The role of analytics in insurance industry transformation

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In a rapidly changing work environment, the insurance industry is facing analytics challenges. As a result of accelerating digital transformation, insurers are adapting their working methods and rethinking strategic priorities.

The current economic and health crisis has **accelerated change** that had already begun. Most French companies have experienced disruption, and all are beginning to imagine their "post-COVID-19" period. This entails adjustment of digital strategies, prioritisation of specific analytics use cases, and adaptation of work processes.

These strategies, such as customer experience enhancements or process optimisation, are not new. But they are now at the heart of this transition and accelerated by the crisis. They rely on the growth of digitalisation, from data collection to their effective use for analytics projects, and on the general improvement of procedures. These projects require new **technologies** that respond to the emergence of open source and **analytics** tools. The digitalisation also affects the organisation of insurers daily work and can include redefinition of corporate culture and management methods.

The acceleration of digitalisation and its challenges

Our society is living in a new period marked by acceleration of numerical and **digital transformation** within companies. The role of analytics and **open source** technologies serving artificial intelligence is undeniable in many sectors, particularly in the insurance industry.

The **health crisis** is likely to widen the delay in some companies' digital and more generally in their analytics transition. A strong sign of this "forced" transformation is in the way companies adapted to working remotely.

WORKING REMOTELY
As a logical consequence of the containment announcements made by the French government at the beginning of March 2020, **working remotely** has naturally become a new practice.

At the end of March, almost **one in four** employee was working from home, and this practice was new for **two-thirds** of them.[1]

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[1] Source: Europe1, Télétravail : et si on continuait après le déconfinement ?

There are many advantages for employees: a better reconciliation of work and family life, less stress, savings on daily expenses (commute, lunches), **time saved** on business travel, a general improvement in happiness at work, and the possibility of working outside the city of residence.

But this sudden and not anticipated generalisation of the home office also increases the **risks of isolation** and distraction. Teams can struggle to communicate and share knowledge. It also doesn't always allow employees to properly separate their work and personal environments.

For employers, a "work from home" policy requires them to provide all employees with suitable equipment. They may fear remote workers will be less **productive**, which can be linked to a lack of social links within the teams. Another issue is related to the economy in general: In France, real estate is nowadays the second largest company expense[2], but this may change due to emerging discussions on optimising the surface area and the occupancy rate of office spaces.

While **one-third** of the companies were reluctant to allow their employees to work remotely before COVID-19, **90%** of them set it up during the pandemic.[3]

Despite these misgivings, the vast majority of companies that could adopt remote working during the pandemic did so. Working from home seems to be a **new organisational norm** in some companies, which are adopting it long term. In the Silicon Valley, the practice was already widely adopted by tech companies.

Google announced that working from home would be allowed until January 2021, and Facebook informed employees that no meeting with more than 50 persons will be held before June 2021.[4]

They may even see it as an **asset** to attract qualified employees, who see it as a social benefit, and a way to more easily hire internationally.

REORGANISATION OF WORK TOOLS
The digitalisation of **work tools** requires a real teams and projects organisation. Some people even see it as a new and sustainable concept in which they can securely access all the company's data and information at any time. It requires calls and email exchanges, regular **video-conferences**, performance monitoring of teams and employees, and remote project **management**. All are keys in this new way of working.

This new team organization uses tools such as Microsoft Teams or Zoom for communication, and Slack or Trello for the project management. For analytics tasks, **git** is an open source tool preferred by data scientists for collaborative project management.

The number of daily participants on Zoom meetings went from 10 million at the end of 2019 to **300 million** in April 2020.[5]

However, mastering these concepts requires redefining **corporate culture** and takes a more modern approach to management, which gives employees greater autonomy over their projects.

Moreover, company data need to be **secured**. Being confined and working from home makes cyber-attacks more likely, since it potentially opens new security breaches within companies that weren't able to establish a proper policy for data management and backup. Although few companies are insured against cyber risks, it is a growing challenge for insurers, who can face the risk themselves, even while cyber risk insurance is a service they can offer.

Data and analytics play a crucial role in companies' transformations, between the rise of digital, new managerial practices and the deployment of innovative work tools. Insurers are defining different strategies to meet their objective, which we outline in the rest of this paper.

Analytics at the center of insurers' strategies

The current environment is accelerating the insurance industry's transformation. Data science, machine learning and artificial intelligence are undeniably key components of insurers' strategies. The use of analytics is now a standard among insurers.

Analytics projects can be structured around three pillars that are linked to data intelligence:

- Data processing consists of data management and process organisation.
- Data mining and machine learning model and analyse the data, find patterns and produce predictions.
- Data engineering deals with the production process and the data architecture.

In this context, Figure 1 presents the different areas of expertise of Milliman's Advanced Analytics team, which helps insurers, data labs and insurtech startups with their projects.

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[2] Source: Challenges, Flex-office, open spaces... Le bureau, victime collatérale du Covid-19 ?

[3] Source: Le Monde, Télétravail: ce qu'en retiennent les entreprises

[4] Source: Ouest France, Télétravail jusqu'en 2021 pour les salariés de Google et Facebook

[5] Source: Zoom Video Communications Inc.

Great importance is given to the industralisation of projects and their benefits in the short, medium and long term.

FIGURE 1: MILLIMAN'S ANALYTICS OFFER

Data Mining

Implementation of **machine learning** algorithms on **structured** and **unstructured** data (Natural Language Processing, computer vision) for different case studies (pricing, client behaviors modelling, etc.).

Data Processing

Process **automation**, **acceleration** and **optimisation** (efficient processing of large datasets, automated generation of written reports, automated creation of interactive dashboards, etc.).

Data Engineering

Effective implementation (unit tests, versioning git, etc.) of analytics solutions using scripts, development of **API** or **web applications**, **cloud computing** usage, use of **computing clusters** optimised for big data, etc.

INVESTING IN TECHNOLOGIES
The **shift to cloud computing** for data management is becoming more and more popular among insurers. IT migration towards the cloud—either public, private or hybrid—is not a technical but a business issue for which a real strategy is defined. It is often considered a reliable and cost-effective solution because it provides data storage, backup and protection, while reducing data centers and licence costs.

This is often part of a more global digital transformation in which **processes** and data architecture are completely redesigned in order to increase agility and efficiency. This investment in technologies can also be coupled with **training** that aims to develop the relevant expertise internally (for instance IT teams on architecture or actuarial teams on data processing).

THE ACCELERATION OF AUTOMATION
In order to allow actuaries to focus more on value-added analysis, insurers are accelerating their **efforts to automate** and simplify redundant tasks. This is even more critical in this difficult period of a health crisis, where insurers must carry out ad-hoc analyses required by the situation, while at the same time responding to their policyholders.

There are many areas of application for this task automation, such as effective application of accounting regulations or image recognition for contracts and claims management. It uses efficient processes (data management) as well as innovative methods, such as Natural Language Processing methods that can automate information extraction or email responses. It also involves development of scripts, **web applications** or more generally **APIs** (Application Programming Interfaces).

OPPORTUNITIES FOR INNOVATIONS
Analytics tools are key for insurers to better exploit their large volumes of data. There are many use cases: use of telematics data in automobile pricing, reflection at the individual level in reserving, customer value modeling, improved scoring in credit insurance, etc.). All of them enable insurance companies to improve their **client relationships and experience** by deepening tunderstanding of their client's needs and behaviours. This allows companies to learn more not only about their policyholders but also about their underlying **risks**.

Since customer relations are the core of the insurers' business, communication, marketing, contracts and claims management are key. They seek to guarantee the provision of a real **service** to their policyholders. For instance, machine learning algorithms can improve the performance of predictive models anticipating claims or changes in the clients' life situations. This facilitates prevention, better monitoring of policyholders' journeys and an overall improvement of their experience, whether digital or human.

Milliman's Paris office has been working on cutting-edge innovative analytics projects for several years.Their Advanced Analytics team is made of diverse and senior professionals, including actuaries, data scientists and data engineers.

This enables them to work on a large portfolio of projects. Milliman provides its expertise to clients through technical workshops, ranging from broad-scope classes to deep dives focused on a specific business application, to help drive clients' innovative data science projects to success.

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Milliman is among the world's largest providers of actuarial and related products and services. The firm has consulting practices in life insurance and financial services, property & casualty insurance, healthcare, and employee benefits. Founded in 1947, Milliman is an independent firm with offices in major cities around the globe.

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