DIGITAL SKILLS IN END CLIENTS IN THE CONTEXT OF TECHNOLOGICAL DEVELOPMENT OF INSURANCE COMPANIES

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Purpose: There is a large gap between the digital skills of customers and technological advancement in insurance. The author assumes that in countries with low level of digital skills the interest in insurance is also low. Technological achievements are used by insurance companies (e.g. to estimate the costs of war) and by clients themselves (e.g. AI to analyse ECG test results). However, the development and creation of new solutions give rise to a question whether the end client can keep the pace with such quick changes. The main objective of this article is to establish a link between household finances and technological development of insurance industry. The author wants to analyse household income, spending and money assigned for insurance premium payments from the perspective of a household. The other objective of article is to study insurance companies' interests in education and development of digital skills.

Methodology: The article uses a critical analysis of literature, statistical inference method, observation method and market research.

Findings: The research conducted proves that in the case of the relationship between insurance and household finances, "ground work" needs to be done. This means that it is not enough for insurance companies to implement another technological innovation. Research shows that in addition to digital skills, financial knowledge should be supported. Without financial and insurance knowledge in households, even the best innovations will not increase financial awareness.

Research limitations/implications: This article makes a good starting point and inspiration for further considerations in the area of digital skills and the approach of insurance companies to implementing innovations. Further academic work and practical analysis in insurance companies should attempt to point to the future direction: whether new innovative solutions should be made available for a smaller group of clients (with higher digital skills) or should less innovative products and services be available for a wider audience? Further considerations are needed from the perspective of the end client, regarding the readiness of insurance markets in particular countries to introduce InsurTech solutions. It is also crucial to study further the topic of household priorities regarding spending categories, and including insurance spending. It is also worth taking a look at issues related to innovation maturity, the level of sales of particular products, and then comparing that data to the level of financial knowledge and the level of digital skills.

Practical implications: This study recommends insurance companies to implement actions to avoid digital exclusion as part of their attempts to raise the level of innovativeness. Various developmental and inclusive programmers should be carried out not only by governmental institutions and non-governmental organizations but also by service providers (here: insurance providers).

Keywords: digital skills, insurance, customer, fintech, household.

Category of the paper: market research or surveys, empirical, scientific.

1. Introduction

The Infuture Institute's map of trends (2022) shows that from the perspective of a household and business insurance digital inequality is a very important trend that requires attention. This is in fact a leading trend that involves problems with access to the global network and digital exclusion. According to data, 40% of global population still has no access to the Internet and the steady inflow of new digital solutions can make this problem even worse. It is also worth considering that new trends have appeared, namely an anti-science trend (an approach where science is no longer believed to be an objective, universal base for the functioning of the society) as well as anti-tech trend (a resistance against big technological companies and their influence on the lives of individuals and the whole society; anti-tech approach also includes more mindful use of technologies or total abandonment of excessive presence of technologies in individual's life). Both these trends are included in the so-called 'reactive zone', which means they need less than 5 years to become leading trends. This allows to conclude that the bold arrival of new digital technologies in the insurance industry is on the one hand a big opportunity for clients but on the other it can simultaneously pose a threat to them. It is similar for insurance companies themselves. The sale of insurance products through modern distribution channels is on the rise. However, the direct contact between the end client and the insurer is still indispensable. According to the European Economic and Social Committee (2017) the digitalization of financial industry, including insurance, creates a lot of opportunities, such as easier access to financial products and services, opportunity to compare prices, and customization of products to fit individual needs of clients. At the same time, however, the threats include possible security breaches, unregulated areas (such as cybersecurity), creation of products too complex, technological problems with the delivery of full information about products, and digital exclusion. More and more insurance providers cooperate with InsurTech industry. Many other companies also operate on the market as InsurTech industry. It is vital to start a series of actions in the area of financial education and upgrade digital skills in all actors that participate in insurance processes (i.e. all activities related to insurance, purchase, withdrawal, payments, damage claims, designating beneficiaries and others).

2. Literature Review

Households are the most numerous elements of the economy and their role in social and economic development of the country still grows (Grzega, 2022). There are many definitions of this entity. Some authors say living together is a necessary element (Beaman, Dillon, 2012), others mention the need to jointly manage shared assets (Bywalec, 2017) or no need to be related (GUS, 2022). In the subject literature a household is also often used as equal to a family. However, this term is often multi-layered and difficult to define, and the same is true for the term 'family'. Examples of difficulties include the following situations: a registered marriage of a couple who live separately; two people (regardless of their sex) who live together but are not married or two people who are regular partners (again, regardless of their sex) but do not live together and are not married (Rozentāle, 2021). Finance-related decisions taken by households can be divided into four groups:

– decisions regarding savings,
– decisions regarding loans,
– decisions regarding investments,
– decisions regarding consumption,

The question arises here: to which group do decisions regarding insurance belong? In order to answer it is best to turn to the theory of economy. Decisions taken by an individual are determined by their needs. Insurance is akin to the need of security, the second-tier need identified by Maslov (1954). The decision to purchase insurance is also influenced by the level of everyday spending and the prognosis of spending in the future. In this context we should consider the life-cycle hypothesis (Modigliani, 1975; Yaari, 1965). The theory of permanent income (Friedman, 1957) and behavioural theory (Müller, Tietzel, 2002) also refer to setting aside consumption for a later period. The above mentioned definitions allow to conclude that the insurance-related decisions are closest in nature to decisions regarding savings (deferring current consumption) and theories related to savings. Second option regarding the classification of insurance purchase decisions is that decisions regarding insurance should be treated as a separate category of financial decisions. Motifs behind decisions regarding insurance are also important. In the subject literature more and more popular is an approach in which end clients decide to purchase insurance because of reasons other than risk aversion. Risk aversion is more of a special factor than a general rule (Fels, 2021). Households show a range of other motifs behind the decision to buy insurance. Author's own research indicates 5 most important factors influencing decisions regarding insurance, including: the scope of insurance, price, and trust in insurance provider. It is interesting that in the digital age the possibility to buy insurance online is not indicated as an important factor determining the purchase and that a face-to-face meeting with the insurance agent was indicated as the most preferred form of purchasing insurance (while mobile apps were the least preferred options) (Samsel, 2022). This is, however, what the

situation looks like from the perspective of the client. On the other side there are insurance companies, progressing technological development, implemented innovations in services and products and a strong growth of InsurTech sector (Volsovych, Zelenitsa, Kondratenko, Szymla, Mamchur, 2021). Initially, InsurTech companies were focused mainly on property insurance, accident insurance and distribution. Distribution, sale and various price checker start-ups were very popular. Nowadays, InsurTech solutions can be found in every area of broadly understood insurance ecosystem. Traditional solutions are also supported, as well as their transition and adjustment to the digital reality. In the future, further digitalization is expected as well as more innovative products. These actions are meant to boost demand for additional, more niche insurance products and services (Ostertag, Morvan, Metzger, Levy, 2022). Having said that, it will be good now to turn back to households and their abilities to use modern technologies. European Parliament considers digital skills as one of the fundamentals abilities in contemporary humans (alongside literacy, numeracy and math and language skills). The so-called Digital Competence Framework for Citizens (DigComp) gives a definition of digital competences as 'the confident, critical and responsible use of, and engagement with, digital technologies for learning, at work, and for participation in society'. It is a combination of knowledge, skills and approaches (Vuorikari, Kluzer, Punie, 2022). Covid-19 pandemic was a turning point for households that triggered a deep verification of digital skills and competences. According to the study carried out for digital education action plan, more than one-third of 13 and 14 year-olds who participated in the study did not even have a basic level of digital skills. Every second household with low income has no broadband access (European Commission, 2018).

3. Materials & Methods

In line with the principles presented in Nature Nanotechnology: 'Data are the foundation of scientific progress' (Nature Nanotechnology, 2020). Taking this right thesis into account, in this article the author uses the most recent data available. What is more, the author uses data from official sources, available to every person who would like to get an insight into their knowledge and use the data for own further studies.

In this article the author used many methods of academic research. The author started with critical literature review, which was already presented above under the subtitle 'literature review'. Additionally for the purpose of this article, the author used document analysis and logical and constructive analysis. This allowed a methodological progress from specific to general, which led to a logical and syntactic linkage of small units, such as households, with big, modern units such as InsurTech entities.

Statistical method was useful to draw conclusions form the analysis. Heuristic method was also used. All of those methods were meant to verify the assumed research hypothesis and achieve the set objectives.

As indicated, when using inductive method the first step was to choose countries appropriate for this study. The choice of countries was based on household insurance spending in selected countries in Europe in 2019 (Statista, 2022) to bring together the approach of households and spending on insurance. The countries were divided into 5 groups (quintiles) in line with the methodology of household budget research (GUS, 2021). In the next stage one 'representative', a leader of each group, was chosen from each quintile. Additionally, alongside the objective approach (the quintiles) the author added a subjective approach. The latter determined a choice of Poland, where the author lives, and Estonia, which was the last country in the ranking. Poland had the 3rd place in the second quintile. This approach allowed to choose the following countries for further study: France, Belgium, Sweden, Slovakia, Lithuania, Poland and Estonia.

A choice of insurance companies from each of the above mentioned countries was presented for the study. The procedure followed the methodology presented in figure 1. Research included the observation based on a set of variables in each chosen insurance company.
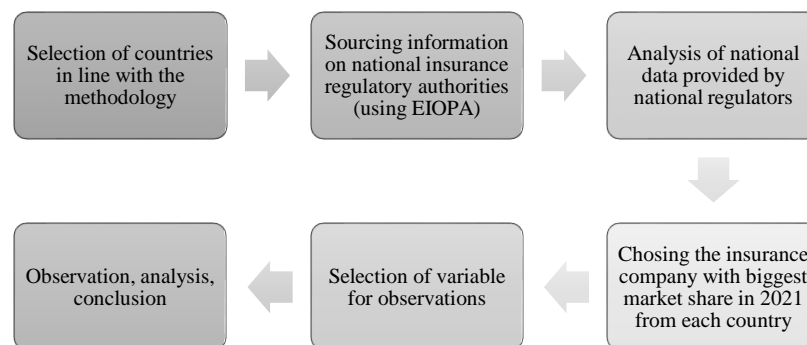

Figure 1. Selection process of insurance companies for this study.

Source: Author's own work.

Detailed analysis based on the assumed methodics and methodology is presented in the following subchapter.

4. Results

In recent years it was Belgium that had the highest levels of spending among the selected countries. Household disposable income is presented at its pre-tax level (including social transfers) (OECD, 2022). The value is presented in US dollars per resident in a particular year. Belgium has the highest income, whereas Slovakia has the lowest. It is worth noticing that none of the studied countries has recorded a fall in the level of income during the analysed period. The rate of growth has a decreasing tendency: the average rate of household disposable income

growth in 2021 (against 2021) was 5.58% and was 1.24 percentage points higher than in 2020 (against 2019). The diagram also presented household spending (as a percentage of country's GDP). The diagram assumes an average value for 2019-2021. It is interesting that in each period, when analysed separately, the household spending in each country (excluding Slovakia) is higher and has a decreasing tendency. Regarding averages, Lithuania has the lowest level of household spending, whereas Sweden has the highest.
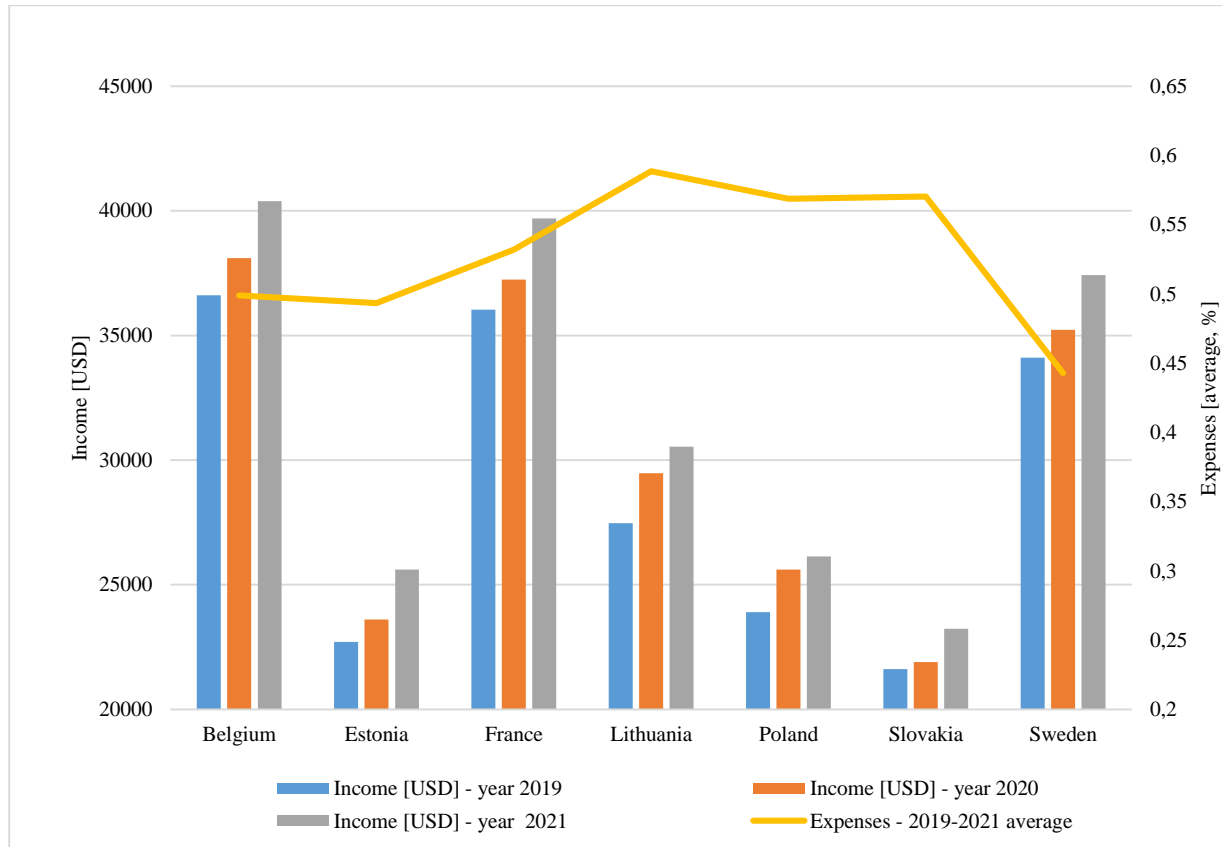

Figure 1. Household income and spending in selected countries in Europe.

Source: Author's own work.

When talking about household spending it is worth noticing the level of insurance spending. Figure 2 shows a cross-section of the level of insurance spending in particular countries. The residents of France spend the most on business insurance. Also Belgium and Slovakia have a high level of insurance spending. The lowest level is observed in Estonia and Lithuania. It is worth noticing that in each country, except for Sweden, a percentage share of insurance spending in overall spending was the highest in 2020.
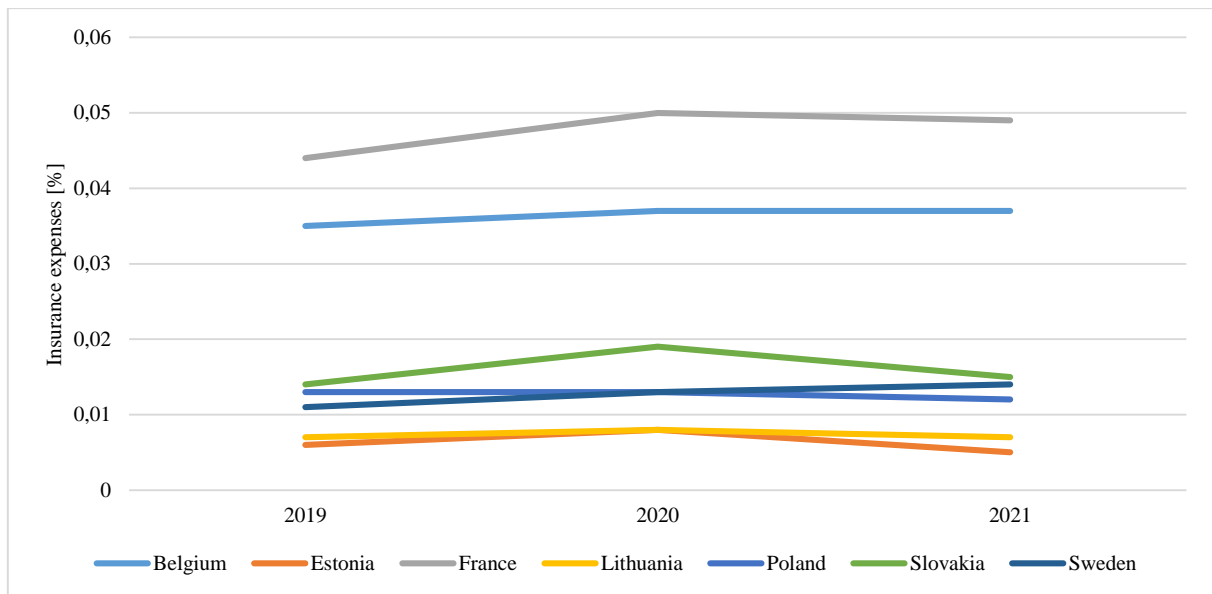
Figure 2. Share of insurance spending.

Source: Author's own work.

While talking about household spending it must be noticed that in analysed countries the level of spending on cloths is higher than on modern technologies (mobile phones, telephone services, and audio and visual devices to process information). In 2019-2021, the average value of clothes spending was higher than 3.5% (with a raising tendency) while the average value of technological spending was about 1.35% (with a decreasing tendency).

Some may ask why paying attention to other types of spending when considering insurance spending. The answer is that while considering how much households spend on insurance, it is good to compare it to spending on, for example, clothes or IT devices. Access to such equipment that allow to develop digital skills is crucial for the functioning of a household as a client on insurance market. Without goods and services (telephone, computer, internet) and constantly upgraded digital skills to catch up with developing markets (including insurance) a household would lose the ability to be an active participant on the insurance market and play the role of digital end client.

Figure 3 shows the level of digital skills of residents in selected countries in 2021. In each of them the biggest number of people have either basic or above basic overall digital skills. The biggest number was noted in Sweden. In Slovakia the number of people with basic overall digital skills is higher than the rate of people with overall digital skills (Slovakia is the only country in the analysed group with such a relation). Poland is also an interesting case. The obtained results show that there is much more people without overall digital skills than in other analysed countries. It is also characteristic for Poland that it is often impossible to asses digital skills due to the lack of use of Internet in the last three months. This rate is the highest in Poland in comparison to other analysed countries.
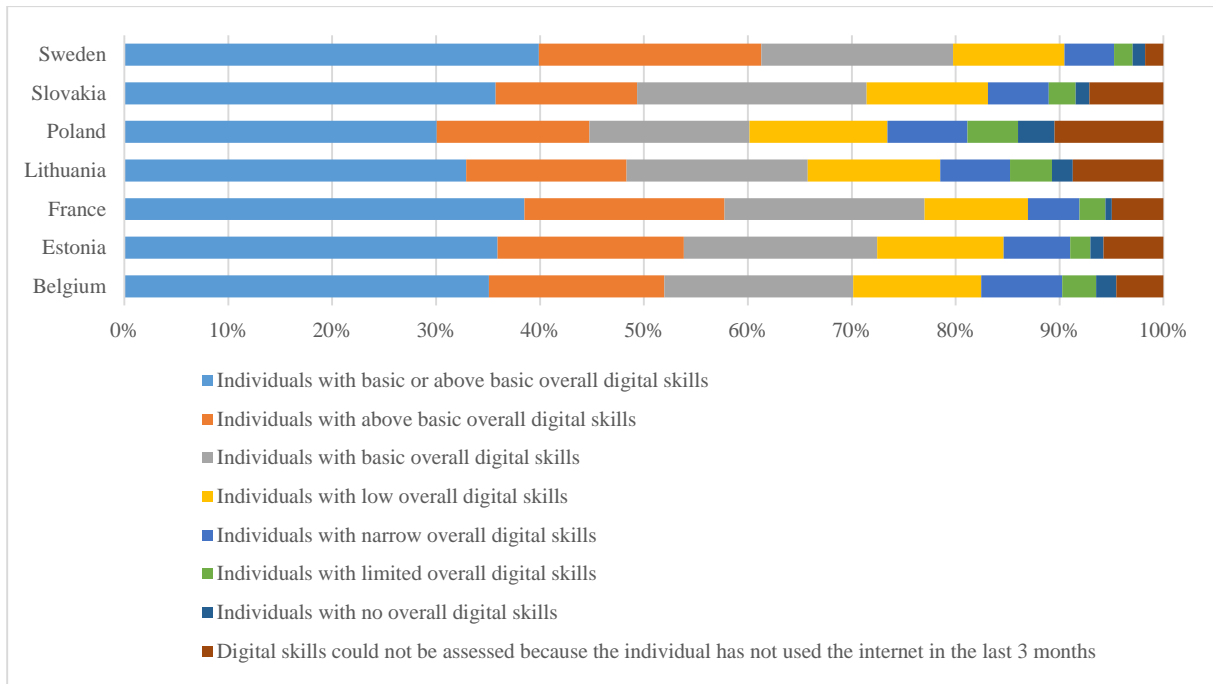
Figure 3. Digital skills of residents in countries in Europe.

Source: Author's own work.

When talking about digital skills it is also important to study the level of Internet access in analysed countries. For 2021, the average level of access in all studied cases was 91%, with France and Sweden recording the highest rate (93%) and Lithuania with the lowest one (87%). In all analysed countries (except for Sweden) there is an increasing tendency. It must be pointed out that there was no data available for France for 2020.
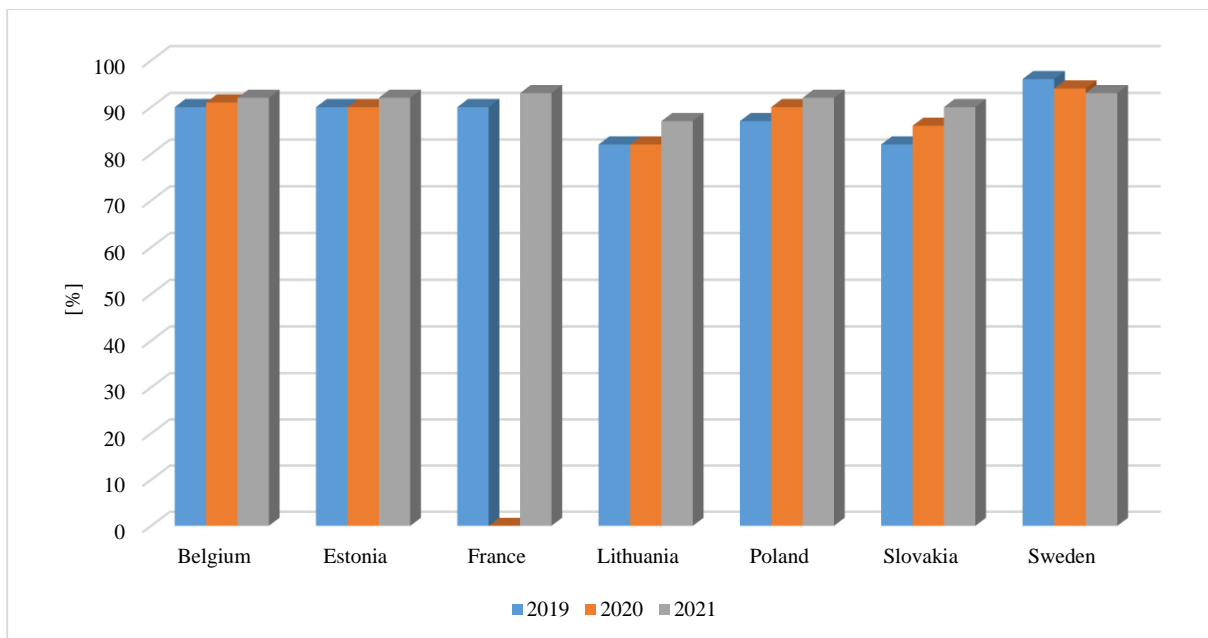

Figure 4. Internet access in countries in Europe.

Source: Author's own work.

For the purpose of this article the author carried out observations of selected insurance companies regarding the access to digital solutions. The results of the analysis are presented in Table 1.

Table 1.
Analysis of digital services in insurance companies in Europe.

Country	Insurance company	Web site	Mobile app	Client's portal / online purchase	Online claim	Online payments	Modern solutions
Belgium	AG Insurance	+	+ / - (only for travel insurance)	-	-	+	+ (examples: chat-bot, online expert's opinions)
Estonia	If P&C Insurance	+	+	-	+	+	No data
France	Crédit Agricole Assurances	+	-	+ / - (website available for the clients of the bank – joint service)	-	No data	No data
Lithuania	AB Lietuvos draudimas	+	-	+	+	+	No data
Poland	PZU	+	+ / - (limited chances to purchase insurance)	+	+	+	+ (example: AI to interpret ECG test results)
Slovakia	Allianz - Slovenská poisťovňa	+	+	+	+	+	+ (example: quick quote, abandoning of paper; signing digital contracts)
Sweden	Länsförsäkringar	+	+	-	+	+	No data

Source: Author's own work.

The analysed data allow to conclude that the selected insurance companies from Poland and Slovakia have the highest level of innovativeness. Insurance companies from Sweden and Estonia do not have a client's portal and do not publish data related to implementation of modern solutions or cooperation with the InsurTech sector. These countries have a medium level of innovativeness available for clients. Based on Table 1 it can be concluded that France and Belgium have the lowest level of innovativeness.

Taking into consideration these results as well as earlier considerations regarding digital skills, it can be said that innovations available are inversely related to digital competences. Countries described as highly innovative in terms of available solutions have a relatively low level of digital skills (Poland, Slovakia). The opposite can be said about countries with the highest level of digital skills. Simultaneously the analysis suggests that they have quite a low level of innovative solutions (France, Belgium). It is also interesting that the countries with low level of innovativeness available for clients also have the highest level of insurance spending.

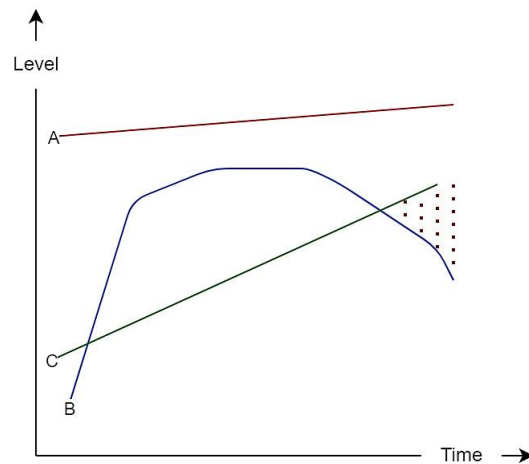The model below summarizes the above conclusions.

Figure 2. Model of dependencies between digital skills and the development of modern technologies.
Source: Author's own work.

The above model was developed based on the following variables: time and level. Letter A stands for the level of Internet access while letter B stands for the change in digital competences in time – throughout the life of an individual, Letter C then stand for the increase in innovativeness in the insurance sector. The more numerous and the more complex technological solutions are available for households, the higher should be the level of digital skills (to make it possible to make a full use of all available solutions). The enclosed area between lines B and C indicates the optimum match in terms of skills needed to use the innovations in insurance. The area beyond those variables marked with stripes indicates the gap that makes it impossible to adjust to innovative conditions on the market.

5. Discussion

The analysis allows to conclude that the development and growth of digital skills does not go hand in hand with the availability of innovative insurance products and services. Fels is therefore right to say that risk aversion is currently not the most important factor that influences decisions related to the purchase of insurance. It also confirms author's own research that traditional communication channels with the insurance provider are more popular among households than the innovative ones. The authors who indicate the InsurTech is developing and that insurance companies offer more innovative solutions are also right. However, the above considerations point out that Drakestar report is not correct. This is due to the fact that although modern technologies should boost demand for niche product and services, Digital disruption in insurance: Cutting through the noise (2017) indicated the leading trends in InsurTech and only one among them refereed to education ('Gamification'). The general conclusion is then that the development of digital skills in households does not go hand in hand with the development of innovations in insurance companies. The author achieved the set objective. It was possible to

establish a link between household finances, and more precisely spending on insurance, with the technological development in insurance companies. The author also achieved the two additional objectives. The main hypothesis returned as negative.

6. Conclusion

The objective of this study was to establish a link between personal finances and digital competences and the development of innovativeness in insurance companies. This article makes a good starting point and inspiration for further considerations in the area of digital skills and the approach of insurance companies to implementing innovations. Further academic work and practical analysis in insurance companies should attempt to point to the future direction: whether new innovative solutions should be made available for a smaller group of clients (with higher digital skills) or should less innovative products and services be available for a wider audience? Further considerations are needed from the perspective of the end client, regarding the readiness of insurance markets in particular countries to introduce InsurTech solutions. It is also worth considering not only the level of digital skills but the linkage to financial knowledge and education of households. Insurances in post-pandemic need a revision that would take into consideration the behavioural approach. It is also crucial to study further the topic of household priorities regarding spending categories, and including insurance spending. It is also worth taking a look at issues related to innovation maturity, the level of sales of particular products, and then comparing that data to the level of financial knowledge and the level of digital skills. This study recommends insurance companies to implement actions to avoid digital exclusion as part of their attempts to raise the level of innovativeness. Various developmental and inclusive programmers should be carried out not only by governmental institutions and non-governmental organizations but also by service providers (here: insurance providers). It is further recommended to carefully analyse the needs of clients, especially their digital needs and limitations, and adjust insurance processes in line with those analysis.

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