

Preliminary communication

SUSTAINABILITY OF THE TRADITIONAL CONCEPT OF PERFECT COMPETITION UNDER THE CONDITIONS OF DIGITAL TECHNOLOGY

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Abstract

The Internet and modern technology have significantly reshaped the landscape of the modern marketplace and influenced various aspects of economic theory, including the concept of perfect competition. Perfect competition, the cornerstone of classical economics, presupposes a market structure in which numerous small firms operate, produce homogeneous products, have no barriers to entry or exit from the industry, and have perfect information. The advent of the Internet and modern technology directly tests this theoretical construct and points to the dual role of these phenomena.

And while the questionable nature of the role of the Internet and modern technology in the sustainability of the traditional concept of perfect competition is primarily due to the homogeneity of the product and the price-taking process, Porter's forces imply support for the classical model of perfect competition, especially due to perfect information and the freedom to enter and exit the industry. Paradoxically, the latter facilitate innovation and product differentiation, which contradicts the basic assumptions of perfect competition.

Keywords: Internet, modern technology, consumer preferences, competition, insurance market

JEL classification: D41; L10; L86

INTRODUCTION

The Internet has an enormous impact on human life in modern society. Not only is it finding its way into many areas of daily life, it is also bringing about major changes in the business world. In addition to the digital revolution of the Internet, the development of the modern market economy is also closely linked to the Internet. Modern technology has facilitated innovation and product differentiation, called into question the homogeneity of products and replaced price as a prerequisite for perfect competition.

Digital technologies enable companies to tailor products and services to the specific needs and preferences of consumers. With the help of data analysis and artificial intelligence, companies can easily gain insights into consumer preferences and adapt their offerings accordingly to the expectations of their target group, leading to greater product diversity and market segmentation. Although this may deviate from the strict

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definition of perfect competition, it promotes dynamic competition as well as research and development activities and contributes to the development of society.

In this sense, the research object of this thesis focuses on analysing the impact of the Internet and modern technology on market development, with special attention to the market structure of perfect competition. Furthermore, the research problem targets the insurance market as a specific segment of the competitive market under the strong influence of the Internet and modern technology.

1. CHALLENGES OF DEFINING MODERN MARKETS

Understanding the market and its laws is the starting point for every company, as it forms the basis for strategic decision-making, product development, marketing measures and much more. One of the biggest challenges in defining a market lies in its dynamic nature. Markets are not static entities, but evolve over time due to changes in consumer tastes, the influence of competitors, technological advances, socio-economic conditions and much more. A comprehensive understanding of the market therefore requires continuous monitoring and adaptation to all changes in the environment (Elrod 1991).

Different companies may define their markets differently depending on their unique offering, target audience and strategic goals. For example, a company specializing in luxury cars may define its market as affluent individuals with high disposable income, while a manufacturer of low-cost cars may target cost-conscious consumers looking for a reliable means of transportation (Ferenčak 2003).

Market segmentation plays an important role in defining the market. Rather than viewing all consumers as a homogeneous group, companies often divide the market into different segments based on common characteristics such as demographics, psychographics, geographic location, etc. This segmentation allows companies to better tailor their products, services and marketing efforts to the needs and preferences of specific consumer groups.

Defining the market also involves assessing the competitive environment. A well-informed company continuously analyzes its competitors' businesses to identify their strengths and weaknesses as well as opportunities and threats in the common market. This competitive analysis provides valuable insights that ensure the design of a differentiation strategy and the making of strategic business decisions (Karić 2006).

Technological progress has also changed the way the market is defined and how the market is accessed. The advent of e-commerce, social media and digital marketing platforms has extended the reach of businesses beyond traditional geographical boundaries, allowing them to target more distant niche markets and interact with consumers on a personal level. As a result, businesses can effectively utilize these technologies and become more competitive and relevant in today's rapidly evolving and changing market landscape.

The market can be physical, like a point of sale where participants meet in person, or it can be virtual, like an online market where there is no physical presence or contact between buyers and sellers. In this regard, some key characteristics help define a market, including the availability of markets, buyers and sellers, and products that can be bought and sold. Markets can be represented by physical locations where transactions are conducted, such as wholesale and retail stores and similar business entities. Or they can be virtual, such as an online store or an auction site like Amazon and eBay, which are

classic examples of markets where transactions can take place entirely online and the parties involved never physically come into contact with each other (Karić 2006).

A market is any place where two or more parties can come together to engage in an economic transaction, even if it is not a legal tender. A market transaction can involve products, services, information, money or any combination that is passed from one party to another. Markets represent all *situations and opportunities* in which buyers and sellers can come together and communicate. Usually, two parties (buyer and seller) are required to conclude a trade. However, a third party is needed to introduce competition and balance the market. As such, a perfectly competitive market is characterized, among other things, by a large number of active buyers and sellers.

2. THEORY AND PRACTICE OF PERFECT COMPETITION

Perfect competition is a theoretical concept and a kind of idealized economic scenario in which a large number of buyers and sellers interact according to the principles of Adam Smith's *invisible hand* in such a way as to achieve an efficient allocation of resources and a *Pareto optimum* (Vrankić and Lukač 2007).

Market participants have perfect information (past, present and future) about the product to be sold and the prices charged by each firm. A perfectly competitive company takes the price as given, i.e. it accepts the equilibrium price on the market and cannot influence it through its individual actions. The products in a perfectly competitive market are homogeneous, without differentiation according to brand, quality or other characteristics. Capital resources and labour are perfectly mobile and firms can enter or exit the market at no cost (Baye and Prince 2010).

2.1. Theoretical determinants for the functioning of perfectly competitive markets

Perfect information is a basic prerequisite for perfectly competitive markets. All market participants have complete and accurate information about prices, production techniques, input costs and market conditions. This ensures that buyers and sellers can make fully informed decisions based on (such) perfect information, without any uncertainty or information asymmetry (Makowski and Ostroy 2001).

The next crucial feature that constitutes a perfectly competitive market is the presence of numerous buyers and sellers, each operating at a level where no single entity has the power to influence market prices, implying the phenomenon of *price taking*. This ensures that no single buyer or seller can control the market and that product prices are determined by all participants. As a result, the market price is determined solely by the forces of supply and demand and reflects the equilibrium point at which the quantity supplied equals the quantity demanded.

Furthermore, in a perfectly competitive market, supply is *homogeneous*, i.e. the products or services (offered by different firms) are identical in any characteristics, substantive or formal. This uniformity eliminates product differentiation as a factor influencing consumer choice, resulting in customers basing their purchasing decisions solely on price (Slav'yuk, Shkvarchuk, and Kondrat 2017).

Another important aspect of the functioning of perfect competition is the *complete freedom of entry and exit* of companies from the industry. There are no barriers that make it difficult for new companies to enter the market if they assume that they can make a profit by producing and selling (the same) product at the prevailing market price. On the

other hand, it is precisely this freedom to enter and exit the market that prevents companies from making economic profits in the long run, as (in the long run) any excess profit attracts new entrants into the industry, leading to increased competition and price reductions. It tends to fall to the limit of average costs, i.e. normal profit (equal to zero), whereupon there is no longer any basis (in terms of prices) for new entrants to enter the industry.

In a perfectly competitive market, a firm operates at the equilibrium point where marginal costs are equal to marginal revenue ($MC = MR$) and thus maximizes its profit at the prevailing market price (*economic optimum*). This ensures an efficient allocation of resources in which companies produce at the lowest possible cost (*technical optimum*) and consumers receive goods and services at the lowest possible price (*maximization of social welfare*) (Barbić 2010).

2.2. The reality of perfect competition

While perfectly competitive markets provide a useful tool for analyzing market dynamics, it is important to recognize that *real-world* markets rarely fully conform to the assumptions of perfect competition. Competition in the real-world deviates from this ideal, mainly due to differentiation in production, marketing and distribution (Masterclass 2022). Nevertheless, the concept of perfect competition provides valuable insights into the functioning of the market and clarifies the conditions required for optimal resource allocation and economic efficiency (Ferenčak 2003).

All of this can be compared to the more realistic imperfect competition that exists whenever a market, hypothetical or real, violates the abstract principles of neoclassical, pure or perfect competition. Since all real markets exist outside the level of the perfect competition model, each can be defined as imperfect (Beshkar and Lashkaripour 2017).

Finally, at least two criteria, price assumption and product homogeneity, are far from realistic. However, for the other two criteria, information and resource mobility, global technological and trade changes provide conditions for improving their flexibility.

Although the economic reality is far from the existing theoretical model, the model is useful because it can explain many behaviours in the *real business world* (Qian and Wang 2017).

2.3. Limitations of the concept of perfect competition

The concept of perfect competition is an idealized framework for a market economy because, although it provides a convenient model for the analysis of many economic laws, it has significant deviations from the *real* economy. As with other models, the value of the perfect competition framework is only accurate to the extent that it reflects actual conditions.

The first drawback arises from the *low profit margins* that are a fundamental feature of perfect competition. Since all consumers have access to the same products, they naturally seek the lowest prices. Under these circumstances, companies cannot differentiate themselves by charging a premium for higher value products and services (Masterclass 2022).

The next disadvantage is that it is *not possible to create innovations*. Achieving a larger market share and standing out from the competition is an incentive for companies to innovate and produce better quality products and services. However, in perfect

competition, no company has a dominant market share, so the long-term profitability of their business is zero, as is the potential for innovation.

Another disadvantage is the *lack of sustainability of economies of scale* due to the limited zero profit margin, so that such companies have fewer resources to invest in expanding their production capacities. Expanding production capacity could potentially reduce operating costs and increase profit margins, but the existence of small companies attacking market share for the same product prevents this and ensures that the average company size remains small (Makowski and Ostroy 2001).

3. MARKET COMPETITION IN THE ERA OF THE INTERNET AND MODERN TECHNOLOGY

One of the first effects of the Internet on perfect competition is its role in increasing market transparency. With the proliferation of online platforms and search engines, consumers now have near perfect access to information about products, price, quality, sellers, etc. This increased transparency reduces information asymmetry, one of the main prerequisites for perfect competition, as consumers can now easily compare products from different suppliers. As a result, companies need to be more efficient and price competitive in order to attract customers in this highly transparent environment.

3.1. The impact of the Internet and modern technology on the traditional concept of market competition

The emergence and wider use of the Internet offers new opportunities for value creation, making the appropriation of newly created value a greater challenge. Modern technology is simultaneously impacting the structure of supply and demand and radically reshaping existing markets. As the Internet and modern technology impact industries in different ways simultaneously, it is undeniable that simply analyzing their impact on price and quantity movements misses the bigger picture of this phenomenon, that (in fact) entire industries are being reshaped, directly impacting the bargaining power of market participants on the supply and demand side (Brown and Goolsbee 2002).

The Internet influences conventional competitive strategies in at least three different ways (Brown 1994):

- the higher efficiency resulting from lower transaction costs and new forms of organization changes the cost structure of the company;
- the reduction in the consumer's search time (costs) and the new possibilities for product differentiation and redefinition have an effect on the consumer's higher willingness to pay;
- electronic markets enable new pricing mechanisms.

Similar changes are taking place in a number of industries, particularly those in which information plays a key role, whether as content (e.g. media industry), as a form of communication (e.g. telecommunications industry) or as information infrastructure (e.g. computer and electronics industry). All of these industries have undergone fundamental organizational changes and have been involved in the process of industry convergence, while new industries with new competitive dynamics have emerged.

The Internet has revolutionized the traditional concept of market competition and competitive advantage by leveling the business conditions of market competitors and challenging the sustainability of traditional business models. Strategic positioning is now

the key to sustainable advantage and challenges the concept of operational efficiency. The impact of the Internet on industry profitability and customer bargaining power can no longer be denied (Brown 1994).

The Internet lowers barriers to market entry and allows new entrants easier access to various industries, leading to an increase in the number of market participants and a more intense and dynamic competitive environment. The Internet lowers costs and other barriers to starting a business, allowing start-ups and small businesses to compete with larger, established companies. This encourages companies to adapt and innovate to maintain their advantages in the marketplace (Cassiman and Sieber 2002). Therefore, strategic positioning plays a crucial role in overcoming the challenges and opportunities presented in the ever-evolving *landscape* of the Internet age. In this era where the Internet has standardized business practices and diminished the ability to create sustainable operational advantages, companies must find ways to strategically differentiate themselves. Increasing market competition in the Internet era makes it more difficult for companies to make a profit as the *nature* of competition shifts to price. However, by using Internet technology effectively, companies can use it to strategically differentiate themselves. This includes perceiving the Internet as an opportunity to create a recognizable strategic positioning.

3.2. The Internet and modern technology as a challenge to the ideal of perfect competition

On the other hand, it should be emphasized that the Internet and modern technology pose a challenge to the ideal of perfect competition. One of these challenges is the emergence of platform monopolies and *winner-takes-all* markets. The dominant online platforms such as Amazon, Google and Facebook have significant market power that allows them to control access to consumers and extract profit margins from both users and advertisers. This concentration of market power restricts the competitive environment envisioned under perfect competition, as these platforms can encourage anti-competitive practices and prevent new firms from entering the market (Cassiman and Sieber 2002).

The digital economy introduces new forms of market imperfections, such as network effects and information asymmetry, which limit the achievement of allocative efficiency (Venkateswarlu 2014). Network effects, where the value of a product or service increases with the number of users, can lead to the emergence of natural monopolies, as can be observed in social media platforms and online marketplaces (Brown and Goolsbee 2002). In addition, the collection and use of consumer data by technology giants leads to information asymmetry, giving these companies a competitive advantage and increasing inequalities in the market (Barbić 2010).

Modern technology can also lead in the *opposite direction*, namely to monopoly production. Technological progress can lead to new inventions being patented, resulting in the dominance of one company in a particular sector. These patents increase the legal barriers to market entry and make the market less perfect. A firm can further secure its monopoly position by practicing predatory pricing tactics and further lowering prices to discourage new firms from entering the market. In this sense, modern technology makes the perfect market a less realistic option (Hannan and McDowell 1990).

3.3. Porter's forces for perfect competition under the conditions of the Internet and modern technology

The Internet has had a major impact on business conditions, working hours and the working environment, and the need for a full-time work team no longer exists. The business chain has become a combination of internal, electronic and external collaborators. Modern technology has increased the bargaining power of buyers and suppliers, providing them with near perfect market information as a prerequisite for perfect decision making. These modern phenomena are included in *Porter's Five Forces* model for perfect competition under the conditions of the Internet and modern technology (Karagiannopoulos, Georgopoulos, and Nikolopoulos 2005).

Threat of new entrants - barriers to entry have fallen in many industries because the Internet allows new competitors to market their products and services easily, quickly and cheaply (without large capital investments). In addition, the formalities for setting up a company are disappearing completely in certain sectors (e.g. Amazon, Shopify).

Threat of substitute products - under the conditions of the Internet and modern technology, a substitute product can be delivered easily and quickly via alternative distribution channels. This threat is exacerbated in those industries where switching costs are low and customers' propensity to switch is high (e.g. online newspapers have become substitutes for printed daily newspapers).

Bargaining power of buyers - modern technology has increased the bargaining power of buyers wherever they can easily and quickly obtain information about competing products (with the help of search engines). Due to the availability of substitute products and low switching costs, it is now easy for customers to switch suppliers (e.g. airline ticket prices are updated in real time and can be easily compared before making a purchase decision).

Bargaining power of suppliers - modern technology has increased the bargaining power of suppliers as manufacturers, business owners and companies now have global access to (actual and potential) customers of their products (e.g. online retailing and electronic payments have made it easier for suppliers to reach more customers).

Competition - The Internet has significantly increased competition between suppliers as companies provide more and more information about themselves and their products on their websites, making it easier for competitors (satellites) to imitate them (e.g. mobile phone companies often aggressively advertise new features, directly informing their competitors).

Although there is undeniably a duality regarding the role of the Internet and modern technology in the sustainability of the traditional concept of perfect competition, especially in terms of product homogeneity and the phenomenon of price taking, *Porter's forces* are in favour of the classical model of perfect competition, mainly due to perfect information and free entry and exit from the industry. However, the latter favours innovation and product differentiation, which contradicts the basic assumptions of perfect competition and confirms the dual role of these phenomena.

3.4. Perfectly competitive innovation

Innovation is the driver of progress that characterizes modern societies and economies. In a perfectly competitive market, where numerous companies compete with identical products, innovation plays a key role in maintaining competitiveness and promoting

long-term growth. However, the dynamics of innovation within such a framework present unique challenges and opportunities.

One of the defining characteristics of perfectly competitive markets is low profit margins, especially in the long run, which leads to their disappearance. The absence of profits can reduce companies' efforts to invest in innovation, i.e. in research and development activities. In addition, competitive pressure to keep prices low may discourage investment in innovation as companies prioritize cost efficiency over product differentiation (Boldrin and Levine 2008).

On the other hand, the ruthless competition that prevails in perfectly competitive markets can serve as a catalyst for innovation. Companies must constantly look for ways to increase efficiency, improve product quality or otherwise differentiate themselves in order to gain even a small competitive advantage. This quest for competitiveness fosters a culture of continuous improvement and innovation in the marketplace. In addition, companies in perfectly competitive markets tend to imitate innovations quickly. Since there are no barriers to entry or exit in the industry, companies can easily imitate successful innovations, leading to a rapid diffusion of new technologies and ideas throughout the market. While this innovation *spillover* may seem daunting for companies investing in innovation, it also creates a dynamic environment where innovation is the norm, not the exception.

The role of government policy and regulation also affects innovation in perfectly competitive markets. Policies that promote competition and protect intellectual property rights can create an innovation-friendly environment. For example, antitrust laws prevent monopolistic practices that stifle competition and innovation, while patent laws encourage companies to invest in research and development by granting them exclusive rights to their inventions for a limited period of time (Boldrin and Levine 2008).

Furthermore, the nature of innovation in perfectly competitive markets goes beyond technological progress and requires innovation in business models, marketing strategies and organizational structures. To succeed in such a competitive environment, companies must therefore continuously adapt and innovate in all areas of their business.

Finally, while perfectly competitive markets pose a challenge to innovation, as no significant profits are made and imitation is easy, they also incentivize innovation so that companies maintain a competitive advantage. The dynamic nature of these markets fosters a culture of continuous improvement and adaptation that promotes progress and growth.

4. THE IMPACT OF THE INTERNET AND MODERN TECHNOLOGY ON COMPETITION IN THE INSURANCE INDUSTRY

The insurance industry has faced enormous changes not only in recent years, but also in the last decade. Historically low insurance rates (in the last ten years) have led to riskier investments by insurance companies. The company's business activities are also characterized by risks due to adverse circumstances in the period 2020-2021 caused by the coronavirus pandemic. In addition, user expectations are changing from day to day and service providers are expected to meet them in the shortest possible time.

Recently, there has been an explosion in the growth of e-commerce and online markets as an alternative or complement to traditional retail markets. Consumers can now compare between hundreds of suppliers online with much less effort than in the real world. This suggests that the Internet is reducing search time and costs for consumers

and (consequently) making prices and markets more competitive, although it should be noted that data availability is limited by sector analysis.

By combining data sets from the Internet and the life insurance industry (over time), it is possible to document how important the Internet is for this industry in terms of market competition (Campbell 2021).

Digital transformation can help insurers meet the expectations and needs of new customers by driving product development and offering channels such as *digital-first experiences* and *24/7 support*. In addition, digital capabilities can help achieve operational goals such as fraud prevention and *Integrated Risk Management* initiatives. Innovation through new technologies is a key driver of change in the financial sector, leading to immeasurable efficiency gains, even if these changes may initially be accompanied by uncertainty and doubt. The insurance sector is no exception to this trend, offering the opportunity for new methods of service delivery and greater data collection and fraud detection capabilities that can lead to better identification of risks and actions to mitigate them.

There are a number of areas of insurance where further discussion should take place, as the transparency of the technology and the impact on policyholder choice and rights may not be clear. Digital data collection raises the possibility that a certain portion of the population may become uninsured, so careful consideration should be given to how the data is collected and used. The treatment of algorithms is also an area that needs further discussion to ensure that the assumptions built in are appropriate and unintended consequences are avoided as far as possible, and regulators should be involved in this assessment. This could have implications for the ongoing monitoring of operational risk and the insurer's internal controls.

How insurance risk and return are assessed depends to a large extent on the data available, which is why data has always been at the heart of the insurance industry. In order to form broad risk pools and allocate premiums to them, insurers often have to rely on past experience, long-term analysis and information provided by customers. A potentially perfect (unstoppable) data flow has the potential to fundamentally change current practice as it will allow insurers to have far more accurate data at their disposal. Now that insurers have access to more accurate and higher quality data from connected devices, they will be able to better understand consumers' wants and needs (Brown 1994).

New technologies are also changing consumers' experiences and expectations. Until now, insurers have mainly used the Internet to speed up and simplify the process of taking out insurance and handling claims, but also to facilitate interaction with end consumers. However, as more and more innovative services and business models are created based on modern technologies, insurers are developing new knowledge and skills and applying them to their products and services.

For example, users can now submit claims via mobile apps, by sending pictures from their smartphone or even via real-time video chat, eliminating the need for paperwork. Customer satisfaction is determined by the quality and speed of service provided, which in turn can increase the insurance company's profits through a higher customer retention rate. Improved user experience, personalized user data, lower costs and waiting times are just some of the ways in which the Internet and modern technologies can be used in the insurance market (Campbell 2021).

The benefits of new technologies continue to impact this industry. Based on the data collected, insurance companies can continue to save time and money by installing new

fraud detection models. More accurate risk assessment will also be possible, as insurers will have access to much more information about each individual customer (to create a customized risk assessment). Future insurance plans will not only protect insurance companies by detecting abuse or fraudulent claims, but also motivate customers to be more cautious (by rewarding appropriate behaviour).

Numerous case studies based on insurance companies show how *blockchain technology, the sharing economy, robo-advice* and *data aggregation* are impacting the insurance sector. It also explores the ways in which insurers are using new technologies to ensure better regulatory compliance. New technologies and innovations can have an impact on the franchise value of insurance companies, which raises competition policy considerations.

4.1. Blockchain technology

Blockchain or distributed ledger technology is a protocol for exchanging values or data over the Internet that does not require an intermediary. The protocol of Blockchain technology is the creation of a shared, encrypted database for transactions and other information. The technology provides for the establishment of an ever-lengthening chain of data blocks, with each block containing a compact record of transactions that have been confirmed by the Blockchain participants, with the Blockchain assuming that the information in the blocks is true. Once the transaction is confirmed and recorded, the stored record is irreversible (OECD 2017)

Blockchain technology can bring significant improvements in terms of efficiency, cost savings, business transparency, faster payout of the sum insured and much more, while enabling reliable and consistent data exchange between different parties in real time. Insurance companies operate in a highly competitive environment where both private and corporate customers expect the best value for money and an excellent online experience. In this sense, Blockchain technology represents an opportunity for positive change and growth in the insurance industry.

4.2. The sharing economy

The sharing economy is increasingly becoming a part of commercial practice as services such as sharing transportation (e.g. Uber, BlaBla Car) or housing (e.g. AirBnB) become common and popular service platforms. As they are commercial services, these services will need to take out insurance for certain aspects of their business. Furthermore, it is highly likely that the Millennial generation, entering their prime shopping period, will favor digital solutions for insurance transactions. With this in mind, insurers are encouraged to rethink how they approach the distribution and claims management of such products and services, particularly given the nature of the product and service, which present unique risk-taking challenges (OECD 2017).

4.3. Robo-advice

While price comparison and sales websites for consumer products are becoming more widespread, great efforts are being made to develop websites that offer financial advice tailored to the capabilities (income) and needs of policyholders, with greater automation

through algorithms for products with investment components or savings. This could help protect the lower-income population by reducing the cost of such services.

The possibilities of robo-advice can be divided into the phases (OECD 2017):

- *understanding customer needs* - gathering information about customers, understanding needs and preferences, assessing risk tolerance;
- *propose insurance* - draw up a financial plan, select the distribution of funds;
- *implementation of the insurance* - account opening, transfer of ownership;
- *insurance monitoring and adjustment* - quarterly or annual performance reviews, dashboards and alerts on the status of market updates and research.

Compared to robo-advice, human interaction has the advantage that long-term relationships can lead to trust and understanding between the insured and the financial advisor, especially in times of financial difficulty. In addition, financial advisors may be more successful in persuading policyholders to take certain actions. In addition, robo-advice has not been tested in unfavourable market conditions when assets lose value, so it is unclear how robo-advice would *perform* in such situations. Onwards, robo-advice can develop a financial plan that takes into account multiple goals, including retirement planning, protection needs, estate planning, health and long-term care insurance, etc.

4.4. Aggregation of data

The Internet, the Internet of Things (IoT), handheld devices and applications are expanding the opportunities that technology can provide in collecting data about organisations and individuals. Social media, as well as devices such as FitBit and AppleWatch, allow device operators to collect data on individual activity as well as data on people's health. While insurance companies have traditionally relied on quantitative data to make risk management decisions, data analytics goes beyond this realm and can be controversial in some situations.

In the past, for example, motor insurance has relied on internal data sources such as claims (damage) history. However, auto insurers have begun to incorporate customer behavior into their analyzes and credit reports from credit bureaus. For example, auto insurers conclude (based on empirical evidence) that customers who pay their bills on time are also safer drivers. Some insurance companies may include such data in their analyzes if they have an agreement with a *data collector* or purchase data from a *data aggregator*. Since insurance companies rely on actuarial risk assessment, more relevant data would make analysis much easier (Indeed 2023).

Another example of such efforts is the linking of longevity data via facial recognition technology, to life insurance underwriting. Facial recognition technology is used to predict factors such as chronological age, gender, smoking habits and body mass index (BMI). Based on this data and with the help of an activity sensor, such as a FitBit or a physical activity tracker on a mobile phone, a person's life expectancy is estimated. This data then forms the basis for creating a life insurance policy.

CONCLUSION

Market positioning is a complex process that requires a comprehensive analysis of the needs, preferences, behaviour and purchasing power of consumers in a particular geographic area or industry segment. By constantly monitoring and adapting to changes

in the turbulent market environment, companies can position themselves successfully, meet the needs of their target group and achieve sustainable growth in the long run.

The Internet and new technologies have completely changed the structure of the market in which companies operate today. *On the one hand*, they have brought markets closer to the concept of perfect competition by offering their participants (buyers and sellers) near perfect information in real time, complete mobility of labour and capital, and easy entry or exit from the industry. Online marketplaces and e-commerce platforms offer businesses a cost-effective way to reach a global audience without the need for significant capital investment in physical infrastructure. This ease of reaching a target audience promotes competition by allowing a variety of companies, including small firms and start-ups, to participate in the market, preventing monopolistic tendencies and promoting allocative efficiency.

On the other hand, it is precisely perfect information and the freedom to enter and exit the industry that facilitates innovation and product differentiation and questions the viability of the traditional concept of perfect competition under the conditions of the Internet and modern technology. The removal of barriers to entry, which allows new entrants easier access to different industries, leads to an increase in the number of market participants and a more intense and dynamic competitive environment. This encourages companies to adapt and innovate in order to maintain a competitive advantage in the market. Achieving higher profit margins and a larger market share also allows companies to invest in innovation and differentiate themselves from the competition.

Despite its theoretical perfection, a perfect market rarely corresponds to economic reality, and most markets exhibit some degree of imperfection. Nevertheless, the concept of perfect competition remains a useful tool for understanding market dynamics and analyzing the efficiency of market outcomes. By comparing market structures and actual market outcomes with idealized conditions of perfect competition, economists can identify areas where markets do not allocate resources efficiently and suggest appropriate interventions and solutions.

The importance of the Internet and new technologies for the insurance industry can be seen in the discussion about *blockchain technology*, *the sharing economy*, *robo-advice* and *data aggregation*. It can be concluded that insurers can expect potentially perfect access to information, which not only enables a perfect understanding of consumer preferences, but also reduces business risk and (through the reward system) motivates policyholders to behave appropriately.

ACKNOWLEDGEMENT

This work has been fully supported by/supported in part by the University of Rijeka, Croatia under the project number “uniri-iskusni-drustv-23-246”.

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