million deaths per year by 2050, [58] which is as many deaths as are currently caused by cancers.[59]

[51] *https://ipbes.net/sites/default/files/2020-02/ipbes_global_assessment_report_summary_for_policymakers_fr.pdf*
[52] *https://www.nature.com/articles/s41598-017-12652-5*
[53] *https://fr.statista.com/statistiques/1104103/victimes-coronavirus-age-france/*
[54] *https://www.nature.com/articles/s41579-021-00639-z*
[55] *https://solidarites-sante.gouv.fr/prevention-en-sante/les-antibiotiques-des-medicaments-essentiels-a-preserver/des-antibiotiques-a-l-antibioresistance/article/l-antibioresistance-pourquoi-est-ce-si-grave*
[56] *https://www.who.int/fr/news-room/fact-sheets/detail/antibiotic-resistance*
[57] *https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(21)02724-0/fulltext*
[58] *Review on Antimicrobial Resistance,* Antimicrobial Resistance: Tackling a Crisis for the Health and Wealth of Nations, *2014*
[59] *https://www.who.int/fr/news-room/fact-sheets/detail/cancer*

Finding 4. The most vulnerable populations and countries are often the least prepared for health crises.

In the absence of inclusive, globalised pandemic control and management policies, disadvantaged populations will continue to be the hardest hit by health crises and their impacts.[60] According to a 2016 study by the RAND Corporation, of the 25 countries most vulnerable to future infectious epidemics, 22 are in Africa, the others being Afghanistan, Yemen and Haiti.[61]

Furthermore, there are sometimes differences within a given country in access to services, as shown by an OECD study in 2020, which compares the number of hospital beds per 1,000 inhabitants in North America, Europe and South-East Asia. In Italy, for example, regions in the south and the Mediterranean coast have two to three hospital beds per 1,000 inhabitants, while the northern regions have as many as five.[62]

Finally, not all economic sectors are equally affected by health crises. Some sectors come to a complete standstill, while others constitute the "front line" against the crisis and face considerable risk of contracting the disease (medical staff, etc.). Some other sectors are not affected or are even helped by the situation (such as those connected to digital technologies).

Finding 5. International bodies are becoming aware of the links between infectious diseases, biodiversity loss and the climate crisis. Public and private investment is driving progress in treatment and preventive care.

The World Organisation for Animal Health (WOAH) and the World Health Organization (WHO) are increasingly using the "One Health" concept, which promotes an integrated approach to environmental, animal and human health. In June 2021, these two institutions, together with the FAO and the United Nations Environment Programme (UNEP), founded the One Health High-Level Expert Panel (OHHLEP),[63] consisting of 26 international experts. Its mission is to provide scientific guidance for policy decisions on health issues and to improve collaboration between states.[64]

At the same time, numerous initiatives have been launched under the impetus of research centres, laboratories and governments, such as the PREZODE (Preventing Zoonotic Disease Emergence) initiative, led by France and launched in 2021.[65] This project brings together more than 100 partners and over a thousand researchers.

The Covid-19 pandemic demonstrated the ability of pharmaceutical companies to develop solutions in record time. There are still few effective approaches to reducing the spread of infectious diseases. Antibiotic resistance is making the situation worse.[66] But governments and pharmaceutical companies are investing heavily, especially in antiviral drugs, to stop or reduce the consequences of infection.[67]

What are the risks for people and their property by 2035?

Risk 5: High excess mortality in urban populations due to infectious diseases

A combination of environmental factors, mobility and crowding could lead to repeated outbreaks, particularly in cities. The people with the greatest exposure would be those who are in a situation of precarity and those working in high-risk sectors.

Risk 6: Exposure to tropical viruses of people living in Mediterranean regions

By 2035, the Mediterranean regions of Europe could experience a major epidemic caused by a tropical virus (such as Zika, dengue fever, etc.). Such a crisis could spread rapidly, with potentially high mortality.
The changing geographical distribution of viruses could confront Europe with little-known diseases. The population would be insufficiently prepared and treatments would be difficult to obtain.

Risk 7: Increasing exposure of Europeans to the risk of a further coronavirus pandemic

Europe could experience a pandemic similar to the Sars-CoV-2 pandemic, characterised by extremely rapid spread, with high levels of virus mutation leading to repeated waves with changing symptoms. This would particularly affect the most vulnerable people (the elderly and/or those with co-morbidities).

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[60] *https://ipbes.net/sites/default/files/2020-02/ipbes_global_assessment_report_summary_for_policymakers_fr.pdf*

[61] *https://www.rand.org/pubs/research_reports/RR1605.html*

[62] *https://www.oecd.org/coronavirus/policy-responses/the-territorial-impact-of-covid-19-managing-the-crisis-and-recovery-across-levels-of-government-a2c6abaf/*

[63] *https://www.who.int/groups/one-health-high-level-expert-panel/members*

[64] *https://www.who.int/news/item/11-06-2021-26-international-experts-to-kickstart-the-joint-fao-oie-unep-who-one-health-high-level-expert-panel-(ohhlep)*

[65] *https://www.inrae.fr/actualites/one-planet-summit-lancement-prezode-initiative-internationale-inedite-prevenir-futures-pandemies*

[66] *https://royalsocietypublishing.org/doi/10.1098/rstb.2013.0426*

[67] *https://www.em-consulte.com/article/1495444/antiviraux-hors-virus-de-l-immunodeficience-humain*

Risk 8: Increase in mortality in the general population due to antibiotic-resistant bacteria

By 2035, the number of people affected by antibiotic-resistant bacteria could rise sharply worldwide, including in Europe. These types of crisis spread more slowly than those caused by viruses, but in the absence of an effective prevention policy, the risk of mortality could be very high.

What actions can insurers take?

The following actions can help in becoming better prepared for these risks:

Communication, prevention

- **coordinating with governments and supranational institutions** to conduct prevention campaigns, especially for the most vulnerable populations;
- **developing operational exercises** such as own risk and solvency assessment;

Innovation

- **designing new products with levels of coverage that meet the specific needs of each individual**, such as offerings dedicated to urban populations or to those living in the Mediterranean region;
- **improving the legibility of contracts** in order to better support people;

Investment

- **pooling expertise between insurers, doctors and scientists** in order to improve knowledge of health risks;
- **funding research**, particularly to address the issue of antibiotic resistance.

A question for... Jean-Christophe Merer, Group Risk Director of CNP Assurances

In a world where crises will be more frequent and more intense, how do you rate the general level of preparedness of the insurance sector?

"Faced with many possible crises, the insurance sector seems to be well prepared overall to deal with the risks that it is aware of, thanks mainly to the efficiency of its operating methods and the expertise of the men and women who are responsible for it. Five ideas support this conviction:

- ***the privilege of choosing one's risks:*** *an insurer limits its exposure to only those risks it considers insurable;*
- ***resilience and crisis management:*** *as Covid-19 illustrated, societies adapted and continued to function;*
- ***the effectiveness of the prudential framework:*** *the completeness and appropriateness of prudential provisions made it possible to get through the crisis; no insurance company in Europe failed;*
- ***forecasting and expertise:*** *emerging risks have become a matter of concern for all actors in the insurance industry; they are the subject of research and publications – including the present foresight report;*
- ***a very high level of capitalisation:*** *€1,720 billion of equity at the end of 2021 across the European Economic Area (EEA), amounting to 2.6 times the SCR on average (source: EIOPA); in France, the equity of the entities regulated in the territory represented 15% of GDP in 2021.*

On the other hand, while the worst is not guaranteed, it is not completely impossible either:

- *French insurers rank a major cyber attack as the number one threat to the sector, which would potentially paralyse them and all actors in our country, and beyond;*
- *Disasters, natural or otherwise, of exceptional magnitude, which seem inconceivable to us today, may occur and have systemic consequences that would bring into play a host of technical, financial, macroeconomic and operational risks with unpredictable consequences: this is the "unknown unknown" or "radical uncertainty".*
- *Finally, there are known trends with consequences that are difficult to predict, but which are probably irreversible, of which global warming is one; to speak of "risk" in this respect is already a form of climate scepticism. Uncertainty surrounds the timing, severity and overall scenario (whether there is an orderly response or not, a successful transition, etc.). Only one thing seems certain: no country will be spared and no country will succeed alone."*

Trend 3. Chronicisation of diseases, increase in multimorbidity and associated dependencies

What are we talking about?

A chronic disease is a long-term, progressive disease with major repercussions on the daily life of those affected. The fact that they may or may not be transmissible makes it difficult to map them. Some chronic diseases are genetic, others may be the result of a viral infection, and still others are the result of poor lifestyle habits. Some remain poorly recognised and difficult to treat (such as endometriosis).

Arthritis, diabetes, hepatitis C and AIDS are among the most common chronic diseases. Cancers can be included in the typology of chronic diseases, in view of their common consequences (successive relapses and the demands that they impose on patients, families and the health system). Mental illnesses are also chronic illnesses and are the subject of a dedicated analysis in this report.

Multimorbidity is defined by the French Haute Autorité de santé (National Authority for Health) as "the co-occurrence of several chronic diseases (at least two) in the same individual over the same period".[68]

Individuals are unequally exposed to the risk of chronic disease, which results from both genetic and environmental factors. The most vulnerable people are the elderly and those who are exposed to precarity.[69] A chronic disease can push some people into a situation of dependency, making it difficult or even impossible to maintain their autonomy in everyday activities.

What are the findings?

Finding 1. In France, the prevalence of chronic diseases is already rising steadily.

In France, the number of recipients of the Affections Longue Durée allowance (long-term disability allowance, ALD) is constantly increasing. Between 2011 and 2017, the number of people receiving the ALD allowance increased by an average of 5.1% per year.[70] In 2019, 10.7 million people claimed the ALD allowance. It represents 60% of total health expenditure, according to the latest study by the Direction de la recherche, des études, de l'évaluation et des statistiques.[71]

The fact remains that the number of people affected by one or more chronic diseases is very probably higher. L'Assurance Maladie (the French public health insurance body) estimated it at 20 million in 2015, or 35% of the population. Diabetes is the chronic disease that affects the most French people (2.6 million people in 2019). Heart disease (32% of insured persons) and malignant tumours (20%) are increasing rapidly.

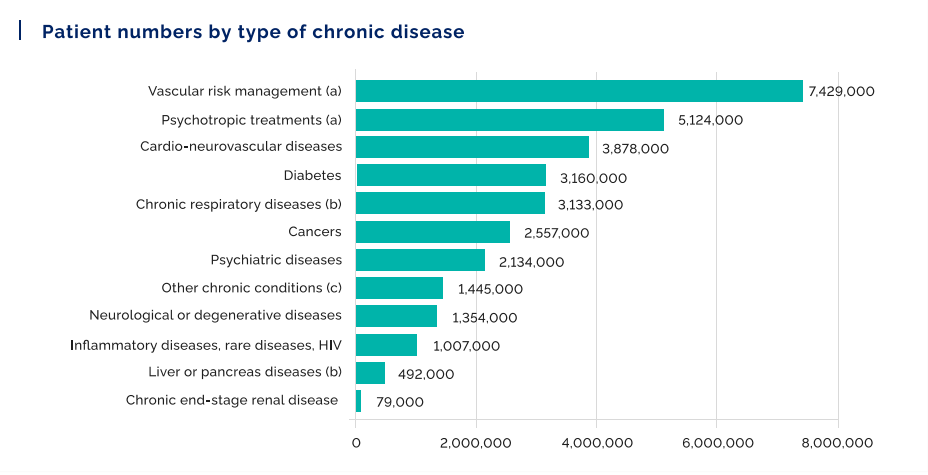


Figure 16 – (a) Excluding pathologies; (b) excluding cystic fibrosis; (c) Note: the numbers of patients should not be aggregated, as the same person may have several diseases, treatments or health events during the year. Field: general health insurance scheme, all of France. Source: CNAM (mapping – July 2018 version)

[68] *Research Chair on Chronic Diseases in Primary Care, University of Sherbrooke*

[69] *https://www.has-sante.fr/upload/docs/application/pdf/2015-04/note_methodologique_polypathologie_de_la_personne_agee.pdf*

[70] *https://www.lecese.fr/sites/default/files/pdf/Avis/2019/2019_14_maladies_chroniques.pdf*

[71] *https://drees.solidarites-sante.gouv.fr/publications/etudes-et-resultats/des-restes-charge-apres-assurance-maladie-obligatoire-comparables*

Finding 2. The elderly are particularly vulnerable to chronic diseases and their combinations with one another, and Europe is ageing demographically .

In 2018, more than two out of three people affected by a chronic or long-term illness were aged 70 years old or older. Age is also strongly linked to multimorbidity. 42% of men and 31% of women over 85 are affected by a chronic multi-disease condition (CESE, 2019). France is experiencing a trend of demographic ageing that is unlikely to be reversed or slowed down by 2030. The number of elderly people affected by one or more chronic diseases is therefore likely to increase.

Proportion of older people in French society
(1990-2070)

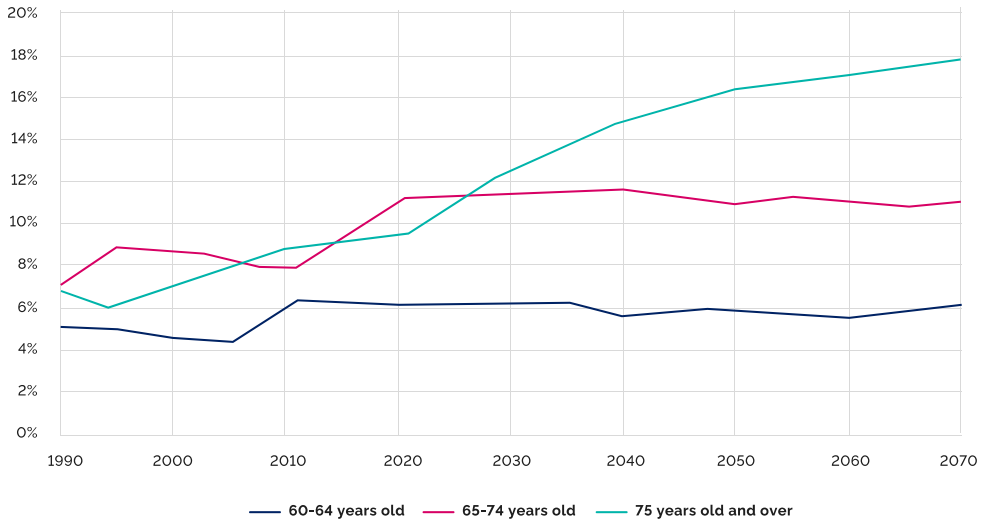


Figure 17 – Field: France excluding Mayotte until 2013, all of France from 2014 onwards.
Source: INSEE, population estimates up to 2021 and population projections 2021-2070 from 2022 (central scenario)

Finding 3. Environmental and/or lifestyle factors are contributing to the prevalence of chronic diseases in Europe and France.

Demographic ageing is not the only factor in the increase in chronic diseases. The physical, biological and psychological environment, lifestyles factors (sedentary lifestyle, poor diet, addictive behaviours) and varying levels of access to care all play a role in their spread. Only 71% of men and 53% of women reach the physical activity targets set by the WHO (2014-2016), while the consumption of tobacco, alcohol and other drugs in France is among the highest in Europe.

Air, water and soil pollution, as well as exposure to endocrine disruptors, increase the prevalence of cardiovascular and respiratory diseases, skin diseases and cancers. Noise pollution is also responsible for heart problems and strokes. The European Environment Agency estimated in 2018 that 1.5 million European adults suffer from hypertension due to noise.[72]

Health authorities are increasingly talking about "cocktail effects", where a combination of several toxic molecules contributes to the deterioration of people's health (European Parliament report, April 2019). These effects are not yet well known: according to traditional studies, exposure to fine particles kills about 40,000 people per year in France,[73] but a new methodology puts the figure at 100,000 deaths.[74]

Finally, the concept of the "exposome" makes it possible to account for all the environmental exposures encountered by an individual in space and time in order to better understand the appearance of chronic (and non-chronic) diseases.

[72] Unequal Exposure and Unequal Impacts: Social Vulnerability to Air Pollution, Noise and Extreme Temperatures in Europe, *EEA Report n°22/2018*

[73] *Data from Santé publique France*

[74] *Karn Vohra et al., "Global Mortality from Outdoor Fine Particle Pollution Generated by Fossil Fuel Combustion: Results from GEOS-Chem"*, in Environmental Research, *vol. 195, April 2021*

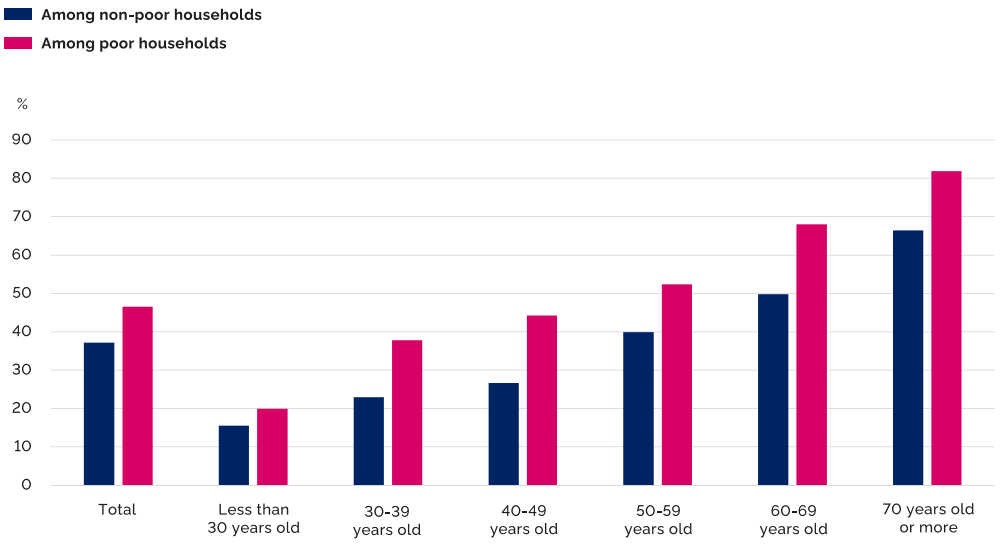
Finding 4. The socio-economic level of individuals is correlated with their risk of developing chronic diseases.

Exposure to the risk factors mentioned above varies according to people's socio-economic level. In 2016, the French Conseil économique, social et environnemental (Economic, Social and Environmental Council, CESE) expressed concern about the link between unemployment and the development of certain chronic diseases, particularly cardiovascular diseases. Certain individual risk behaviours are more common in disadvantaged populations.

In France, inequalities in income, life expectancy and health between social classes are still deeply rooted (see trend 5, "Increase in precarity"). In 2019, a male manager could expect to live seven years longer than a male manual worker and three years longer than a male farmer.

These inequalities are found at all ages, as shown in the graph below, produced by INSEE in 2018. 20% of under-30s living in a poor household reported having a chronic disease or health problem, compared with 15% of under-30s living in a non-poor household.

Proportion of people reporting a chronic disease or health problem by age and household financial circumstances in 2018



Interpretation: 20% of people under 30 living in a poor household reported having a chronic disease or health problem in 2018.

Figure 18 – Source: État de santé de la population (December 2020), INSEE, https://www.insee.fr/fr/statistiques/4797612?sommaire=4928952 (graph available at http://www.senat.fr/rap/r21-594/r21-594_mono.html)

This situation is exacerbated by inequalities in access to care. These inequalities are manifested both in the unequal territorial distribution of healthcare provision and in the higher out-of-pocket expenses and premiums for certain sectors and/or categories of the population, such as the elderly. This situation partly explains the variations in prevalence of chronic diseases at the territorial level. Some of the most disadvantaged territories and/or those with insufficient health care provision have a much higher rate of chronic diseases.

The Haut Conseil pour l'avenir de l'Assurance Maladie (High Council for the Future of Health Insurance) has highlighted the existence of geographical disparities in the numbers of people in receipt of the ALD allowance which do not correspond with epidemiological and mortality data. This discrepancy suggests that behavioural or economic factors, and in particular the extent of local health care provision, have an impact on the decision to admit people to this scheme.[75] The French overseas territories suffer from a very high prevalence of obesity and diabetes, notably because the populations have less access to high quality food and care compared with the population of Metropolitan France.

[75] Rifts and Transitions: Reconciling France, *CESE opinion, rapporteurs: Michel Badré and Dominique Gillier, 12 March 2019*

Finding 5. Medical progress has made it possible to treat certain conditions, but it has also made some diseases more chronic.

The example of HIV illustrates this phenomenon well. In 1996, a 20-year-old HIV-positive person could expect to live to 51. In 2008, the same person diagnosed with HIV could expect to live to 66. In 13 years, the life expectancy of people living with HIV increased by 15 years and is now approaching the averages for the general population. While these figures mask different realities at the individual level, they nevertheless reveal the effects of medical progress on the life expectancy of people with chronic diseases. Mortality is decreasing (between 1980 and 2012, it decreased by 1% per year for women with cancer), but the number of people undergoing treatment or being hospitalised is stagnating or even increasing.

Finding 6. In France, there are still major inequalities in the pathways taken by people with chronic diseases.

In an opinion published in 2019, the CESE highlighted that socio-economic inequalities contribute to the risk of prevalence of chronic diseases and are in turn reinforced by them. In the most disadvantaged municipalities, diabetes-related complications are far more numerous, due to the lack of availability of adequate care. This can lead to increasing disability for people, thus preventing them from accessing employment and increasing their precarity. In addition, despite the ALD allowance, out-of-pocket expenses are still unaffordable for some sick individuals in situations of precarity. On average, these amount to €820 (compared with €430 for an individual not in receipt of the ALD allowance), and can rise to €2,900 per year per person in the most serious cases (CESE, 2019).

Similarly, age has a negative impact on out-of-pocket expenses because of the increase in the number of treatments and the higher premiums charged for complementary health insurance, even though the tendency is for illnesses to worsen and for people to develop several pathologies with age. The average level of annual out-of-pocket expenses is around €700 for 61-65 year olds and over €1,000 for the over-80s.[76] Consequently, on average, policyholders aged 60 and over have less cover than those aged 25 to 59.[77]

Finally, the harmful consequences of chronic diseases are greater for women than for men. This is in addition to the other inequalities suffered by women, who are over-represented in the population experiencing precarity, and therefore more exposed to the risk factors mentioned above. Once ill, women are twice as likely as men to lose their jobs, or they experience a greater loss of income.

Finding 7. Because chronic diseases can produce situations of dependence, they also have repercussions on friends and family.

Because chronic diseases become established over a long period of time and profoundly transform the daily lives of patients, even making them dependent, they also have a disruptive effect on the friends and family of sick individuals. Age is one of the main factors favouring the onset of a chronic disease. Whereas, in the past, the majority of degenerative diseases associated with old age (Alzheimer's, Parkinson's, etc.) occurred towards the time of an individual's death, the increase in life expectancy has made these diseases into long-term conditions.[78] Friends and relatives must therefore reconcile their provision of support with the need to preserve their own personal life. Approximately 20% of French adults say they provide assistance to an elderly dependent person.[79] The measures implemented to support these carers, although they have recently been updated (thanks to a law adopted by Parliament in 2019), still have many gaps, with the result that they do not effectively counter the risks of isolation, despair or exhaustion. Less than 20% of carers feel that they are sufficiently supported and valued by the public authorities.[80]

[76] *https://drees.solidarites-sante.gouv.fr/sites/default/files/2021-02/ER_1171_BAT%20BIS.pdf*

[77] La Complémentaire santé: acteurs, bénéficiaires, garanties – édition 2016, *DREES: https://drees.solidarites-sante.gouv.fr/publications-documents-de-reference/panoramas-de-la-drees/la-complementaire-sante-acteurs*

[78] L'État de la santé de la population en France – 2017 report, *DREES / Santé Publique France*

[79] Baromètre d'opinion de la DREES, *données 2020: https://drees.solidarites-sante.gouv.fr/sources-outils-et-enquetes/le-barometre-dopinion-de-la-drees*

[80] Ibid., *https://drees.solidarites-sante.gouv.fr/publications-documents-de-reference/rapports/letat-de-sante-de-la-population-en-france-rapport-2017*

What are the risks for people and their property by 2035?

Risk 9. Growth in the prevalence of chronic diseases in the general population

Trends in pollution and poor lifestyle habits (especially sedentary lifestyles and poor diet) may contribute to an increase in the number of people affected by one or more chronic diseases, regardless of age or standard of living.

According to a 2019 study by Leem – the organisation representing French pharmaceutical companies – without major political changes, 15 million people could be eligible for the ALD allowance in 2030, which is an increase of 50% compared to the current situation. The ALD allowance would then represent 80% of social security expenses, a prospect that would require a change in the model. These individuals will then have financial, material and therapeutic needs, but also needs for adaptations or reorganisation of their working hours, adaptations to their living space, etc.

Risk 10. Increasing incidence of multimorbidity in the elderly

Demographic ageing is a major trend, and age is strongly correlated with the accumulation of chronic diseases. According to the Santé 2030 study published by Leem in 2019, if current trends continue, by 2030 older people may on average suffer from 4 to 6 diseases at the same time. INSEE estimates that 2.5 million people suffered from a loss of autonomy in 2015, and forecasts that this figure will increase to 3.4 million in 2035 and 4 million in 2050 (central scenario). Some of these people may struggle to meet the costs of care generated by their multiple illnesses.

Risk 11. Increasing precarity of people with chronic diseases

The rising cost of care and overall management of chronic diseases is expected to place an increasing burden on populations that are less well-off and more exposed to precarity. People in this situation could see their socio-economic situation deteriorate and their life expectancy decrease. These effects could be felt across entire territories, while being exacerbated by problems of access to care and health literacy.

Risk 12. Increasing material and psychological difficulties for friends and family acting as carers

If more and more people suffer from chronic diseases, the proportion of the population called upon to help them is also likely to increase. This could have large-scale repercussions on people's standard of living, the state of health of family carers, and the organisation of work.

What actions can insurers take?

The following actions can help in becoming better prepared for these risks:

Innovation

- **expanding mutualisation** to support the people in society who are weakest and most exposed to precarity;
- **financing prevention measures,** such as regular health check-ups from an early age;

Investment

- **improving coordination between actors and with the state** in order to organise exchanges and collective initiatives to improve knowledge of risks and protection offerings.

Trend 4. Increase in mental health problems

What are we talking about?

A mental illness is a disorder of a person's thinking, mood or behaviour. These disorders can lead to profound disruptions in daily life and cause significant distress to the affected individual. In severe cases, mental illnesses can lead to suicide.

The WHO [81] lists five main categories of mental illnesses: schizophrenia, bipolar disorders, depression, addictions and attention disorders such as obsessive-compulsive disorder (OCD). But there are other mental illnesses, such as post-traumatic stress disorder (PTSD), anxiety disorders (phobia, generalised or social anxiety, panic disorder and agoraphobia), borderline personality disorder (BPD), [82] attention deficit disorder with or without hyperactivity (ADHD), psychotic disorders and, in the context of work, burn-out[83] and bore-out.[84]

The WHO states that "mental health is a state of mental well-being that enables people to cope with the stresses of life, realize their abilities, learn well and work well, and contribute to their community."[85] The mental health of individuals is therefore a fundamental component of a balanced and stable society.

What are the findings?

Finding 1. The development of mental health problems is already a major public health issue worldwide and particularly in France.

In recent years, the number of people affected by mental disorders has been increasing (one in four Europeans were affected, according to the WHO in 2018). In France, the situation is just as worrying. It is estimated that, in 2021, 13 million people were affected by a mental illness, and the number of French people affected continues to grow. Between 2010 and 2020, 300,000 more people were subject to regular monitoring. The latest survey by Santé publique France shows that 23% of French people showed signs of anxiety in September 2021, 10% more than in 2019. Young people are particularly affected: 75% of people under 30 years of age say they have already suffered from a psychological disorder.

Finding 2. The cost of mental illnesses on the French health system is increasing and could continue to grow.

The economic and social cost of mental diseases or disorders is estimated at €109 billion per year in France. Already by 2021 mental illnesses or disorders became the leading item of expenditure by the general health insurance scheme, ranked by disease, with a total cost of €23.4 billion (including expenditure on psychotropic drugs), ahead of cancer.

Finding 3. Environmental, health and geopolitical crises will increasingly have a harmful impact on the psychological health of individuals.

In recent years, the phenomenon of eco-anxiety resulting from environmental degradation has been better defined and identified. It affects a growing proportion of the world's youth. Nearly six out of ten young people (59%) say they are extremely or very worried about climate change, and feel sad, anxious, angry, helpless and/or guilty.

More broadly, the risk of seeing crises and conflicts proliferate in the decades to come could exacerbate already stressful situations and contribute to individuals' development of mental illnesses. The Covid-19 crisis provides a good illustration of the consequences that this type of crisis can have on people. This is reflected in the increase in the number of consultations with psychologists in France: up 27% between October 2020 and March 2021. Crises of this kind are likely to increase in the future.

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[81] The system of psychiatric classification used in France is based on two international classifications – the ICD and the DSM – which are similar in the case of mental disorders. The International Classification of Diseases (or ICD) is produced by the WHO. The Diagnostic and Statistical Manual of Mental Disorders (DSM) is produced by the American Psychiatric Association (APA) – latest version published in May 2013.

[82] Characterised by an extreme or exaggerated fear of losing one's connections with others, easily feeling rejected or abandoned by others, and a tendency to create conflicts in one's social relationships.

[83] Burn-out syndrome is characterised as a state of physical, emotional and mental exhaustion resulting from exposure to emotionally demanding work situations. According to the WHO, it includes three main symptoms: a feeling of lack of energy or exhaustion, withdrawal from work or feelings of work-related negativity or cynicism, and a loss of professional effectiveness.

[84] Bore-out is the exact opposite of burn-out: it is a state of total boredom due to underwork. However, its effects are similar to those of burn-out (stress, psychological disorders, etc.).

[85] https://www.who.int/news-room/fact-sheets/detail/mental-health-strengthening-our-response

Finding 4. Cases of addictions and risk behaviours, which are sources of specific pathologies, are increasing.

The trends described above may also contribute to an increase in addictions. These addictions are responsible for specific pathologies, as well as exacerbating other mental health problems. For example, 80% of people with an alcohol dependency are also depressed, while 15% to 27% of suicides are connected to alcohol dependency.[86] It should be noted that, within the OECD, France is already one of the countries most affected by high rates of drug addiction.

Finding 5. The increasing use – and abuse – of social networks and digital technologies is contributing to the exacerbation of mental disorders, especially among adolescents.

In the UK, 90% of people aged 14-24 have an account on one or more social networks (Facebook, Instagram, Twitter, YouTube, etc.). Yet over the past 25 years, rates of insomnia, anxiety and depression in the same age group have increased by 70%. The consequences of collective digital habits seem to be particularly harmful to the mental balance of the youngest.

Finding 6. Situations of isolation and the increase in precarity are contributing to the emergence and development of mental disorders, with very unequal exposure depending on the territory.

In France, before the Covid-19 health crisis, 300,000 elderly people were considered to be in a situation of "social death" by the Abbé Pierre Foundation, as they hardly ever or very rarely met other people. The health crisis intensified this situation. In June 2020, an increase in the isolation of the elderly was noted. And for 41% of the elderly, lockdowns have had harmful effects on their mental health. 32% of French people aged 60 and over – 5.7 million people – felt lonely every day or often. These phenomena could increase in the years to come, particularly because of the marked demographic ageing that France is experiencing.

At the same time, there is a strong causal relationship between economic and social precarity and mental disorders. Indeed, situations of precarity contribute to the development of stress, anxiety and depressive disorders, make people more psychologically fragile and subject them to possible psychological or physical violence. Conversely, psychiatric disorders, and especially psychoses, can contribute to people's precarity by limiting their social and relational capacities.

In addition, people in situations of precarity have greater difficulties in accessing care and regular follow-up.[87] Psychological and psychiatric disorders are over-represented among the homeless population compared to the general population, with a prevalence up to ten times higher. This precarity could worsen in the coming years, due to inflation and economic and employment instability. In this context, territories will continue to be unequally exposed, depending on their unemployment rate or the influx of refugees that they may experience.

[86] *https://www.ipubli.inserm.fr/bitstream/handle/10608/131/expcol_2005_suicide.pdf*

[87] *https://www.has-sante.fr/jcms/p_3289276/fr/grande-precarite-et-troubles-psychiques-note-de-cadrage*

Finding 7. Systems for the prevention and care of mental illnesses are still insufficient.

In France, the 2021 Assises de la santé mentale et de la psychiatrie (Conference on Mental Health and Psychiatry) gave rise to the allocation of €1.9 billion over five years for mental health, and the announcement that initial psychological consultations would be covered for everyone by the public health insurance system from 2022. These measures are part of a more general increased awareness of mental health issues among the general public and policies to prevent the occurrence and aggravation of these disorders.

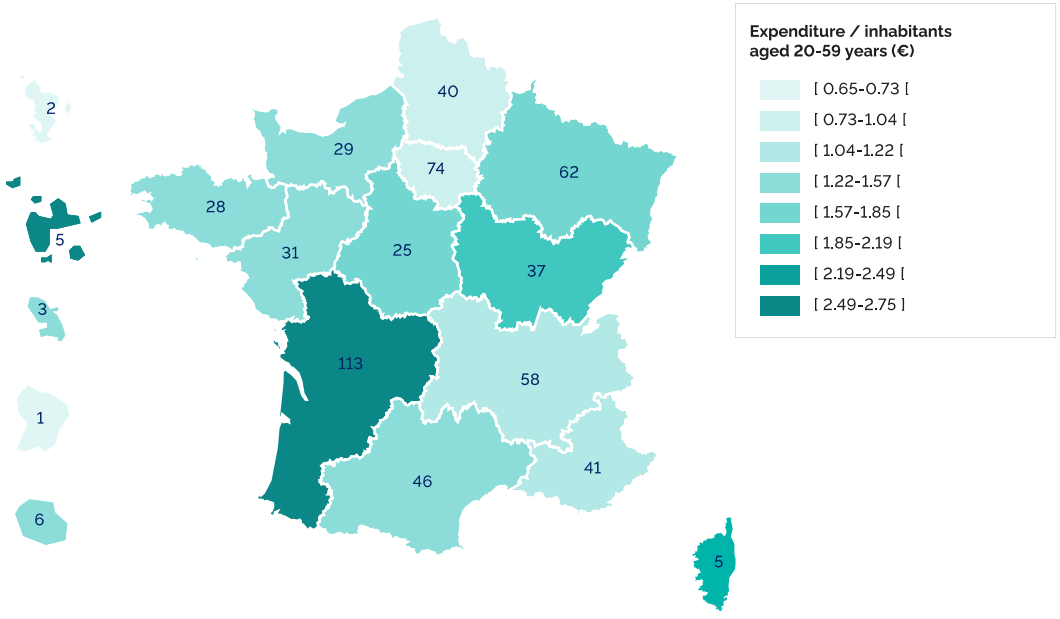
Nevertheless, on the occasion of World Mental Health Day in October 2021, the WHO warned of the inadequacy of measures taken in this area at the international level. And according to a study conducted in 2021 by the Fondation FondaMental, more than half of the French people consulted were not aware of the specialised structures that were available to help them deal with mental health problems. Moreover, two thirds of them considered that the health services available were insufficient.

Finding 8. The development of scientific knowledge on certain pathologies and the role of associations in the prevention and care of people may help to reduce the risk.

Neuroscientific knowledge is developing at the international level, allowing a better understanding of certain pathologies. For example, the number of people diagnosed with autism has increased over the past 30 years, partly due to the improved detection of this condition.

At the same time, several associations are playing a major role in the fight against the increase and aggravation of mental illnesses. Established at either a national or local level, they provide citizens with tools for obtaining information and help on these issues. They also work together to inform public authorities of the need for human and financial resources, thanks to their experience in the field. These actors are crucial for addressing these risks. The map below shows the prevalence of mutual aid groups, associations run by and for mental health users, by territory, in 2020.

Number of mutual aid groups across France



In 2020, there were 605 mutual aid groups throughout the country – 70 more than were recorded by the CNSA. All departments have at least one mutual aid group.

Figure 19 – Source: "Bilan d'activité des groupes d'entraide mutuelle", December 2021, Caisse nationale de solidarité pour l'autonomie (CNSA): https://www.cnsa.fr/documentation/bilan_gem_2019-2020.pdf

Several countries are developing new, more collaborative and integrated approaches to addressing mental health issues. For example, in the Netherlands a new role of "mental health professional in general practice" has been created. Increasingly, the importance of training general practitioners in mental health issues is becoming apparent, as is the importance of building bridges between the various structures (associations, hospitals, schools and universities, etc.) that are able to care for individuals, in order to offer continuity and a wide range of care provision.

What are the risks for people and their property by 2035?

Risk 13. Increase in the prevalence of anxiety and depression in the French population

In view of the accelerating factors mentioned above, depression and anxiety disorders could be the most prevalent mental health conditions by 2035. Worldwide, anxiety and depression have increased by 25% due to the Covid-19 pandemic. It should be noted that states of crisis increase social inequalities and thus the risk of prevalence of mental illnesses.

Risk 14. Growth in the number of isolated people at risk of mental illness

By 2035, more and more people will be isolated and at risk of developing one or more mental disorders, with very different situations depending on the territory. Elderly people, people who work from home, separated families, people in situations of precarity and those in rural areas with difficulties in accessing social services: in all these cases the correlations with mental illnesses are proven.

Without political action, particularly to combat isolation, the proportion of the population affected by mental illness will continue to grow. Some of them may be affected by severe psychiatric disorders by 2035, as is already the case for homeless people.

Risk 15. Increase in mental health problems among young people

As a result of a combination of factors (digital culture and high media use, precarity, isolation, loneliness, anxiety and feelings of meaninglessness), mental illnesses among young people could continue to increase in the next ten years. Failure to address this suffering among young people would only exacerbate the occurrence of this risk.

Risk 16. Increase in addictions in the general population

People in situations of precarity, facing various and sometimes repeated crises (unemployment, illness, old age), are more vulnerable and more likely to develop an addiction (alcohol, psychoactive substances, drugs). By 2035, if the prevalence of mental health problems increases, the number of people suffering from addiction is also likely to increase, with possible repercussions on the management of the consequences, including in terms of public safety or interpersonal violence.

What actions can insurers take?

The following actions can help in becoming better prepared for these risks:

Communication, prevention

- **promoting prevention measures**, particularly by raising awareness of the risks among the population and with public authorities, in order to give them greater visibility;

Innovation

- **diversifying coverage mechanisms**, for example, by proposing new supplementary health insurance schemes, co-insurance schemes with mutual insurance companies or supplements to the existing government scheme to cope with the increasing number of people affected;
- **expanding group health contracts** and offering support to people in their work to overcome the lack of health services in certain areas;
- **innovating in terms of services**, by developing offerings of help, listening, consultation, and even alternative solutions to mainstream medicine (meditation, etc.), including for the most isolated;

Investment

- **investing in research** to increase knowledge of the various diseases and better measure the impact on individuals.

A question for... Agathe Sanson (Director of Stakeholder Dialogue, Communication and Sponsorship) and Isabelle Millet-Caurier (General Delegate for the CNP Assurances Foundation)

What tools are available for insurers faced with crises and disruptions? How can we address the precarity that is found especially among the youngest members of society?

"CNP Assurances aims to be the most useful insurer for each of its stakeholders. It is committed to contributing to an inclusive and sustainable society where everyone can find their place. To fulfil its mission, CNP Assurances has set itself objectives, the progress of which will be communicated to its stakeholders.

In this sense, the actions carried out by the CNP Assurances Foundation extend the central work of CNP Assurances in providing protection, and give concrete expression to its mission. They foster the humanism and spirit of openness that drive its employees: openness to others, to vulnerable people, to innovative partnerships and useful solutions.

As the main sponsor for the reduction of social inequalities in health in France, the CNP Assurances Foundation is working to promote equal opportunities in health.

For example, the Foundation supports the "AGORAé, les épiceries solidaires" project,[88] dedicated to the fight against student poverty, the prevention of difficulties and the promotion of health among young people.

The Foundation supports projects initiated by collaborators who are personally involved in associations that contribute to the promotion of health and well-being through educational means or the creation of social links.

In the context of the continuing pandemic and the increased difficulties faced by people in situations of precarity, especially young people, many employees of the CNP Assurances group have participated in the work of three associations supported by the Foundation.[89]

Each year, the projects supported by the Foundation and its partners demonstrate that, working together, we can break new ground and invent solutions to reduce health vulnerabilities and leave no one behind."

[88] *Key figures 2021 – Support: €80K + an exceptional donation of €50K – 24,932 students benefiting from AGORAé services and products – 144 student carers benefiting from the "One bus, one campus" sea and mountain trips – 15,000 students benefiting from the "Mental Health" programme*

[89] *Action contre la faim, Co'p1 Solidarités Étudiantes and Actionfroid*

Trend 5. Increase in precarity

What are we talking about?

Precarity refers to situations of temporary or lasting instability in people's lives. According to INSEE, people in a situation of financial precarity are those who live in a household receiving state aid and/or whose resources are below the poverty line (60% of the national median income).[90]

But precarity is not an exclusively economic phenomenon. The CESE defines it as: "the absence of one or more of the forms of security, especially that of employment, that enable individuals and families to fulfil their professional, family and social obligations and to enjoy their fundamental rights. The resulting insecurity may be more or less extensive and have more or less serious and definitive consequences".[91]

While the indicators generally used relate to employment, socio-economic conditions or family status, precarity entails an increased risk of experiencing difficulties in accessing certain essential resources and services: decent and affordable housing, healthy food, social and health services, clothing, bank accounts and sufficient savings (for debts or unforeseen expenses), access to and mastery of digital tools, social relations, etc.

The increasing precarity of individuals is a multi-dimensional phenomenon that has social, economic, material and financial components. It is not so much manifested in the presence of a particular difficulty, but rather in the combination of multiple difficulties. Due to this complexity, it is worth devoting specific analysis to it, even though precarity is very often a factor or a consequence of a certain number of other emerging risks studied elsewhere.

What are the findings?

Finding 1. A slow but steady rise in precarity in France.

After a historic low point at the beginning of the century, the number of people in a situation of social, material and/or economic insecurity has continued to grow in France.

In 2019, 9.2 million people were living below the poverty line (around €1,100 per month for a single person), of whom 2.3 million were in extreme poverty (around €735).[92] At the same time, the level of pre-committed expenditure has tended to increase, putting more pressure on household incomes: between 2001 and 2017, it rose from 28% to 32% of the budget of all households in France, and from 31% to 41% of the budget of poor households in France.[93]

In the future, rising property prices and the additional costs associated with ecological and energy transitions are likely to increase this figure further. Similarly, the number of people suffering from homelessness or inadequate housing is constantly increasing. According to the Abbé Pierre Foundation, this affects 4.1 million people in 2022. Of these, 300,000 are homeless, a figure that has doubled since 2012.[94]

This increase can also be seen in the number of people claiming state social assistance (4.3 million people in 2019 according to DREES, an increase of 1.2% on the previous year), although comparisons over the long-term are complicated by changes to schemes and the rate of non-use of services (it is estimated that one third of those eligible for the Revenu de solidarité active – jobseekers' allowance – do not claim it).

While unemployment as defined by the International Labour Organization (ILO) continues to fall after peaking in 2015 at over 10%, falling back to 7.2% by the end of 2021, the unemployment halo (a concept capturing marginal situations outside the definition of unemployment used in France), long-term unemployment and the number of precarious jobs have continually increased, particularly for younger generations (see trend 6, "The increasing disengagement of some young people in France").

[90] *https://www.insee.fr/fr/metadonnees/definition/c1653*

[91] *https://www.lecese.fr/travaux-publies/grande-pauvrete-et-precarite-economique-et-sociale*

[92] *https://www.insee.fr/fr/statistiques/2408345*

[93] *https://www.strategie.gouv.fr/publications/depenses-pre-engagees-pres-dun-tiers-depenses-menages-2017*

[94] *https://www.vie-publique.fr/en-bref/283588-mal-logement-146-millions-de-personnes-fragilisees*

Change over time of the poverty rate in France
(%)

Figure 20 – Source: INSEE raw data, https://www.insee.fr/fr/statistiques/2408282

Finding 2. Deeply rooted inequalities within French society.

Inequalities are less extreme in France than in some other countries, but they are deeply rooted: social immobility is strong and upward mobility is usually low.[95]

Thus, social background still has a very strong influence on the highest level of educational qualification that people achieve. In 2019, only 29% of the children of manual workers had obtained a higher education qualification, compared to 80% of the children of higher intellectual professionals or managers.[96] Similarly, immigrants have more difficulty accessing education and work: 14% are unemployed, almost double the national average.[97] The territory of residence is also a discriminating factor, for its own historical, political and socio-economic reasons.

Gender inequalities are still very substantial. Women are still discriminated against compared to men in terms of access to employment, type of job held and salary.

Digital illiteracy is another vector of inequality and therefore of precarity. In 2019, 15% of the population still did not have access to a fixed internet connection at home, and this figure rises to 40% among people without a higher education qualification.[98] In addition to the problems of access to equipment, inequalities in digital literacy reinforce the risks of precarity, at a time when administrative services are increasingly accessibly only in digital form.

In the absence of strong and coherent public policies to address these situations, which tend to exacerbate one another, these trends are likely to continue and even increase in the years to come.

Finding 3. Unequal distribution of essential services across the country.

The unequal distribution of social and healthcare services and associations across the country is contributing to the worsening of precarity for certain populations. As early as 2018, the Conseil national de l'Ordre des médecins (the French National Medical Council, CNOM) was warning of the increase in inequalities in access to care depending on the territory. Between 2010 and 2018, the poorest departments experienced a more rapid deterioration in their density of medical provision than the others. The CNOM emphasised that these same areas are also vulnerable because they are inhabited by ageing populations and/or are less well equipped with intermediate services.[99]

[95] *Camille Peugny,* Pour une politique de la jeunesse, *Paris, Seuil, 2022*

[96] L'État de l'école 2020, *Ministère de l'Éducation nationale, de la Jeunesse et des sports, Direction de l'évaluation, de la prospective et de la performance (DEPP), p. 9, https://www.education.gouv.fr/media/73141/download*

[97] *"Chômage des immigrés: le poids des inégalités sociales et des discriminations", Observatoire des inégalités, 11 May 2021, https://www.inegalites.fr/Chomage-des-immigres-le-poids-des-inegalites-sociales-et-des-discriminations?id_theme=24*

[98] *https://www.credoc.fr/publications/barometre-du-numerique-2019*

[99] *https://www.conseil-national.medecin.fr/publications/communiques-presse/demographie-medicale-projet-loi-sante-2022*

Finding 4. Increase in the number of crises and associated inflationary pressures.

A number of large-scale phenomena are converging and contributing to global instability, which is associated with an increase in precarity, including in France:

- **the impact of climate change on agricultural and energy systems**: its direct cost, through environmental degradation and destruction linked to extreme events, but also its indirect cost, through the energy and ecological transitions that it makes necessary (use of renewable energy sources, insulation of buildings, etc.);[100]
- **global economic and financial instability**: the weakening of world growth, the growing debts of states and the numerous risks of financial bubbles identified today could, in the next 10 to 15 years, be the cause of one or more financial crises which will have direct effects on populations;
- **steadily rising housing costs**: between 1980 and 2011, the real price of already existing homes doubled and real rents rose by 30%. This trend is continuing. A growing proportion of the population continues to experience difficulties in paying their rent, particularly among young people (20% of 18-24 year olds in 2021, compared with an average of 13% in the general population), [101] while the criteria for personalised housing allowances were tightened in 2019 and 2021 (resulting in 30% of recipients seeing a reduction in the payment received, and 400,000 losing their entitlement entirely).[102] The upward trend in housing prices is the result of several factors that will be difficult to reverse by 2035, in particular the demographic distribution of the population in France and the increase in the overall quality of housing.

This list, which is not exhaustive, nevertheless reveals the interweaving of phenomena that are contributing to the risk of an increase in situations of precarity on a global scale, but also at the national level.

Consumer price index: base 2015, all households, France
April 2022 : 110.19

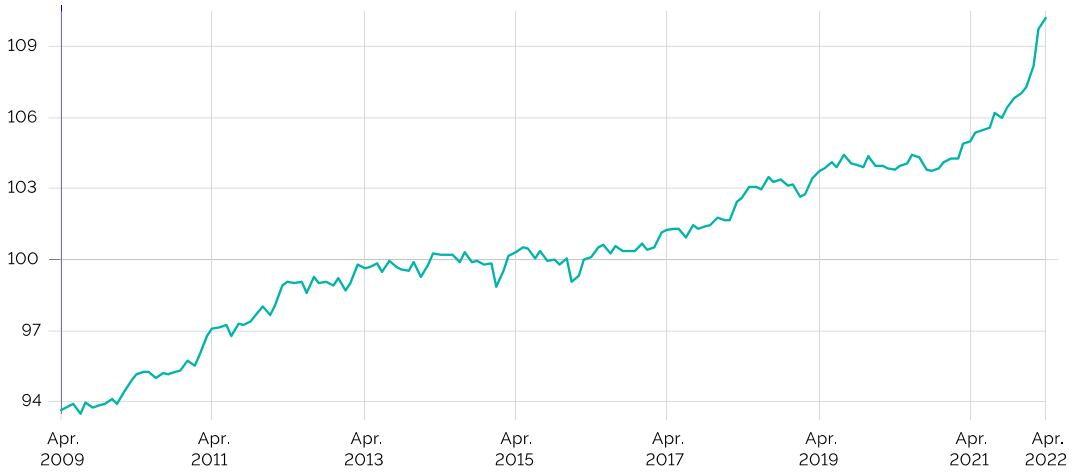


Figure 21 – Source: INSEE raw data, https://www.insee.fr/fr/statistiques/4277780?sommaire=4318291

Finding 5. Isolation is an aggravating factor.

The diversification of family models and the increase in single-parent families, which have doubled in the last 30 years to reach the level of 20% of all families, are contributing to the rise in precarity. However, a threshold seems to have been reached in 2019, with a stabilisation of the proportion of single-parent families.

Social isolation, which has been exacerbated by the Covid-19 health crisis, increases the risk of precarity. In 2019, the Centre de recherche pour l'étude et l'observation des conditions de vie (Research Centre for the Study and Observation of Living Conditions, CRÉDOC) estimated that more than 10% of the population aged over 15 was affected by relational isolation. This figure had risen to 24% by the end of 2021. Although this situation could in principle be cyclical, it may become more permanent as a result of the digital transition and the increase in working from home. Two groups are particularly concerned: the elderly and younger generations. For young people aged 15-30, this trend is part of an ongoing deterioration that was already slightly noticeable before the crisis: 2% of these young people were in a situation of isolation in 2010, 4% in 2014 and 10% in 2019.[103]

[100] *https://www.ipcc.ch/report/ar6/wg2/resources/press/press-release-french/*
[101] *https://www.vulnerabilitesresiliences.org/les-consequences-de-la-covid-sur-les-pratiques-des-acteurs-de-lintervention-sanitaire-et-sociale/*
[102] *https://www.publicsenat.fr/article/parlementaire/la-reforme-des-apl-a-fait-plus-de-perdants-que-de-gagnants-selon-un-rapport-du*
[103] *https://www.fondationdefrance.org/fr/les-solitudes-en-france/7-millions-de-francais-confrontes-a-la-solitude-decouvrez-notre-enquete-annuelle*

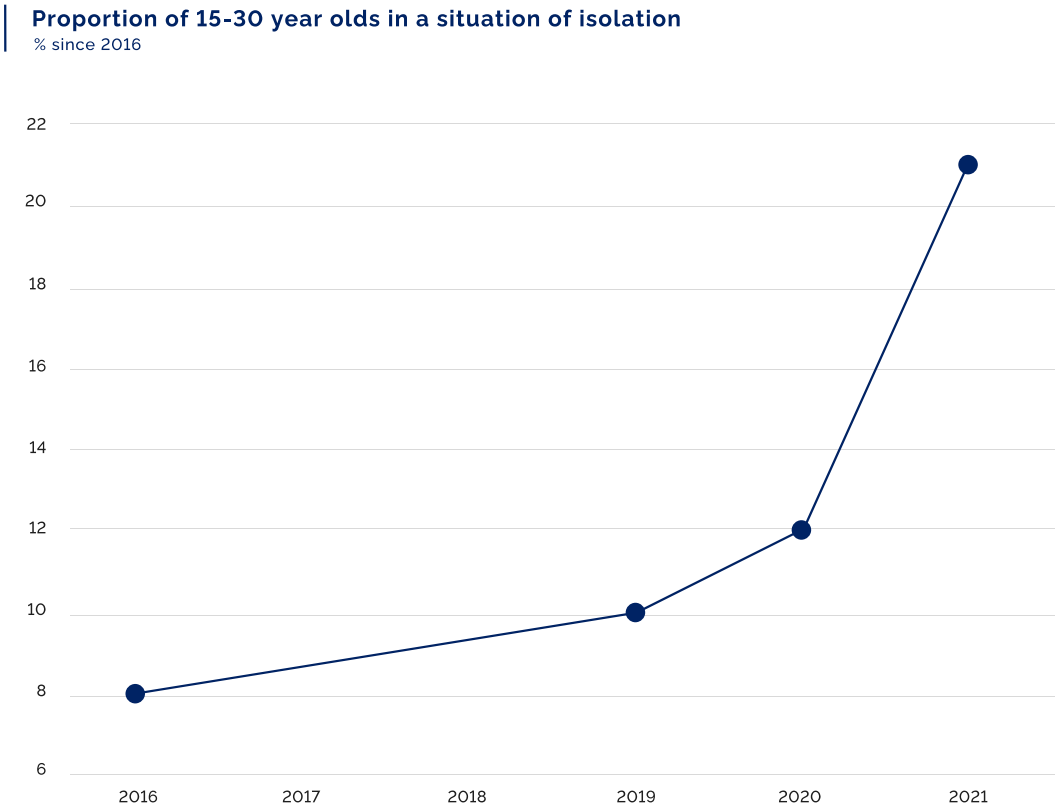


Figure 22 – The rate of isolation of 15-30 year-olds, in percentage terms since 2016. Source: Fondation de France and CRÉDOC, https://www.fondationdefrance.org/fr/les-solitudes-en-france/etude-solitudes-2021-la-fondation-de-france-alerte-sur-l-isolement-des-jeunes

Finding 6. An increase in situations of precarity which is not inexorable and depends on the economic situation and social action.

Since 2016, the unemployment rate (as measured by the ILO definition) has fallen steadily, despite the short-term impact of the Covid-19 health crisis. The current employment trajectory appears favourable. Nevertheless, this curb on precarity is heavily reliant on the national, European and global economic recovery, as well as on the quality of the jobs on offer and the people who will be able to fill them.[104]

- **potential changes in social benefits: g**overnments can counteract the rise in precarity using control mechanisms, by capping food and energy prices or by increasing and/or diversifying social benefits.

- **reorganisation of solidarity:** many associations are involved in the fight against precarity and the commitment of French people to the principle of social solidarity, using new methods, does not seem to be weakening. Finally, according to a KPMG Pulse report, the Social and Solidarity Economy (SSE) sector represents one in eight private sector jobs and will generate 10% of GDP by 2020.[105]

[104] *https://www.futuribles.com/fr/article/en-france-les-inegalites-se-stabilisent-la-pauvret/*

[105] *https://www.kpmg-pulse.fr/economie-sociale-et-solidaire-ess-les-chiffres-a-connaitre-en-2020/#:~:text=En%20France%2C%20the%C3%89Social%20Economy,on%2022%20million%20b%C3%A9n%C3%A9volunteers*

What are the risks for people and their property by 2035?

Risk 17. Growing and persistent precarity among the French population

The deterioration of the global economic and environmental situation could lead to an increase in the proportion of people living in poverty and precarity in France over the next 10-15 years. This development could particularly affect people without higher education qualifications, single-parent families, immigrants, young people under 25 and women. In addition to having incomes close to or below the poverty line, this population could also experience poor housing, difficulties in accessing healthy and sufficient food, increased health problems and severe social isolation.

Risk 18. Increasing number of temporary situations of precarity in the population

By 2035, temporary episodes of economic precarity could affect more people, forcing them into debt and/or deteriorating living conditions for a time, particularly in terms of poor housing and social isolation. Younger people and the elderly may be particularly affected. Due to their low incomes and limited access to social assistance, these populations may have to experience hardships from time to time and/or incur significant debts, which will impose subsequent constraints on their life path.

Risk 19. Increasing accumulation of vulnerable populations in certain territories

Substandard housing, difficulty in accessing public and health services, the closure of shops, geographical isolation, lack of internet connection… all these problems could accumulate in certain territories and pose a threat to the populations living there.

Risk 20. Worsening precarity among people suffering from digital illiteracy

By 2035, the total digitisation of services could greatly increase the precarity of people with little or no access to digital tools or the internet.

What actions can insurers take?

The following actions can help in becoming better prepared for these risks:

Innovation

- **making pension provision more flexible** to adjust or even eliminate the costs of cover for people who may be experiencing a short or long period of precarity, based on a minimum income threshold;
- **developing low-cost micro-insurance offerings**;
- **improving the analysis of existing data** to better target people at risk of experiencing precarity, in particular by developing a territorial approach;

Investment

- **participating in the work of the state** on these subjects in order to provide the expertise of insurers in actuarial matters.

Systemic risk scenario 2. What if, by 2035, Europe experiences a situation of sustained armed conflict on its periphery?

Reminder: This scenario describes a situation with a low likelihood of occurring but a high impact if it were to happen, and therefore deserves attention.

The war unleashed by Russia's invasion of Ukraine in February 2022 has disrupted the situation of peace in Europe and the priority given to economic matters that had previously driven the construction of the European Union. Questions about the extension of NATO, renewed budgetary support for national armies and the implementation of a genuine European defence force have returned to the fore in public and political debate.

Description of the situation

Late 2023. Russia is bogged down in Ukraine. It refuses to accept its defeat but cannot find a way out while saving face, in the light of Zelensky's intransigence, who is still supported by the European Union and the United States. International economic sanctions weigh heavily on the Russian population. The ongoing accession of Finland and Sweden to NATO is seen as a final provocation on the part of the Western bloc. In the hope of rallying other countries to its cause, Russia launches a biological weapons strike that triggers a major flare up of hostilities. NATO enters the war and the conflict spreads to the entire periphery of Europe.

How did we get here?

At the time of writing, the future of the Russia-Ukraine conflict remains uncertain. It seems likely that it could reach a stalemate, as occurred in the case of Russia's war in Afghanistan, as Russia may gain covert support from China and other "non-aligned" countries, while Ukraine continues to be supplied with weapons by Western countries. This conflict could also spread to other territories and even expand if other states intervene more directly. Finally, within 10 to 15 years, the war in Ukraine could end, but other armed conflicts could break out on Europe's borders, particularly because of the exacerbation of tensions over access to strategic resources (water, energy, food, raw materials, etc.).

What are the consequences?

The consequences of such a situation are multiple:

- ***above all, human and humanitarian consequences**, with a growing number of victims and refugee flows at the borders and within the European Union, which Member States may struggle to manage, in the absence of aligned policies and agreements between countries;*
- ***economic consequences**, with lasting tensions regarding the price of raw materials, supply chains and the risk of long-term high inflation, which would push an ever larger part of the European population into precarity; this situation would also exacerbate situations of instability within developing countries, particularly around the Mediterranean, which could, in turn, exacerbate the migratory crisis in Europe;*
- ***political consequences**, with a forced remilitarisation of European states, which could also contribute to increasing tensions and the stagnation of the conflict; a lasting war between states would also bring about profound changes in the international order, which could make it more difficult to coordinate the management of the global challenges facing humanity, such as global warming.*

How can we prepare for it?

Such a situation is partly beyond the control of private organisations and populations, who have little room for manoeuvre to prevent it. Nevertheless, the development of specific monitoring and warning systems to assess the evolution of the current conflict and the possibility of further conflicts of this kind could help to better prepare for the occurrence of this systemic risk.

Similarly, civil society, in conjunction with associations and businesses, including insurers, could develop resilient approaches to such a lasting crisis, including by strengthening systems of social solidarity within the national territory and with refugees.

Trend 6. The increasing disengagement of some young people in France

What are we talking about?

There is no official definition of youth and age limits vary between organisations and studies. However, it is certain that the time of youth has become longer. Whereas, a century ago, entry into the world of work between the ages of 15 and 20 symbolised the end of youth, most studies and organisations now consider the upper limit of this period to be 24, 29 or even 34. As more and more organisations favour the 16-29 age group, we will use this range to delimit the population studied.

As for youth disengagement, this refers, for a proportion of individuals under the age of 30, to the progressive or total reduction in any effort or possibility to participate, in any way whatsoever, in the social, political and economic life of the country. This disengagement is likely to be the result of individuals' precarity, their deliberate or involuntary exclusion and/or their psychological fragility.

What are the findings?

Finding 1. A generational rebalancing is underway.

Younger generations are seeing their demographic weight decrease, both proportionally and in absolute terms. In 1990, the 13.2 million young people aged between 15 and 29 represented 22.6% of the population; in 2022, there are only 11.9 million people in this group, or 17.6% of the population. They now have to find their place in an ageing society, since, at the same time, the proportion of older people (over 65) has risen from 13.9% to 21.1% of the population.[106] In 2030, the over-65s will represent 23.9% of the population according to the central scenario of the Institut national d'études démographiques (National Institute for Demographic Studies, INED).

In certain territories, the imbalance may be accentuated by the over-representation of younger generations in urban centres, particularly from the age of 18, with a proportion of rural young people moving away for their higher education studies (in 2017, 24% of rural 18-year-olds moved away to continue their studies, compared with 12% of urban young people).[107]

Finding 2. Multiple youth populations divided by internal inequalities.

While youth is often understood as a single homogeneous entity, this age group is fractured by numerous internal divisions, which are sometimes poorly understood.

In 2018, less than half of 18-24 year olds were in education. And among those who were studying there were also significant inequalities, between those who had to work (estimated at between a quarter and a half) and those who did not. There are also large inequalities in terms of access to and quality of housing.

There are marked differences in the life paths of young people by social background. The expansion of access to higher education has not put an end to inequalities in this domain, which are still correlated with socio-economic inequalities: a young person whose parents belong to the lowest income decile is three times less likely to access higher education than one from a well-off family (highest decile), a proportion that is similar to that observed in the United States.[108] Furthermore, the expansion of access to higher education has not altered the deep division in France between the public university system and the elite educational path leading from the "classes préparatoires" to the "grandes écoles" (the École normale supérieure, the École Polytechnique, etc.). There are also many inequalities connected to gender, place of residence and the number of children in the family.

For those young people who have already left full-time education with limited formal qualifications, access to and conditions of employment are difficult: only 37% have a job, which is usually temporary. Most of these young people still live with their parents, even when they have a job (78%).[109]

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[106] *"68,1 millions d'habitants en 2070: une population un peu plus nombreuse qu'en 2021, mais plus âgée", INSEE Première, n°1881, 29/11/2021: https://www.insee.fr/fr/statistiques/5893969*

[107] *"Entre ville et campagne, les parcours des enfants qui grandissent en zone rurale", INSEE Première, n°1888, 18/01/2022: https://www.insee.fr/fr/statistiques/6035523*

[108] *Gabrielle Fack, Élise Huillery, "Enseignement supérieur: pour un investissement plus juste et plus efficace", Les notes du conseil d'analyse économique, n°68, December 2021*

[109] *Baromètre APEC 2021 de l'insertion des jeunes diplômé·e·s*

Finding 3. Young people are facing increasing socio-economic difficulties.

Beyond the many internal inequalities between youth populations, the overall indicators show that younger generations are facing increasing difficulties. Since the 2000s, not only has the proportion of 18-29 year olds living below the poverty line (at 50% of the median income) increased, but the difference with the proportion of the general population living below the poverty line has grown.

Change in poverty rate over time (at 50% national median income) over time
(1996-2019)

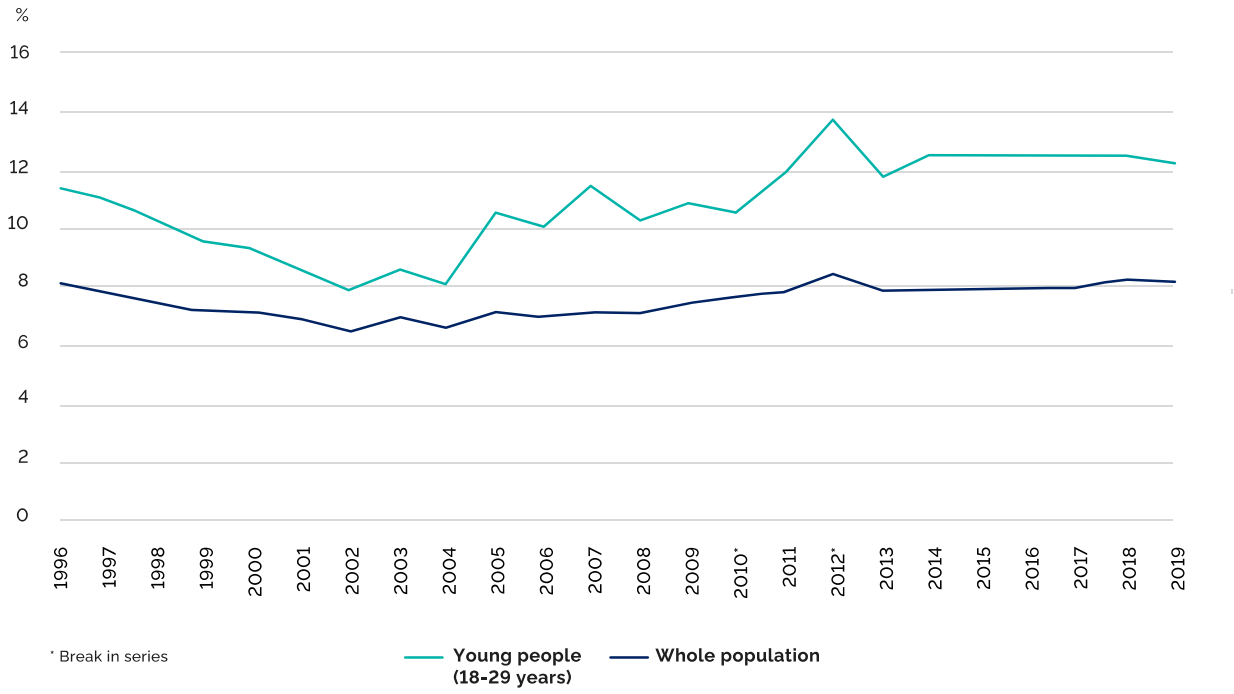


Figure 23 – Field: Metropolitan France, individuals living in a household (in ordinary housing) whose declared income is positive or zero and whose reference person is not a student. Source: https://www.insee.fr/fr/statistiques/3565548

Since 1980, unemployment among 15-24 year olds has varied between 15% and 20%, while the average age of access to a first permanent employment contract has increased from 20 years in 1970 to 27 years in 2019.[110] As a result, the proportion of 15-24 year olds in precarious jobs (fixed-term contracts, temporary work, subsidised contracts and apprenticeships) has exploded, rising from 17% to 52% in 40 years – by comparison, this proportion has risen from 2% to 11% for 25-49 year-olds in the same period.[111] The proportion of people "not in education, employment or training" (NEET) among 18-29 year olds is also at very high levels compared to France's European neighbours: in 2020 this stood at 15%, compared to 13.4% on average in OECD countries.[112]

This makes access to independent housing more difficult. The average age of leaving home has risen from 21 in 2000 to 23 in 2020.[113] Young people are also over-represented among the homeless population: although information is incomplete, according to some studies under-25s represent between 25% and 40% of homeless people.

The Covid-19 health crisis has worsened the job market, making it more difficult for recent graduates to find work, especially those who completed their studies in 2019. The economic situation is also having an effect on the professional development of young people. The proportion of young people in work 12 months after graduation has fallen from 85% for graduates with a master's level qualification in 2018 to 69% for the class of 2019, that is, a 16-point drop in the employment rate – not to mention the quality of the job found (nature of the contract, appropriate match with their qualifications, etc.).

[110] *https://www.lecese.fr/sites/default/files/pdf/Avis/2019/2019_09_jeunes_avenir_travail.pdf*

[111] *Camille Peugny*, op. cit.

[112] *https://data.oecd.org/youthinac/youth-not-in-employment-education-or-training-neet.htm*

[113] *https://www.lemonde.fr/societe/article/2020/06/13/j-ai-repondu-a-des-dizaines-d-annonces-pour-un-logement-sans-succes-pour-les-jeunes-la-difficile-quete-de-l-autonomie_6042726_3224.html*

Finding 4. Younger generations are increasingly psychologically fragile.

As a consequence of this exacerbated precarity, the mental health of young people has deteriorated significantly. Here again, although the health crisis has worsened the situation, it did not create it.[114] In January 2021, about one third of 18-24 year olds reported having a mental health disorder (+11% compared to the general population), two out of five reported a generalised anxiety disorder (+9%), and one in five reported symptoms of moderately severe or severe depressive disorders. [115] The isolation of younger generations – exacerbated for students by the health crisis – is an aggravating factor, which hinders the implementation of effective prevention policies. This observation is shared at the European level and in the case of the American and Chinese populations.

Finding 5. Young people share values with other generations, but have difficulty recognising themselves in traditional political institutions.

European surveys [116] show that, when it comes to values (relationship to work, immigration, the socio-liberal model, the environment), younger generations do not differ radically from most other generations – conversely, the over-60s seem to stand out in this respect. Other studies show that younger generations have stronger views on certain more specific issues (inequality, LGBT rights, racism, etc.), without being completely out of step with their parents' generation.[117]

However, large-scale surveys do not reflect the diversity of young people's aspirations according to their background, level of education, place of residence, etc. Thus, among non-student youth, more conservative and distrustful elements are more numerous, whereas the values of tolerance and ecology are more likely to be held by the most mobilised student fraction.[118]

Although the commitment of the younger generation to social solidarity is still strong, having been reinvigorated by new practices, [119] their political engagement is generally weaker. Rather than a depoliticisation of young people, sociologists – following the example of Olivier Galland and Marx Lazar[120] – prefer to speak of "political disaffiliation": on average, young people identify less with traditional modes of political participation (voting, membership of political parties), and are less likely to translate their values into political engagement and identification.

Finding 6. The plethora of schemes for young people does not constitute a coherent youth policy.

Historically, youth policies have been conceived as a combination of sectoral policies (work, housing, leisure, health, etc.) and not as a coherent whole. Furthermore, the territorial dimension is strong in this case, since different local authorities employ many different tools for this same public. The result is a complex, inefficient and, on some specific points, incoherent system, which exacerbates the rates of non-use of available services. In short, young people continue to represent a major blind spot in public policies.

What are the risks for people and their property by 2035?

Risk 21. Increase in the number of socially, economically and politically excluded and disengaged young people

In the absence of a coherent and ambitious youth policy combining prevention, information and support, the proportion of young people who fall outside the scope of analysis and policy (NEETs, inactive people not seeking employment, under-25s who are not students and not receiving support) could rise sharply. Young people living in rural areas could be particularly affected by this risk. This would lead to a strong feeling of abandonment which would further fuel political disaffiliation and/or an attraction to extremist parties.

Risk 22. Increase in the number of young people affected by long-term precarity

Several indicators suggest that younger generations face greater difficulties of integration at the beginning of their professional careers (inactivity, part-time or intermittent employment, low pay, etc.), and that, as they age, they do not manage to catch up with previous cohorts. The difficulties

[114] *https://www.ipsos.com/fr-fr/les-jeunes-et-les-maladies-mentales*

[115] *https://www.ipsos.com/fr-fr/la-sante-mentale-des-18-24-ans-plus-que-preoccupante*

[116] *European Values Study; European Social Survey*

[117] *Olivier Galland and Marc Lazar,* Une jeunesse plurielle: enquête auprès des 18-24 ans, *Institut Montaigne, February 2022: https://www.institutmontaigne.org/publications/une-jeunesse-plurielle-enquete-aupres-des-18-24-ans*

[118] *Camille Peugny,* op. cit.

[119] La rentrée d'après, *Animafac, 2021: https://www.animafac.net/media/Rentree-dapres-Resultats-de-lenquete.pdf*

[120] *Olivier Galland and Marc Lazar,* op. cit.

currently encountered by younger generations could thus have an impact on their entire socio-professional career, beyond the period of youth.

Risk 23. Worsening of isolation and mental problems among young people (see trend 4, "Increase in mental health problems")

Far from being limited to the young people in situations of greatest precarity, the problems of isolation and mental health have spread to a large proportion of young people, who have lost their sense of purpose and are forced to integrate and establish themselves in a difficult and uncertain context (the socio-economic, geopolitical and environmental situation).

Risk 24. Increasing radicalisation of some young people

The growing gap between the expectations of some young people (environmental concerns, rejection of economic liberalism, openness to the world and even pacifism) and the perception that political action in these areas is inadequate (climate inaction, geopolitical tensions and even conflicts) could contribute to a profound social gulf. Some young people could then either disengage further from any political participation or, on the contrary, carry out increasingly radical protest actions.

What actions can insurers take?

The following actions can help in becoming better prepared for these risks:

Communication, prevention

- **improving prevention within insurance companies themselves** to promote intergenerational understanding and support;

Innovation

- **becoming a trusted third party for young people,** by listening to them and offering them cover adapted to their needs and means;

Investment

- **developing insurers' knowledge of the causes of potential disengagement among young people** by organising meetings between actuaries and specialists in the field.

Trend 7. The increasing precarity of French workers and new insecurities at work

What are we talking about?

INSEE distinguishes, within the employed population, between "employed persons", who work under an employment contract for another entity in exchange for a salary, with a subordinate relationship, and are covered by the general social protection scheme; and "self-employed persons", who are remunerated in a form other than a salary and are covered by an independent social protection scheme. [121] Here, both categories will be considered.

In recent decades, several phenomena have challenged the social consensus established in Europe during the industrial era around salaried employment (reduced protective power from the employment contract, atypical employment contracts, increased flexibility of contracts, etc.). At the same time, we are witnessing a trend towards an increase in the number of self-employed workers and individual entrepreneurs, who are subject to greater economic instability and greater insecurity due to the nature of their status. This raises the question of a return to precarity for some workers in the years to come.

Precarity at work has a direct causal link with health, as the working conditions of precarious workers increase their vulnerability to occupational illnesses and accidents. The diversity and volatility of the contracts of precarious workers (self-employed or temporary employees) make it difficult to monitor their health and their exposure to stress is often greater.

Finally, workers, including those whose contracts do not place them in a situation of precarity (permanent employees), could be exposed to new health risks in the years to come, due to, on the one hand, changes in the organisation of work and the use of new technologies, and on the other hand, the development of new sectors of activity with inadequately managed safety conditions.

This analysis focuses on France.

What are the findings?

Finding 1. The development of precarious salaried employment is a major trend, particularly in the construction, agriculture and personal services sectors. Young people are the most affected.

Precarious employment includes fixed-term contracts, temporary work, youth employment, work placements through the "emploi solidarité" scheme, training contracts or other subsidised work, paid internships in companies, short contracts, seasonal contracts and occasional workers.

The share of precarious employment in the population increased from 5% in 1984 to 13.6% in 2017. This increase is partly the result of the rise of economic neoliberalism, which promotes a reduction in the role of states, increased deregulation, lower taxes for the wealthiest, reducing the powers and possibilities for action of trade unions, etc. In terms of employment policies, a trend towards more flexibility in work contracts is becoming established, allowing companies to hire for short periods without further commitment. In France, open-ended contracts are gradually offering workers less protection, and it is becoming easier for employers to use temporary fixed-term employment contracts. Similarly, working hours are changing, such as the use of flexible short term contracts and increasingly frequent use of atypical working hours (nights, weekends, part-time jobs with variable time slots according to the needs of companies, etc.).

[121] *https://www.insee.fr/fr/metadonnees/definition/c1965*

Change in the rate of precarity* over time (%)
*Fixed-term contracts, temporary contracts and apprenticeships as a proportion of total employment

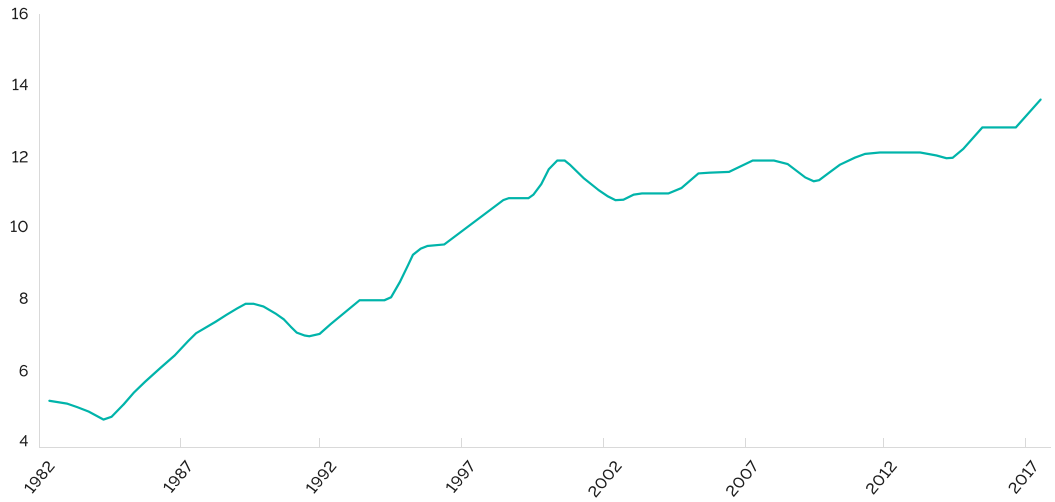
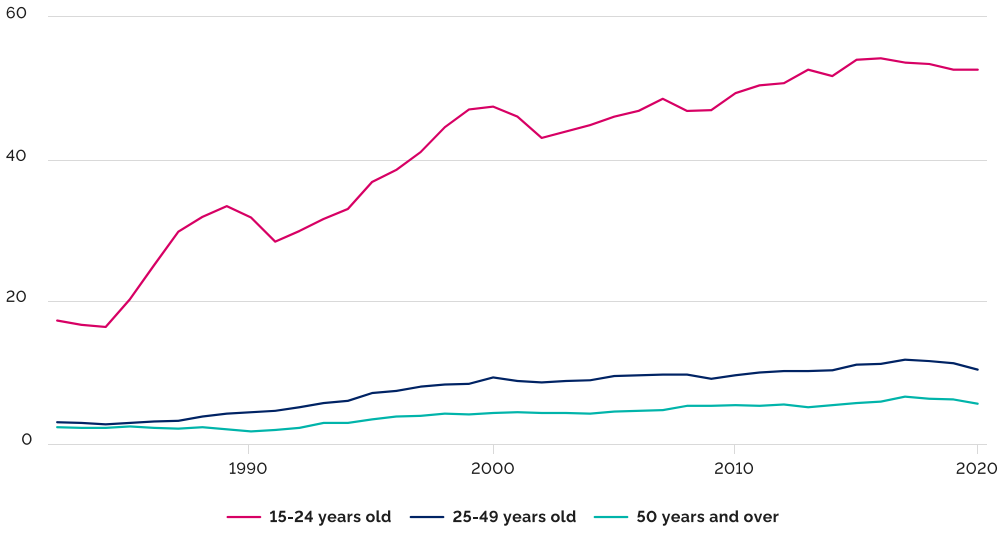


Figure 24 – Source: https://www.observationsociete.fr/travail/statuts/evolution-precarite/ from INSEE data: https://www.insee.fr/fr/statistiques/5360813

The socio-professional categories most concerned by precarious employment are manual workers, particularly agricultural workers (32%) and low-skilled workers (29%), especially in the construction industry, but also retail employees (18%)[122] and employees working in the fields of social action and personal services.[123]

Young employed people are particularly affected by these developments. The average figure of 13.6% of the working population in France in precarious employment masks their situation. According to INSEE, the percentage of young employees in precarious employment rose from 17.3% in 1980 to 52.6% in 2020.[124]

Change in precarious employment over time by age
Rate of precarious employment



Fixed-term contracts, temporary contracts and apprenticeships as a proportion of total employment
Interpretation: In 2020, 52.6% of young people aged 15 to 24 who were working had a precarious contract.

Figure 25 – Source: INSEE. https://www.observationsociete.fr/travail/statuts/evolution-precarite/

[122] *https://www.observationsociete.fr/ages/jeunes/precarite-jeunes-populaires/*
[123] *https://www.capital.fr/votre-carriere/cdd-interim-les-secteurs-qui-ont-le-plus-recours-aux-contrats-precaires-1404035*
[124] *https://www.inegalites.fr/L-evolution-de-la-precarite-de-l-emploi-selon-l-age*

Finding 2. The development of online platforms (so-called "uberisation")[125] has contributed to the strong growth in the number of self-employed workers with the status of "micro-entrepreneurs". Self-employed workers have less social coverage.

Self-employment, seen as a tool in the fight against unemployment, has been supported by European states since the early 2000s. In France, the status of "autoentrepreneur" (sole trader) was introduced in 2009. Although the proportion of self-employed people in the working population is still lower in France (11.4%) than in Greece (29.8%) or Italy (21.7%), INSEE reported a 33% increase in the number of self-employed people in France between 2007 and 2017.[126]

This increase is largely driven by the rise of the "microenterprise" (a company with up to 9 workers). In 2019, two out of three new businesses were created under this status. This growth has been encouraged by the development of digital platforms offering, in particular, home delivery services. Micro-entrepreneurs are particularly numerous in this sector, where they make up 95% of the non-salaried workforce. Similarly, micro-entrepreneurs are in the majority among private hire drivers (57%). [127] This mode of consumption has seen a significant success with users and may continue to be used, with some possible adaptations.

There are large income disparities among the self-employed. The average monthly income of micro-entrepreneurs is €470, but some earn up to €150,000 per year. Not all micro-entrepreneurs are therefore subject to the same economic precarity. The most precarious are those who depend on online platforms that enable them to find a job (the average monthly income of delivery drivers is €330).[128]

Whatever their activity and/or status, self-employed workers do not enjoy the same social rights as salaried employees: the rules, contribution rates and payment of benefits remain differentiated, with less coverage for the non-salaried. Since 2018, however, there has been a slow convergence of schemes, which is the result of a growing demand from representatives of the self-employed, and an adaptation of the French government to this new reality of work.

Finding 3. Precarious workers are much more exposed to the risk of occupational accidents and receive little preventative care.

Precarious workers are often hired in high-risk sectors to carry out the most arduous or dangerous tasks, sometimes with insufficient training and a lack of knowledge of safety policies due to frequent job rotation. In addition, they suffer from fatigue and stress due to the rapid succession of tasks.[129]

However, the way occupational risk prevention is organised in France means that "peripheral" workers (subcontractors from very small companies with less effective safety structures, self-employed workers, precarious workers, etc.) do not benefit from the same level of protection against accidents or occupational illness as their colleagues in large companies. Their status and/or their precarity make it difficult to organise effective occupational risk prevention.[130]

Finding 4. Instances of people working several jobs are increasing, with fluctuations in terms of income and social coverage.

French employed workers are increasingly tending to combine or alternate between two or more working statuses. Thus, in 2020, 29% of micro-entrepreneurs and 9% of "traditional" non-salaried workers were also employed on salaried contracts. The boundaries between the self-employed and employees are becoming blurred, especially as some occupations that were traditionally the domain of the non-salaried are now carried out in a salaried context and vice versa.[131]

The development of "uberisation" thus goes far beyond home deliveries or passenger transport. More and more companies in the "traditional" economy are tending to adopt operating methods inspired by the "gig economy".[132] This development has an impact on people's career paths, which are more fragmented or diversified. It also raises questions about existing labour law, since some self-employed workers are increasingly becoming subject to constraints that were historically limited to salaried employees, without benefiting from the same security in return. In fact, case law is developing around the reclassification as employees of certain self-employed workers who are actually subordinate to the platforms they use.

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[125] *https://www.vie-publique.fr/fiches/270196-quest-ce-que-luberisation*

[126] *http://www.senat.fr/rap/r20-759/r20-7592.html*

[127] Ibid.

[128] Ibid.

[129] *https://www.officiel-prevention.com/dossier/protections-collectives-organisation-ergonomie/psychologie-du-travail/precarite-de-lemploi-et-risques-professionnels*

[130] *See for example:*
https://www.researchgate.net/publication/14244284_Exposure_of_Contractors_to_Chemical_Pollutants_During_the_Maintenance_Shut-Down_of_a_Chemical_Plant
https://www.researchgate.net/publication/360218827_Chauffeurs-livreurs_a_velo_ou_comment_empecher_la_prevention

[131] *https://www.securite-sociale.fr/hcfips*

[132] *This economy is based on task work or piece work. It can thus be seen as a return to the early capitalist model of task work, in opposition to wage work.*

Finding 5. The development of digital technology has led to changes in the organisation of work and changes in the nature of the risks encountered, regardless of status.

The development of digital technology has encouraged the emergence of new organisations of work, as illustrated by the "gig economy" driven by platforms, described above. These transformations do not affect only the self-employed.

It is not inevitable that changes in the use of technology will have a negative impact on workers. They can even improve working conditions. But they can also contribute to the emergence or reinforcement of two categories of psychosocial risks: the *risks of mental overload*, linked to an intensification of work, permanent connection and the development of a culture of urgency; and the *risks of loss of autonomy*, which are facilitated by the strict control of activity through the use of algorithms, for example, and by increased surveillance of workers (geopositioning, connected databases).

In the absence of a corresponding catalogue of occupational illnesses, it is difficult to assess the development of these problems and to identify a trend. However, the diagram below shows their interrelationship with the organisation of work and the need to maintain control of certain determining parameters such as communication between employees and the hierarchy, workload balance, etc.

Key figures for psychosocial risks

Among French workers

45%
report having to rush (always, sometimes)

25%
report having to hide their emotions, pretending to be in a good mood (always, sometimes)

10%
report having to do things at work that they disapprove of

30%
report having experienced hostile behaviour in their work in the last 12 months

25%
report having to call on others in the case of an incident

25%
are afraid of losing their job

Figure 26 – Source of raw data: https://dares.travail-emploi.gouv.fr/publications/les-expositions-aux-risques-professionnels-les-risques-psychosociaux

At the same time, the Covid-19 health crisis has led to an increase in working from home, which many indications suggest will be a continuing trend, in varying proportions depending on the occupation and the company. There are still few comprehensive studies on the subject. Two analyses (2020 and 2021)[133] by the French Agence nationale pour l'amélioration des conditions de travail (National Agency for the Improvement of Working Conditions, Anact) help to identify the advantages and disadvantages of working from home.

While it allows for a better balance between personal and professional life, it also contributes to feelings of being over-connected, working more and being more tired. Overall, these ambivalent results are reflected in a feeling of relative deterioration in working conditions for 37% of the people surveyed by Anact in 2021 (compared with only 17% in 2020). Added to this feeling is a *risk of isolation* and *loss of reference points*.[134]

Thus, digital technology can lead to improvements in working conditions and, paradoxically, to new risks for workers. But it is primarily the organisational choices made by companies that contribute to the development of psychosocial risks, rather than technologies themselves. As Anact observes, "it is therefore important to pay attention to the ways in which these technologies are implemented".[135]

[133] *https://www.anact.fr/teletravail-de-crise-les-resultats-de-notre-consultation-2021?msclkid=b9d3f2a7cf9111ec8e7e5d0f1b1f8c46*

[134] *https://www.anact.fr/le-numerique-est-il-facteur-de-risques-psychosociaux-rps*

[135] Ibid.

Finding 6. Industrial automation is accelerating, leading to changes in production practices, with a change in the risk landscape for workers in some sectors.

The diagram below shows the extent of this phenomenon through the increase in the number of new robotic installations in the industrial sector over time. These are global figures, but the trend is the same in France, although it is less advanced than in other countries such as Germany or South Korea.

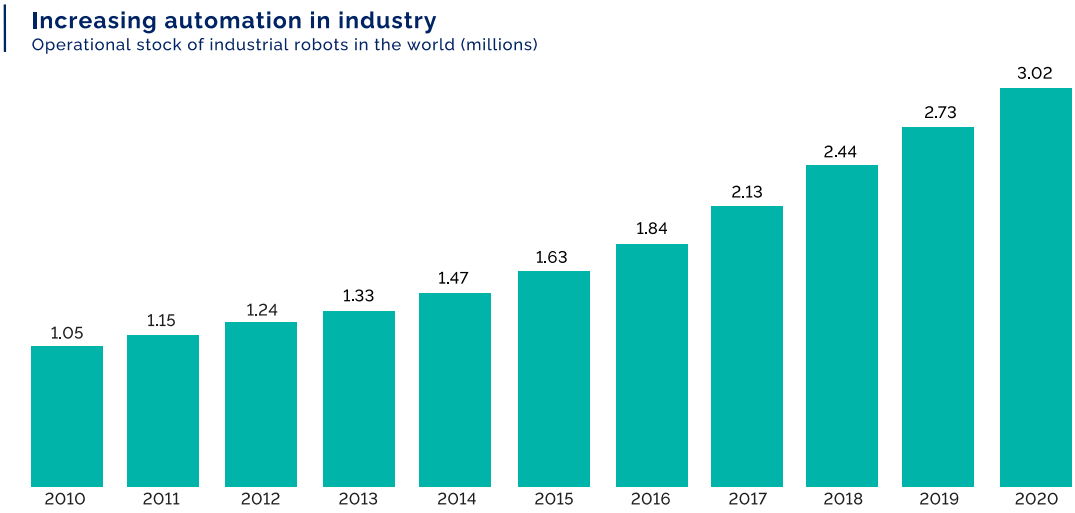

Figure 27 – Source: https://fr.statista.com/infographie/26172/evolution-du-nombre-de-robots-industriels-dans-le-monde/

The increasing use of robots will eliminate certain occupational risks, such as those related to carrying heavy loads or exposure to hazardous materials. However, even in highly automated installations, physical and mechanical risks (shocks, burns, crushing, musculoskeletal disorders, etc.) and the risk of falls will remain very present.[136] The development of "cobotisation", which involves concerted action between humans and robots, will increase the instances of contact. These advances in automation are also likely to generate psychosocial risks such as stress or mental overload.[137] Here again, these risks can be prevented or reduced if companies are careful about how they implement these technologies.

Finding 7. Trends towards reindustrialisation, driven by France's and Europe's desire for strategic autonomy, could contribute to the emergence or re-emergence of associated occupational risks.

The return of some industrial production to France and Europe, along with the development of the circular economy for strategic or ecological reasons, only seem possible through a high degree of automation of production, for both economic and environmental reasons. These technological changes will have a strong influence on the French industrial geography, its organisation, working conditions and the prevention of occupational risks. This logic of reconstruction is therefore a source of concern with regard to health and safety at work. Some risks, which had become more rare as a result of off-shoring of production, could reappear, while the know-how to control them will have to be rebuilt. For example, the recycling of metals is a potentially very polluting activity, and the manufacture of active ingredients for medicines requires very strict safety standards.

There are two reasons for relative optimism.

- Over time, occupational risk prevention has become centred around a principle of intervention at source: it must be integrated from the initial design of installations in order to avoid accidents or exposure to chemical, biological or physical pollutants during manufacture, and subsequently during maintenance or cleaning operations. The reconversion of industrial apparatus should also follow this principle.

- It is reasonable to hope to convince decision-makers who are working to improve the environment of the importance of health and safety at work. Furthermore, this ecological reconstruction will require extensive vocational training programmes for workers who will have to learn new trades or discover new activities: it will be necessary to link safety concerns to professional behaviour, just as the organisation of work will have to take account of workers.

[136] *https://www.inrs.fr/risques/robots-collaboratifs/identification-risques.html*

[137] Ibid.

Finding 8. A better understanding of the environmental causes of disease (the "exposome") could, paradoxically, have a negative impact on preventive approaches and risk coverage.

It is already theoretically possible to measure almost all the exposures (occupational and environmental) to which a human being is exposed from the uterine phase until death: the "exposome". In some cases, it is also possible to measure indicators of exposure or even of effects.

Progress in new technologies will make it possible to refine knowledge of occupational exposure in the years to come. These measurements will be of interest in terms of prevention only if they are considered as a whole, that is, in relation to a cohort of exposed persons. The aim is thus to eliminate the biases introduced by individual susceptibilities, in order, for example, to correlate exposure to a product or a group of products (the "cocktail effect") with an effect on health.

However, there is a risk that short-sighted conclusions will be drawn from these measures. In particular, in the area of compensation for occupational illnesses, some might be tempted to substitute an obligation of proof for the presumption of liability (a worker exposed under certain conditions to a given substance who develops a given disease has an automatic right to financial compensation), or, through recourse to the principle of the exposome, to propose only partial compensation on the grounds that part of the cause of the illness would be attributable to a particular behaviour of the person or to the environment.

As the occupational risk prevention system in France is partly based on an increase in social contributions in the event of the occurrence of work-related illnesses, this would be a strong counter-signal to the work of prevention.

What are the risks for people and their property by 2035?

Risk 25. Increase in the proportion of French workers with precarious career paths and without associated insurance

Trends towards outsourcing, labour market flexibility and cost optimisation may lead companies to make increasing use of so-called "peripheral" workers, who are not employed on salaried contracts or who have fixed-term contracts. These workers will experience more frequent interruptions in employment, with low and variable pay for the most part, and may be forced to take on multiple professional activities, thereby aggravating the risks of mental overload and physical fatigue. At the same time, they will not benefit from the same protection and social security systems as permanent employees. Young people may be particularly affected.

Risk 26. Increasing exclusion of precarious workers from the labour market due to lack of continuous safety training

There is a strong risk that health and safety policies will develop at different speeds depending on the status of workers (notably for permanent and peripheral workers respectively). However, a proactive approach could be adopted to maintain a sufficient level of skills in occupational risk prevention in all working populations. This would ensure that it is not an obstacle to their employability.

Risk 27. Increase in the population affected by psychosocial risks and musculoskeletal disorders due to poor implementation of technology in the organisation of work and production

Technologies are not in themselves a source of risk. Rather, it is the way in which they are implemented that can create new risks for people without proper planning and prevention.

Risk 28. Vulnerability of certain workers in the context of the development of new industrial production methods

The example of waste recycling is highly revealing in this regard. whatever direction is taken in the next few years, waste recycling will become a major sector of activity. This sector exposes people to a wide range of occupational risks (falls, risks in human-machine interactions, noise and vibrations, biological and chemical risks, etc.).

At the same time, the return of some industrial production should lead to the French production system learning to manage risks that had previously off-shored. This learning process will not be immediate and represents a significant challenge.

Finally, in a circular economy approach, it will be essential to develop a risk prevention policy linked to new consumption patterns. For example, the repair of objects will become very important. The corresponding risks (ergonomic, risk of injury, use of chemical products, etc.) have fallen from people's awareness over time, and are therefore now poorly understood.

What actions can insurers take?

The following actions can help in becoming better prepared for these risks:

Communication, prevention

- **developing significant improvements in prevention within work organisations**, for example by drawing on statistics on changes in the instances of certain types of accidents;

Innovation

- **in terms of insurance offerings**, providing cover adapted to particular sectors, workers and new working methods;
- **at the same time, offering specific training** to prepare companies for the introduction of new technologies or new working methods.

Trend 8. Cryptoassets and the weakening of the traditional financial system

What are we talking about?

Digital assets, or cryptocurrencies, are "virtual currencies that rely on a digital protocol for encrypted and decentralised transactions, known as a blockchain".[138] Bitcoin, Ethereum and Cardano are among the best known cryptocurrencies. On a global scale, they are not subject to significant regulation. In France, the PACTE law adopted in April 2019 established a first legal framework for cryptoassets.

According to Article L54-10-1 of the Monetary and Financial Code,[139] digital assets include :

- any digital representation of value that is not issued or guaranteed by a central bank or public authority, is not necessarily attached to a legal tender and does not have the legal status of a currency, but is accepted as a medium of exchange and can be transferred, stored or traded electronically (Bitcoin, Litecoin, Ripple, etc.);
- tokens that are intangible assets, representing, in digital form, rights that can be issued, registered, retained or transferred by means of distributed ledger technology, allowing their owner to be identified, whether directly or indirectly. These tokens may be used by companies to raise funds.

Thanks to their accessibility, digital assets facilitate payments and create opportunities for innovative financial services. However, if they are widely adopted, cryptocurrencies could seriously undermine the traditional monetary system. Moreover, the value of tokens is extremely volatile, as their price is not based on intrinsic value but on investor confidence alone. Thus, the emergence of digital assets could generate significant risks for people and their property, which we will explore here.

What are the findings?

Finding 1. Digital assets have been developed as alternatives to the traditional financial system and their value continues to grow.

Created in the 1980s, digital assets based on cryptography aim to secure and verify transactions in a decentralised manner. Gradually, an increase in trade tensions, uncertain economic policies and mounting pressure on emerging financial markets have weakened the traditional economic system. After the financial crisis of 2008, Bitcoin emerged as an alternative to the traditional monetary system. This cryptocurrency challenges the monetary order based on the principles of unity, sovereignty, territoriality and centralisation.

One of the main innovations of cryptoassets is the disappearance of the need for a trusted third party in financial transactions. They allow direct, peer-to-peer (P2P) exchanges via platforms. This decentralised finance (DeFi) makes it possible to offer all previously existing banking and insurance services while eliminating the historical intermediaries. Such dematerialised offerings can be cheaper and more attractive.

Today, there are more than 10,000 cryptoassets listed worldwide. Bitcoin and Ethereum account for two-thirds of the market capitalisation of cryptocurrencies. The market value of all cryptoassets in circulation exceeded $2 trillion in September 2021, a tenfold increase from early 2020. Global investments in cryptocurrencies by venture capital funds are now four times larger than in 2018.[140]

The market for digital assets is growing rapidly and could continue to do so in the coming years. By 2030, the market size could reach $4.94 trillion, with a growth rate of 12.8% over ten years.[141]

[138] *https://www.amf-france.org/fr/quest-ce-quune-cryptomonnaie*

[139] *https://www.legifrance.gouv.fr/codes/article_lc/LEGIARTI000038509570/*

[140] *https://cryptoast.fr/investissements-fonds-capital-risque-cryptomonaies-2021/*

[141] *https://www.bloomberg.com/press-releases/2021-09-07/cryptocurrency-market-size-to-reach-usd-4-94-billion-by-2030-growing-at-a-cagr-of-12-8-valuates-reports*

Projection of growth in total market value of cryptoassets

Figure 28 – Source: Valuates Reports, 2021, https://reports.valuates.com/market-reports/ALLI-Manu-2G71/cryptocurrency

Finding 2. The characteristics of digital assets entail several risks, including the lack of regulation and their volatility in value.

The meteoric rise of cryptocurrencies has taken place in a largely unregulated space. This lack of regulation encourages criminal use of cryptoassets, including fraud, thefts and misappropriation. Because they are based on decentralised platforms, cryptocurrencies, especially newer ones, can be the target of hacks, which can lead to a significant loss of capital for their holders. The development of quantum computing, and thus of unprecedented decryption powers, may increase this risk in the next decade.

Blockchain Fraud Continues to Vastly Exceed Hacks and Thefts in 2020

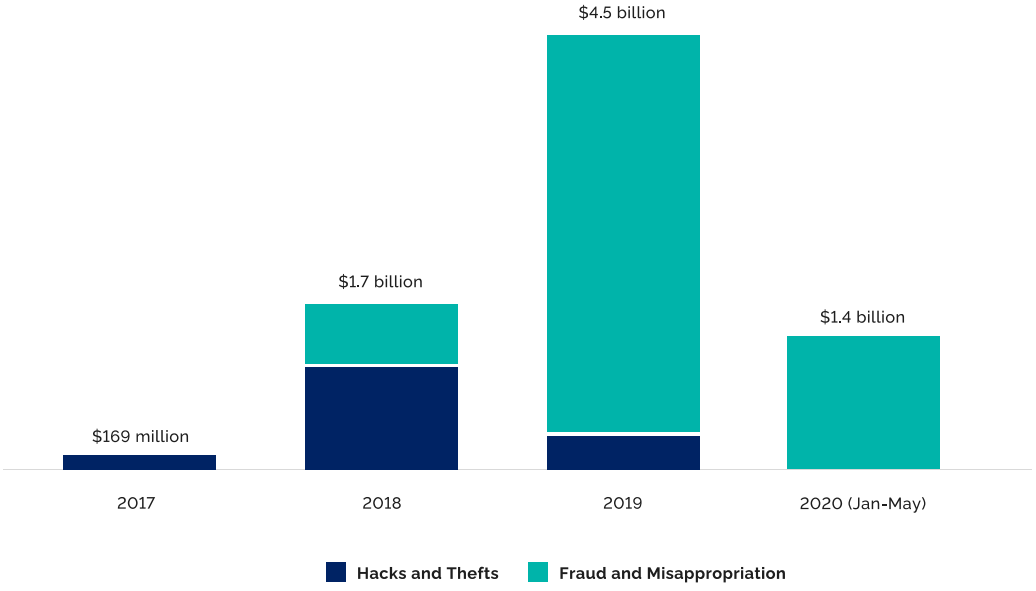

Figure 29 – Source: CipherTrace Cryptocurrency Intelligence, https://ciphertrace.com/spring-2020-cryptocurrency-anti-money-laundering-report/

A closer look at "rug pull" scams: an investor scam technique that involves manipulating the price of cryptocurrencies by abruptly withdrawing all cash or selling large volumes of digital tokens. This practice is made possible, in particular, by the difficulty of tracing the criminals who use it.

Furthermore, to date, cryptoassets have shown a much higher risk of volatility than some more traditional investments, because they are independent of the traditional system and subject to variations in investor confidence. The price of gold, for example, has remained relatively stable between 2017 and 2020 compared to the extreme volatility of Bitcoin. In financial terms, this volatility is a threat to people's savings.

| Bitcoin, gold, and S&P 500 Index performance

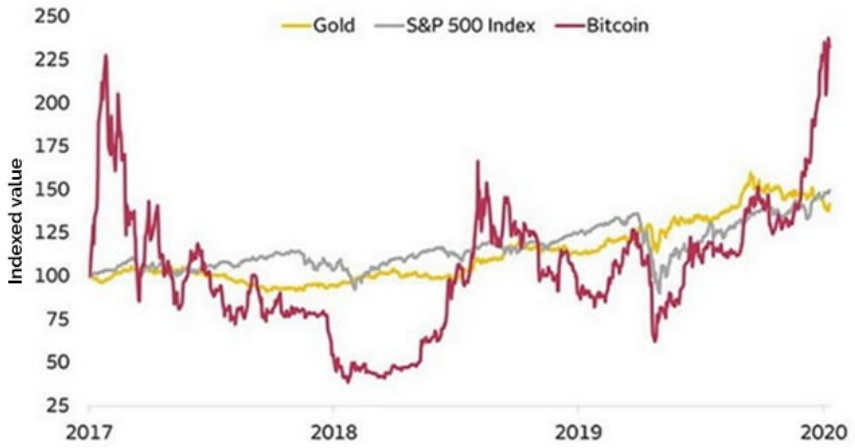

Figure 30 – Source: https://www.tradingview.com/chart/BTCUSD/XAZGh86z-Bitcoin-Gold-and-S-P-500-Return-of-investment-comparison/

Finding 3. Despite this volatility and vulnerability, use of cryptocurrencies is increasing, especially in emerging countries.

An increasing number of emerging countries are turning to the use of cryptoassets due to the pressure on traditional emerging financial markets: this is known as "cryptoisation". [142] Local currencies, which are often fragile, are facing significant inflationary pressures leading to a loss of investor confidence.[143] Despite their high volatility, digital currencies are seen as a safe haven for protecting savings. They provide an alternative to conventional currencies in these countries. In Venezuela, for example, the use of cryptoassets has enabled the population to hold assets that are not subject to the successive devaluations of the official currency. Cryptoassets are also increasingly used in foreign direct investment (FDI), which often accounts for a large share of these countries' GDP. For example, India, Nigeria and Argentina make extensive use of cryptoassets, ahead of China and the United States (see below).

| Mapping of the cryptoasset adoption index in 2021

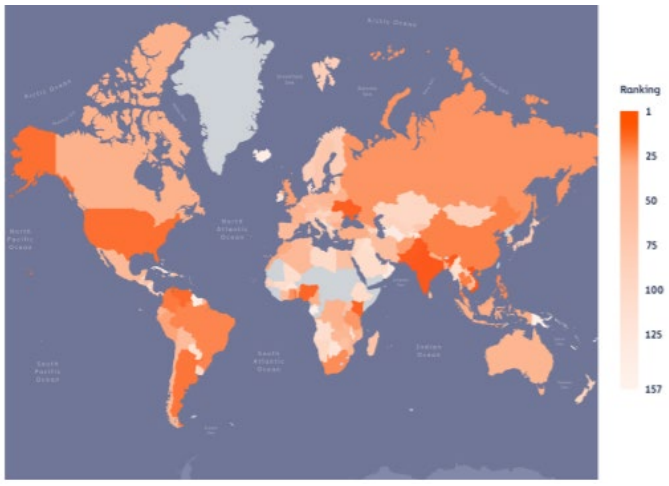

Figure 31 – Source: Chainalysis, https://blog.chainalysis.com/reports/2021-global-crypto-adoption-index/

[142] *https://www.ft.com/content/45ca2229-485e-4043-b709-deda943e9ddb*

[143] *https://www.lemonde.fr/idees/article/2021/12/13/dans-les-pays-en-developpement-et-emergents-les-echanges-de-bitcoins-sont-devenus-une-alternative-valable-aux-systemes-bancaires_6105817_3232.html*

Finding 4. Conversely, many states are prohibiting cryptocurrencies, restricting their use, or seeking to maintain a monopoly over them.

A report published in November 2021 by the US Congress[144] indicates that 51 countries have banned cryptocurrencies within their borders. The People's Bank of China has made all financial transactions involving cryptocurrencies illegal. The country is seeking to impose exclusive use of its own system: the digital yuan. Elsewhere, several central banks are also seeking to develop their own cryptoassets. Such instruments are technically similar to Bitcoin-like cryptocurrencies but are, by nature, fundamentally different.

The cryptocurrencies produced by central banks are, in effect, only a digital version of the traditional monetary and financial system. They maintain the principle of intermediation and are strictly regulated. Nevertheless, these projects are struggling to come to fruition because of the technical challenges and major security constraints that they face.

Finally, the environmental impact of blockchain could in the future justify much more restrictive regulation of cryptocurrencies.

State of central banks' development of digital currencies
% of central banks

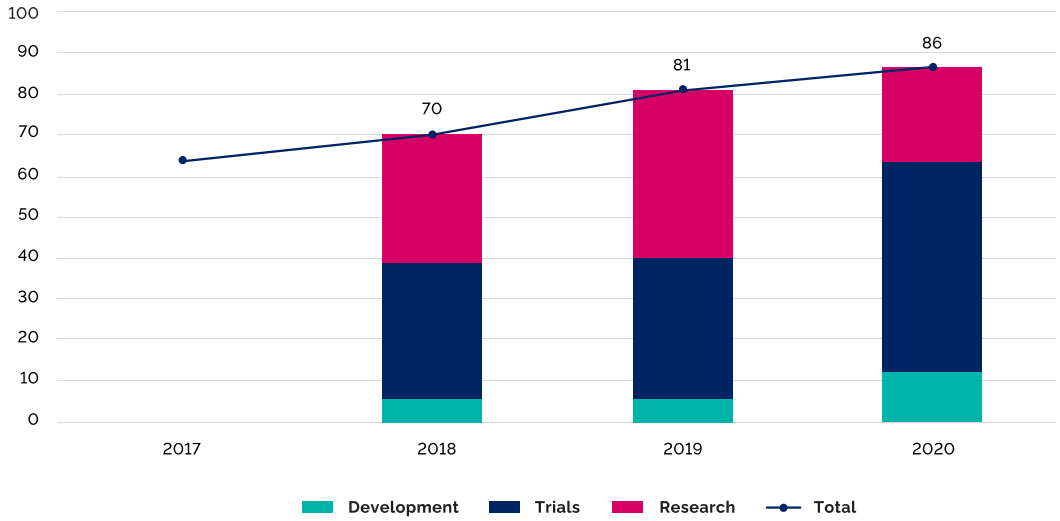

Figure 32 – Source: Bank for International Settlements, 2021, https://www.bis.org/publ/bppdf/bispap125.pdf

What are the risks for people and their property by 2035?

Risk 29. Precarity of people who have used cryptoassets as a safe haven

Cryptocurrencies can experience sharp falls in value due to a sudden loss of investor confidence. This situation would seriously harm populations that have used them as a safe haven, particularly in emerging countries or conflict zones. This situation could then greatly aggravate pre-existing situations of precarity, or even trigger an economic crisis in one or more countries that are highly dependent on foreign direct investments based on cryptoassets.

Risk 30. Loss of savings among people who have put money into cryptoassets

Decentralised cryptocurrencies are currently poorly regulated. In the future, some states may choose to reassert their monetary and financial sovereignty, as China has already done. Without preparing for this risk, individuals with alternative cryptocurrencies could then lose access to their assets, with major impacts on their savings and/or liquidity.

Risk 31. Theft and/or loss of the digital portfolios of uninsured people

The increasingly diverse supply of cryptocurrencies, whether decentralised or supported (or even imposed) by states, is leading to a growing use of these digital assets by the general public. On this trajectory, most citizens could hold cryptocurrencies by 2035 in order to conduct their daily transactions or as savings. At the same time, the risk of cyber attacks could increase, as these digital wallets become an appealing prospect for criminals. Some people could find themselves in serious financial difficulty as a result of such thefts.

[144] *https://tile.loc.gov/storage-services/service/ll/llglrd/2021687419/2021687419.pdf*

Risk 32. Financial exclusion of a part of the population without access to adequate digital tools

If cryptocurrencies become increasingly common, the problems of digital illiteracy and/or lack of access to digital technologies could be exacerbated. The people in situations of greatest precarity would then be particularly affected by this risk of financial and monetary exclusion.

What actions can insurers take?

The following actions can help in becoming better prepared for these risks:

Communication, prevention

- **raising awareness of the risks involved,** developing prevention and training;
- **participating in discussions** on the regulation of cryptocurrencies.

Systemic risk scenario 3. What if, by 2035, a massive cyber attack paralyses the IT systems of the Paris hospitals system for several days?

Reminder: This scenario describes a situation with a low likelihood of occurring but with a high impact if it were to happen, and therefore deserves attention.

Hospital IT systems are particularly vulnerable to cyber attacks because, unlike other sectors, the health sector has long underestimated the level of investment needed to protect itself against them.[145]

Description of the situation

25 December 2025. A group of hackers manages to take control of the computer system of the Paris hospitals system. They cut off the communication network between the various connected medical devices and access to patient files. Their motives appear unclear, and the attack takes place in a deteriorating international context in which France is being attacked by foreign countries for its military choices and political alliances. The crisis lasts for several days, with French professionals struggling to find the origin of the attack and the solutions to apply.

How did we get here?

In 2017, the attack associated with the WannaCry ransomware, which paralysed the services of some hospitals in England, served as an alarm bell for the sector. In 2020, in the midst of the Covid-19 pandemic, the American authorities (the FBI, the Cybersecurity and Infrastructure Security Agency) raised the alarm on this subject, pointing to the growing risk of cybercrime against the country's hospitals. Indeed, according to a survey conducted the same year, 70% of American hospitals surveyed had suffered a severe cybersecurity incident in the previous 12 months.[146] *In France, the problem is also significant, as evidenced by the DDoS attack against the AP-HP hospitals system in March 2020. This attack lasted only one hour and did not affect any critical infrastructure, but the development of cyber attackers' capabilities makes it possible to envisage ever more serious cyber attacks.*

Despite these repeated warning shots, the implementation of protection plans would, in this scenario, have remained insufficient during the decade 2020-2030, as hospitals are already suffering from reduced budgets to maintain their current activities. Hospitals are prime victims for cyber attackers, whether they are motivated by financial reasons (the high value of personal health data) or political reasons (hospitals are vital and critical services, especially in the event of a health crisis, and become strategically important in a conflict).

What are the consequences?

In addition to the risk of large-scale disclosure of sensitive personal data, such a cyber attack would have life-threatening consequences if the paralysed computer systems prevented operations from being conducted or life-saving machines from being kept running.

Simple ransomware attacks were already causing significant disruption in 2021. Hospital stays for patients were prolonged due to procedures being slowed down by computer viruses that made people's medical records inaccessible. This led in turn to operations being postponed, individuals being redirected to other hospitals, including in emergency care, and an increase in medical complications. [147] *An extreme attack, such as the one described in this scenario, could also have significant economic repercussions,*[148] *including the cost of recovery of lost data. For example, the computer attack on the hospital in Dax during the Covid-19 pandemic in February 2021 cost €2 million. It took a year to recover the data and some of it could not be restored.*[149]

How can we prepare for it?

Hospitals could rely on more extensive public-private partnerships to benefit from technical expertise that is not available in-house. In addition, health services could develop contingency plans and alternative low-tech systems to fall back on in the event of a crisis.

In France, hospitals are among the organisations that are essential to the proper functioning of the nation. Their IT infrastructures should therefore be regularly subjected to stress tests and cyber-crisis simulations, in order to check the robustness of their business continuity plans.

For more information:
https://www.pwc.de/en/the-unseen-danger-cyber-security-threats-to-hospitals-operational-systems.html

[145] *https://www.brookings.edu/blog/techtank/2021/08/09/why-hospitals-and-healthcare-organizations-need-to-take-cybersecurity-more-seriously/*
[146] *https://www.himss.org/sites/hde/files/media/file/2020/11/16/2020_himss_cybersecurity_survey_final.pdf*
[147] *https://www.theverge.com/2021/9/27/22696097/hospital-ransomware-cyberattack-death-rates-patients*
[148] *https://www.healthcaredive.com/news/growing-cyberattacks-on-hospitals-may-soon-hit-bottom-lines-patient-care/603823/*
[149] *https://www.radiofrance.fr/franceculture/podcasts/mecanique-de-la-cybermenace/episode-3-les-victimes-de-cyberattaques-1379279*

Trend 9. Increase in personal data breaches

What are we talking about?

Article 4.12 of the General Data Protection Regulation (GDPR)[150] defines a personal data breach as "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".

The consequences of a personal data breach for individuals can range from emotional distress to physical and material damage. Without an effective response, the data breach can lead to loss of control over sensitive data, including medical data, discrimination (certain personal data such as a person's origin, age or gender can be used illegally), fraud (such as identity theft), financial loss, reputational damage, cyberbullying, etc. This risk is already known and could intensify in the coming years. The increasing scale and frequency of cyber attacks make it a cause for concern.

What are the findings?

Finding 1. The number of personal data breaches is growing steadily, in all sectors and all over the world.

In France, the significant increase in the activity of the Commission nationale de l'informatique et des libertés (National Commission for Information Technology and Civil Liberties, CNIL) bears witness to this: in 2019 it received twice as many notifications as in 2018.[151] 90% of these notifications related to illegitimate access to personal data.[152]

The foremost victims are public administrations (15% of notifications), but the range of targets is increasing (hospitals, local authorities, SMEs, etc.). [153] In 2019, 34% of French companies were targeted by a cyber attack, a figure that will rise to 49% in 2020.

This phenomenon is international in scope. South Asia and North America are among the major victims. The United States, in particular, recorded more than 6 billion attacks between 2013 and 2020, representing more than 60% of the world's data breaches over this period.[154] This is partly due to the strong presence of US actors in the digital world.

Finding 2. Cyber attacks are increasingly costly for companies, their employees and for individuals.

Globally, companies are the prime target for cyber attacks, whether or not they are aimed at accessing personal data. According to the British insurer Hiscox,[155] the median cost of a cyber attack in 2020 was €51,200 per company, almost six times the cost in 2019.

[150] *https://www.cnil.fr/fr/reglement-europeen-protection-donnees/chapitre1*

[151] *A personal data breach notification is an obligation to alert the relevant supervisory authority of the incident, in relation to the GDPR, within a maximum period of 72 hours, when the breach creates a high risk for the persons concerned (source: CNIL).*

[152] *https://www.01net.com/actualites/le-vol-de-donnees-personnelles-devient-un-phenomene-de-masse-en-france-1930196.html (source: CNIL)*

[153] *https://www.ellisphere.com/lutte-contre-les-cyberattaques/#:~:text=En%202020%2C%20le%20nombre%20d,'ann%C3%A9e%20derni%C3%A8re%20(49%20%25)*

[154] *https://www.varonis.com/blog/the-world-in-data-breaches*

[155] *https://www.hiscox.fr/courtage/sites/courtage/files/documents/2020_RAPPORT_CYBER_HISCOX.pdf*

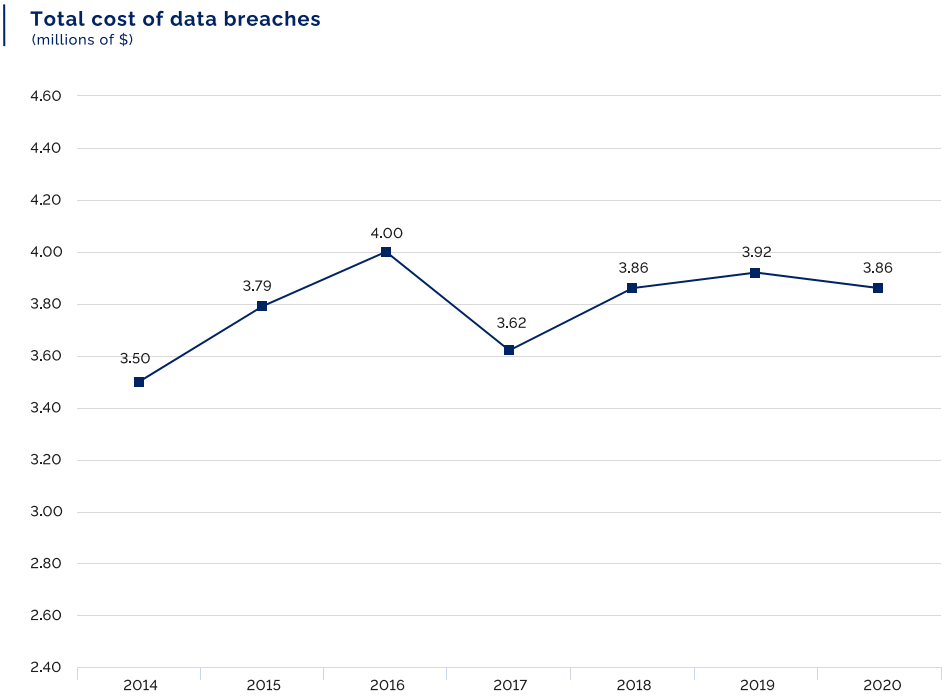

Figure 33 – Source: https://www.capita.com/sites/g/files/nginej291/files/2020-08/Ponemon-Global-Cost-of-Data-Breach-Study-2020.pdf

Data breaches also have a direct impact on individuals. Customers may see their personal data being disseminated and/or sold, which may cause psychological distress in addition to the material and/or economic losses linked, for example, to identity theft.

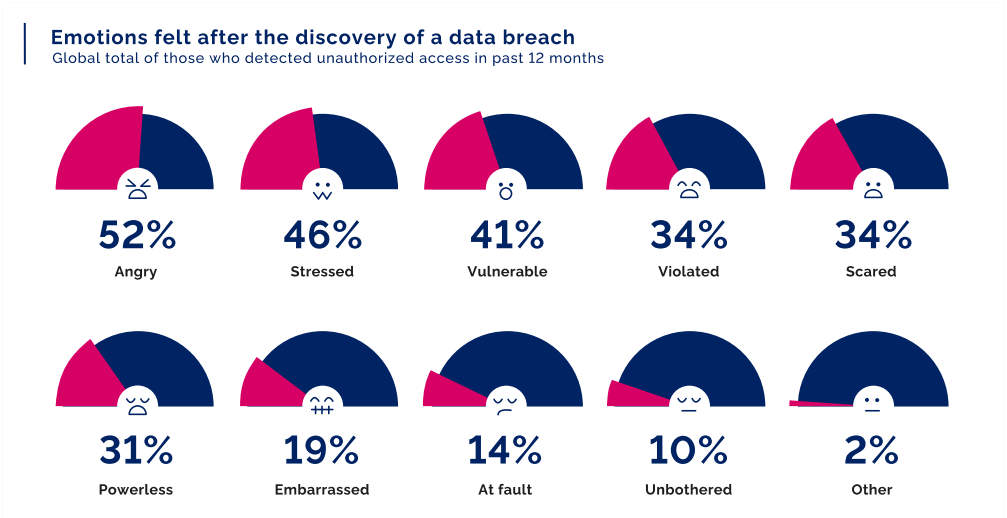

Figure 34 – Source: https://now.symassets.com/content/dam/norton/campaign/NortonReport/2021/2021_NortonLifeLock_Cyber_Safety_Insights_Report_Global_Results.pdf

At the individual level, it is difficult to put a figure on the cost of this risk, as individuals are under no obligation to notify the authorities of the incident. However, the mean level of compensation offered by insurance companies to individuals in France in the event of a breach of their personal data allows us to identify orders of magnitude. Thus, according to a report by Optimind, "insurers offer compensation of €1,000 on average for a ransomware attack (data reconstitution costs), and €1,000 to €5,000 for a breach of online reputation (this amount can be as high as €10,000 in some cases)".[156]

[156] *https://www.optimind.com/medias/documents/6549/la-cyber-assurance-des-particuliers.pdf*

Finding 3. The rapid increase in digital activities increases people's vulnerability to this risk, particularly among people in situations of greatest precarity.

Between 2010 and 2015, the quantity of digital data increased sixfold.
According to IDC, between 2020 and 2035, it could increase by a factor of 3 every 5 years.[157]

Big data: the volume of data is growing exponentially
Volume of digital data created in the world since 2010 (zettabytes)*

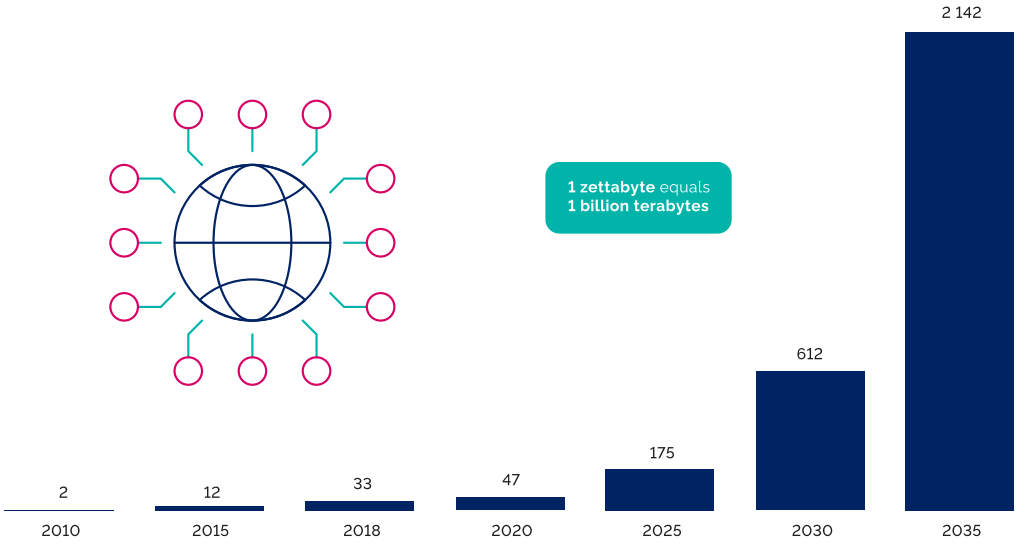

Figure 35 – Source: https://www.journaldunet.com/solutions/dsi/1424245-le-volume-de-donnees-mondial-sera-multiplie-par-45-entre-2020-et-2035-selon-statista/
** 1 zettabyte equals 1 billion terabytes*

This sharp increase can be explained by the massive development of digital practices. The growth of social networks, the digitisation of essential services and public services, and the development of the Internet of things have all contributed to the increase in the amount of digitised personal data. The increase in the practice of working from home accentuates this trend. Finally, projects such as the "Metaverse" will contribute to this growing vulnerability.

Indeed, such virtual universes should make it possible to collect data on physiological responses or brainwave patterns and to gain access to a much more advanced and precise understanding of individuals' thought processes and behaviours than is currently possible,[158] even though the proliferation of connected health objects already allows, in theory, access to increasingly sensitive personal data.

As a result of these developments, the magnitude of the risk of data breaches is likely to continue to increase in the future. However, people are very unequally exposed to this risk[159] depending on their socio-economic status, their knowledge of digital issues and their ability to put in place protection strategies.

Finding 4. The cyber threat is becoming more industrialised and could benefit from future technological advances.

According to a survey conducted by the consulting firm Symantec in 2022, 52% of the cybersecurity professionals consulted (from a panel of 3,045 people in Germany, France and the UK) believe that cyber hackers are better than their own teams. They consider that cyber attackers have access to technical resources never before seen in criminal organisations. Some of these groups are, in fact, funded by states.[160]

At the same time, hacking tools themselves are becoming more and more accessible. For some years now, HaaS (Hacking as a Service) offerings have been developing. They make it possible

[157] *https://www.journaldunet.com/solutions/dsi/1424245-le-volume-de-donnees-mondial-sera-multiplie-par-45-entre-2020-et-2035-selon-statista/*
[158] *https://www.nortonrosefulbright.com/en-us/knowledge/publications/5cd471a1/the-metaverse-the-evolution-of-a-universal-digital-platform#section2*
[159] *http://www.slate.fr/story/54243/web-inegalites-pauvres-internet*
[160] *https://www.numerama.com/cyberguerre/529553-rssi-francais-un-etat-des-troupes-contraste-face-a-la-recrudescence-des-cybermenaces.html*

to obtain kits to carry out a cyber attack oneself, but also to pay a fixed price for the execution of criminal actions or to obtain personal or banking information in return for payment.

Finally, it seems that the development of new information and communication technologies has never been so fast. In addition to advances in artificial intelligence, quantum computing could massively increase the capabilities of hackers. Quantum computing could be worth $1 trillion within 15 years.[161] It is estimated that a computer working on traditional principles would take a few million years to break the current encryption system, whereas a quantum computer would need only a few hours.[162] This therefore calls for new investments in encryption and cybersecurity.

Finding 5. Protective regulations for personal data and advances in cybersecurity will make it possible to limit this risk in the future.

On 25 May 2018, the GDPR came into force in Europe. It consolidates the rights of citizens and strengthens the obligations of companies in terms of personal data protection. This regulation has been emulated elsewhere, with similar laws emerging in other parts of the world such as California, Brazil, India, China, Japan and Canada. At the same time, projections show significant investment in cybersecurity. The global cybersecurity market could therefore grow by 86% by 2026 (compared to 2017) to reach a total of $270 billion.[163]

Global expenditure on cybersecurity

$ billion per year, existing data up to 2018, projections thereafter (following existing rate of change)

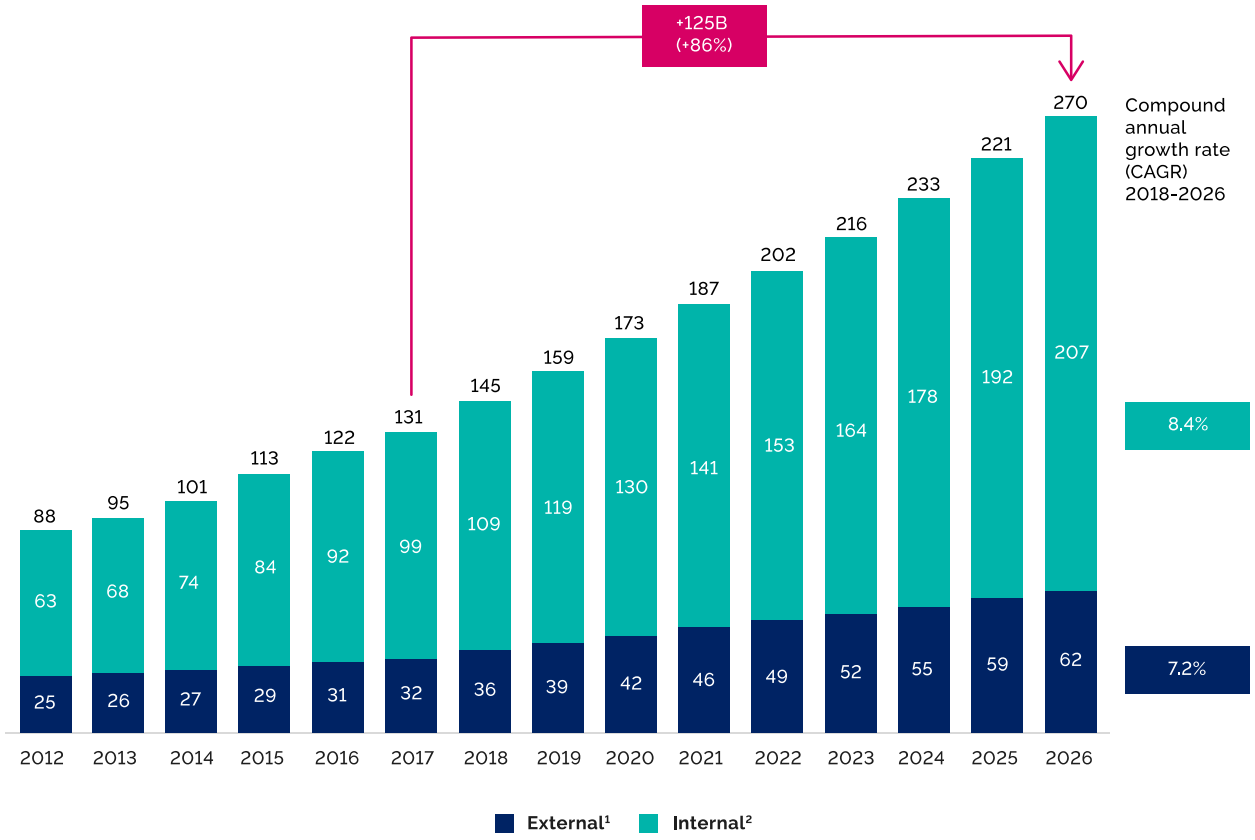

*Figure 36 – * Figures for 2012-2016 are based on Gartner data compiled in Q3 2016; figures for 2017 and beyond are based on Gartner data. 1. External spending based on Gartner 2023 forecasts, extrapolated to 2026 using average growth rates. Growth rates are applied at the product category level. 2. "Internal expenditure" refers to the remuneration of internal employees in full time equivalents. It is estimated based on Gartner data on global internal spending. Internal expenditure is growing at a slower rate than external expenditure due to the increasing adoption of outsourced security services.*

Source: AustCyber – Australian Cyber Security Growth Network, https://www.austcyber.com/resources/sector-competitiveness-plan-2019/chapter1

[161] *https://siecledigital.fr/2020/03/11/en-2035-linformatique-quantique-pesera-1-000-milliards-de-dollars*

[162] *https://www.institutmontaigne.org/blog/informatique-quantique-une-question-de-securite#:~:text=So%2C%20one%20estimates%20that a,cl%C3%A9%20standard%20of%202048%20bits*

[163] *https://www.austcyber.com/resources/sector-competitiveness-plan-2019/chapter1*

What are the risks for people and their property by 2035?

Risk 33. Increasing exposure of individuals to personal data breaches

The combination of the democratisation of hacking tools and services, the rise in use of digital technology and the growth of personal data made available online as a result of the proliferation of connected objects in everyday life will most likely lead to an unprecedented increase in the number of data breaches for individuals.

Risk 34. New costs for victims of data theft

Many factors will increase the cost to individuals of a cyber attack. The growth in technological capabilities will allow cyber attackers to hack into more data more quickly, increasing the damage of cyber attacks. As more and more personal information is digitised, cyber attackers will be able to target a wider range of data for financial purposes. Finally, as the different layers of personal data become increasingly interconnected, the loss of some data may result in the loss of other data that was not initially targeted by the attack.

Risk 35. Disclosure of increasingly sensitive personal data

The evolution of technological capabilities, including the development of quantum computing, will require the basis of our data protection systems to evolve in response: the model of a user ID combined with an encrypted and fixed password will no longer exist. A new security model could then be developed requiring the provision of new sensitive personal information and subjecting individuals to unprecedented risks.

What actions can insurers take?

The following actions can help in becoming better prepared for these risks:

Communication, prevention

- **better protecting people against cyber attacks** by developing digital identity services;
- **producing new cyber offerings**, along the lines of what the CESE is proposing for SMEs;
- **Setting up a POOL-type response,** as in the case of the Management of Insurance and Reinsurance of Terrorist Risks, to compensate all victims in the event of large-scale attacks;

Communication, prevention

- **developing multi-sectoral initiatives** to develop understanding around this risk;
- **testing internal information systems in partnership with the ANSSI**, and making use of "white hat" hackers to reveal vulnerabilities.

A question for... Hervé Thoumyre, Director of Customer Experience, Digital Services and Data at CNP Assurances

What are the new expectations of customers in an uncertain world marked by systemic crises? What is CNP Assurances doing to rethink customer relations?

"In a world where one crisis follows hot on the heels of another, customer expectations have not really changed, especially when it comes to interacting with them. In fact, their most important requirement is probably knowing that they can count on us when they need us.

To meet this challenge, for just over two years we have been building a high value-added service platform, which combines digital and human aspects. It is a platform that makes the customer as autonomous as possible when they need to carry out a simple operation, while taking the time to listen to them and provide assistance and expertise when their situation requires it. A platform that is accessible at all times, offering simple, reliable and secure services. It allows us to work in an agile way and to integrate innovation continuously. This service platform creates a relationship of trust with both the customer and our partners, and allows us to become the most useful insurer for all our stakeholders!

THE LAST WORD

This panorama of emerging risks by 2035 aims to shed light on possible futures and avenues for progress in a world of uncertainty, where everyone should be able to move forwards with confidence.

CNP Assurances, a personal insurer for over 170 years and a pioneer in mutualisation, has the expertise to undertake this in-depth analysis. Exploring the risks affecting the greatest number of people is also part of its duty as a responsible insurer driven by the group's civic vocation and the exemplary nature of France's public financial sector.

At a time when crises are likely to follow one after another, and even compound one another, you can count on CNP Assurances to provide the best possible support to the greatest number of people and to demonstrate, with its partners, the vitality and usefulness of the insurance industry.

Véronique Weill, Chairwoman of the Board of Directors of CNP Assurances

LIST OF FIGURES

June 2022 – CNP Assurances – CNP Assurances Research and Strategic Foresight department
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a more
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