DOI: https://doi.org/10.37075/SPM.2022.14

Pricing Strategies in a Digital Environment

Tatyana Netseva-Porcheva[1]

Abstract: The paper aims to find out if there is a difference in the pricing strategies in online and offline environments as well as to establish the most common pricing strategies used by companies in a digital environment. With this regard, online research has been carried out of executive directors/managers/experts in 150 companies that provide services in three product categories: digital products; non-digital products sold both offline and online or online only; and digitalised services in addition to traditional offers. It is established that for the majority of the companies that sell both offline and online there is no difference in the pricing strategies used. The most common pricing strategy applied in a digital environment according to the adopted revenue model is dynamic pricing, of the product mix pricing strategies – bundle pricing, and according to the payment method – rebate systems.

Key words: pricing strategies in a digital environment, pricing strategies according to the adopted revenue model, product mix pricing strategies, pricing strategies according to the payment method

JEL: M39, D47

Introduction

Price is a strategic tool that companies use to position themselves in a competitive environment. Today, more than ever, managers are aware of the importance of price as a key element on which the competitiveness, size of revenues and profits of companies largely depend (Nikolova, 2019). In the era of digitalisation, strategic flexibility is a core competence that is particularly important for price management (Frohmann, 2018). Economy digitalisation results in significant changes in the way companies price products. On the one hand, consumer behaviour is changing (more information is available online, search engines and price robots help find the best offers). On the other hand, market structures are becoming more fragile (barriers to entry for new competitors are reduced, traditional products are cannibalized by digital products) and competition is intensifying (Krämer and Kalka, 2017, p. 87). Not only did this lead to new business models and products, but it also forced companies to rethink the pricing strategies they implement.

The report topicality is determined by the challenges that digitisation poses to companies in relation to pricing.

The paper objectives are: (1) to find out if there is a difference between company pricing strategies online and offline; (2) to find out which are the most common pricing strategies used by companies in a digital environment.

The expected results are to answer the above questions, which will give a clearer idea of company pricing in a digital environment.

The limitations of the study are that: (1) the study refers only to products that are sold in a digital environment; (2) the subject of research is only company pricing strategies in a digital environment.

The issue of pricing in a digital environment has been widely discussed over the last years.

[1] Assoc. Prof. Dr. Tatyana Netseva-Porcheva
University of National and World Economy – Sofia, Bulgaria
Department of Marketing and Strategic Planning
ORCID: http://orcid.org/0000-0001-9415-143X
email: t_netzeva@unwe.bg

DOI: https://doi.org/10.37075/SPM.2022.14

The scientific literature review has shown that most studies are of theoretical rather than empirical character and are aimed at clarifying the nature of pricing strategies in a digital environment as well as their advantages and disadvantages. The issues that are of minor importance are the ones about the difference in company pricing strategies online and offline as well as of the most commonly used company pricing strategy in a digital environment. These are the issues this paper attempts to clarify.

Literature review

According to Simon (2015), it could be assumed that in the centuries-old history of prices, everything has been discovered and studied, all opportunities have been taken advantage of, and innovations are very rare. In practice, however, over the past thirty years, the complete opposite has been observed – new ideas have arisen, new systems and methods have been used to collect information about prices and their implementation. Modern information technologies and the Internet create opportunities for pricing that until recently were considered the realm of fiction (Simon, 2015).

The most direct and powerful effect of the Internet so far has been price transparency resulting in an increase in consumer price sensitivity (Simon and Fassnacht, 2019).

New technologies give companies the unprecedented opportunity to track and analyse consumer behaviour, obtain valuable information about consumer preferences (which provides for product personalisation) and deeper knowledge of consumer sensitivity to prices and willingness to pay in an online environment (Hinz et al., 2011).

Competitor prices are more easily tracked. Obtaining real-time information about consumer behaviour and competitor pricing give rise to dynamic pricing (Mauri, 2014).

According to Frohmann (2018), the main advantage digitalisation gives companies in terms of pricing is the opportunity for optimisation of the pricing process. Apart from optimisation, the pricing process should reflect higher level decisions about company business model and revenue model. A starting point for optimisation is customer benefit (the value of the product to the customer) defined in the business model, and the customer value delivered and willingness to pay should be the focus when developing the revenue model and pricing strategy (Frohmann, 2018). What is more, new technologies and the Internet led to the emergence of a number of innovative payment systems. These systems influenced consumer behaviour in a digital environment and consumer willingness to pay (Simon and Fassnacht, 2019). Kotler, Chao, Wang and Quiao (2020) think that the trends in the pricing in a digital environment vary from "charging to free of charge and subsidies" to "from indifference to dynamic pricing and pricing based on scenes". Pricing structures change in a digital context (Docters, Tilstone, Bednarczyk and Gieskes, 2011) and become increasingly complex (Frohmann, 2018).

Krämer, A. and Kalka, R. (2017) examine the implementation of the different pricing strategies, relating them to business and marketing objectives. According to them, when the goal is to attract new customers and build loyalty among consumers quickly in a digital environment, free, freemium and subscription strategies are employed. With dynamic pricing, companies try to determine a price that the target group is ready to pay for a product based on different criteria. Bundle pricing is used when a company aims to generate revenue from the sale of products that would be less often bought separately, and captive product pricing is used in cases where there is a main product for the functioning of which additional products must be regularly used. With the pay-what-you-want (PWYW) strategy, unlike the name-your-own-price (NYOP) one, the use of the product may occur before payment and the seller has no authority

DOI: https://doi.org/10.37075/SPM.2022.14

to accept or refuse shipment at the price specified by the buyer. With rebate systems, there is customer redirection to partner shops via a digital platform and commission is received for each redirection, which leads to a purchase, i.e. there are B2B and B2C business relationships.

The literature review shows that in a digital environment, companies use other pricing strategies in addition to traditional ones. Some of them are applicable in both online and offline environments, while others are primarily used online. The most common company pricing strategies applied in a digital environment are: for free, freemium, subscription, differential pricing, dynamic pricing, bundle pricing, captive product pricing, product line pricing, name-your-own-price, pay-what-you-want, rebate systems and pay-per-use.

Methodology

In accordance with research objectives, the following working hypotheses are tested in the paper:

H1: Most companies use different pricing strategies in online and offline environments.

H2: The most common reasons for companies to use different pricing strategies in online and offline environments are the opportunities provided by digital environment and the differences in the costs for product distribution in online and offline environments.

H3: The most common pricing strategy according to the adopted revenue model and used in a digital environment is dynamic pricing.

H4: The most common pricing strategy according to the product mix and used in a digital environment is bundle pricing.

H5: The most common pricing strategy according to the payment method and used in a digital environment is the rebate systems strategy.

An empirical study was conducted to achieve the research objective and test the working hypotheses.

The object of research are three product categories: (1) digital products (cloud storage, software, online conversations, mobile applications, etc.); (2) non-digital products sold online and offline as well as online only (online newspaper and magazine subscription, online air ticket sales, online rental, etc.); (3) digitalised services as a complement to traditional offers (online machine maintenance, online consultations, etc.).[1]

The subject of research is company pricing strategies in a digital environment. In this paper, pricing strategies are grouped according to the following characteristics: adopted company revenue model; product mix, and consumers' payment method. The reasons to group pricing strategies this way are that: (1) digital environment creates opportunities for companies to use revenue models that are different from the ones used offline and revenue is crucial for company success; (2) in most cases, companies offer more than one product; and (3) digital environment creates opportunities to use more convenient consumer payment methods.

The main method of data collection used is the structured personal online survey. It was chosen because of the following advantages: easy access to respondents; easy administration and control of research; low cost of data collection; facilitated data processing and analysis; convenience for the respondent; dynamic organisation; survey conducting and information analysis.

The survey was conducted in the period June-July 2022.

The observed units in the research are companies selling products online. The target

[1] The differentiation of the three product categories is according to Frohmann, F. (2018) *Digitales Pricing: Strategische Preisbildung in der digitalen Wirtschaft mit dem 3-Level-Modell*. Springer Gabler.

DOI: https://doi.org/10.37075/SPM.2022.14

respondent in each company is the CEO/manager/expert who in terms of the distribution of functions in the particular company is in charge of prices and pricing.

The sample size is 150 investigated units (companies) and the data obtained from them are the subject of analysis. It is assumed that this volume is large enough to provide insight into the pricing strategies used by companies in a digital environment.

The statistical data processing was realized with the use of the IBM SPSS Statistics v23 programme.

Results and discussion

Respondent profile

According to the way of product realisation – 74,0% of the companies in the sample offer products online and offline and 26,0% – online only. According to the product category– 40,0% of the companies offer non-digital products sold online, 38,0% – digitalised services as a complement to traditional offers and 22,0% – digital products. According to the target consumers – 26,7% of the companies sell to end consumers, 18,0% – to business consumers and 55,3% – sell to both end consumers and business consumers.

Pricing strategies in a digital environment – general questions

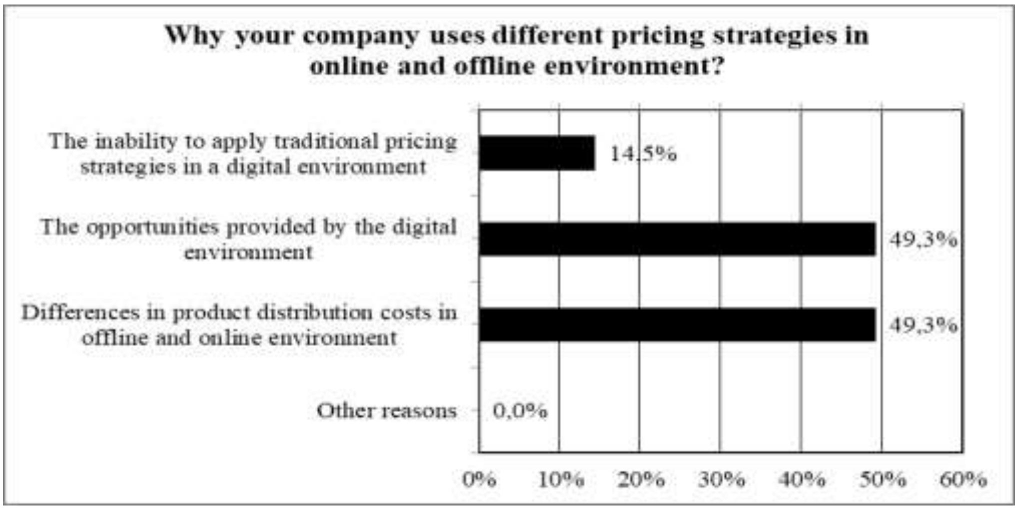
54,0% of the companies in the sample use the same pricing strategies in online and offline environments (Figure 1). This means that when developing a pricing strategy, most of the companies still have not started taking advantage of the challenges and benefits provided by digitalisation.

Source: Empirical survey from 2022.

Figure 1: Distribution of the studied aggregate of companies according to whether their pricing strategy differs in online and offline environments

In order to find out why some companies use different strategies for online and offline sales, only the respondents from the companies with such differences are asked about the reasons for this. The answers to this question show that the traditional pricing strategies companies implement in an offline environment can be used in an online environment as well. The main reason not to apply them in a digital environment is not the impossibility for this (for only 14,5% of the companies the respondents have given this reason). The reasons why companies use different pricing strategies online are related mostly to (1) the opportunities provided by digital environment and (2) lower costs for product realisation online. These reasons were

DOI: https://doi.org/10.37075/SPM.2022.14
given by 49,3% of the companies in the survey (Figure 2).



Note: The total percentage of responses is over 100 because the respondents chose more than one answer.

Source: Empirical survey from 2022.

Figure 2: The reasons why companies use different pricing strategies in online and offline environments

Pricing strategies according to the adopted revenue model

The most common pricing strategies according to the adopted revenue model and used in a digital environment are the following ones: for free, freemium, subscription, differential pricing and dynamic pricing.

The distribution of the respondents' answers with relation to the adopted pricing strategy according to the revenue model chosen is shown in Figure 3.

Note: The total percentage of responses is over 100 because the respondents chose more than one answer.

Source: Empirical survey from 2022.

Figure 3: Company pricing strategies in a digital environment according to the revenue model chosen

DOI: https://doi.org/10.37075/SPM.2022.14

14,0% of the companies in the sample use the for free strategy. The companies that have adopted this pricing strategy set a zero price for the product offered and, accordingly, end users pay nothing for it while the supplier company generates revenue from advertising to business customers or from selling information to third parties /advertisers/.

24,7% of the companies from the studied aggregate use the freemium pricing strategy. These companies offer their main product or its base variant for free and consumers pay only for its upgrade functions (added to the base version). With this pricing strategy, the basic (free) version of the product is cross-funded by the premium revenue.

Subscription pricing is used by 28,0% of the respondent companies. These are companies interested in building a closer connection between company and consumers, encouraging greater consumer involvement, generating consumer loyalty or achieving a more efficient use of production capacity or marketing opportunities. Subscription pricing enables companies to manage stock on a regular basis, to create new marketing channels and guarantee themselves more stable income over time. In this survey, subscription pricing is used by companies offering digital services (cloud services), digitalised services (providing video content) or non-digital products through a developed online store and by new players in the market who are developing their overall concept on a subscription basis.

Another 28,0% of the companies in the sample use differential pricing. They set different prices for different consumer groups (market segments) for the same products or for modified ones, or by setting different prices for the same products, but in different channels. Differential pricing in different channels (online or offline) is mainly because of the differences in the costs for product transportation and storage as well as for channel management (Atanasov, 2016, p. 154). By using different prices, companies use price to optimise profit based on the differences in consumer preferences, on the price elasticity of demand and on consumer willingness to pay for the same offer. According to Simon (1992), price differentiation according to consumer characteristics, region of sale, time of purchase and sales channel is most applicable for digital products.

44,7% of the respondent companies apply dynamic pricing and change product prices at certain time intervals according to the current market situation. The companies that have adopted this pricing strategy use the opportunities given by new technologies fully, track and analyse consumer behaviour (their preferences, past actions, price sensitivity, willingness to pay, etc.) and based on this develop algorithms for automatic adjustment of prices in real time. They avail of the opportunities provided by digitalisation and use them to set personal prices for each customer and thus optimise sales revenue and company profit. Dynamic pricing strategy is the most common strategy according to the adopted revenue model for all three product categories that are subject to this research.

5,3% of the surveyed companies do not use a pricing strategies according to the adopted revenue model.

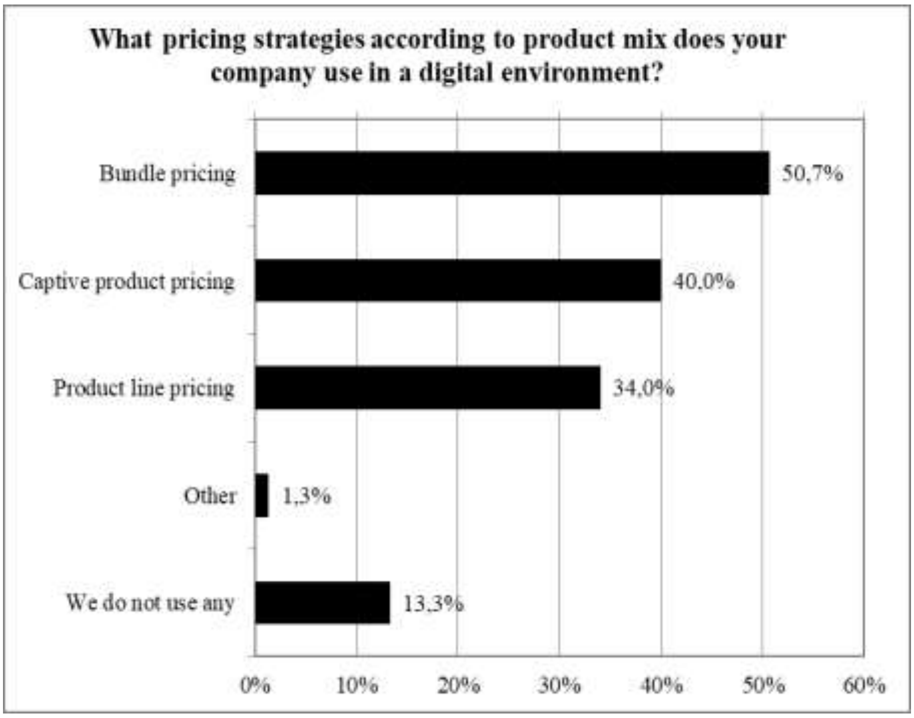
Pricing strategies for a product mix

The pricing of a set of products, including in a digital environment, is more complex because the goal is to optimise the profit from the entire product mix, not of the individual products in the set. The product mix pricing strategies employed in an online environment do not differ significantly from the ones used in an offline environment. The most commonly used product mix pricing strategies are: bundle pricing; captive product pricing and product line pricing.

The answers to the question "What pricing strategies according to the product mix does

DOI: https://doi.org/10.37075/SPM.2022.14

your company use in a digital environment?" are presented in Figure 4.



Note: The total percentage of responses is over 100 because the respondents chose more than one answer.

Source: Empirical survey from 2022.

Figure 4: Company product mix pricing strategies in a digital environment

50,7% of the respondents have indicated that their companies use a bundle pricing strategy. The high percentage of companies in the sample that implement this type of pricing in a digital environment is not accidental. The bundle pricing strategy is gaining more and more popularity in the digital environment, and mostly in relation to digital products. There are at least three reasons for this: (1) the low marginal costs of digital products make bundling them an attractive marketing strategy, even if consumers do not use some of them (Choi, 2012, p. 2); (2) digital products are often characterized by network effects which means that the benefits a user derives from a particular product increase with the number of other users using the same product; (3) digital convergence brings together different products that were previously separate (e.g. the broadcasting industry (Yoo, 2009)).

40,0% of the companies in the sample implement a pricing strategy for products connected in use. The goal of the companies that have adopted this pricing strategy is an optimal overall result of the revenues realized from all products (main product and additional ones).

34,0% of the respondents have indicated that their companies implement a product mix pricing strategy. The companies that have adopted this pricing strategy set a price floor and ceiling for the products in the line and a price step between individual products. The goal of the companies is to optimise the revenue from the product line as a whole, which is the major advantage of this pricing strategy.

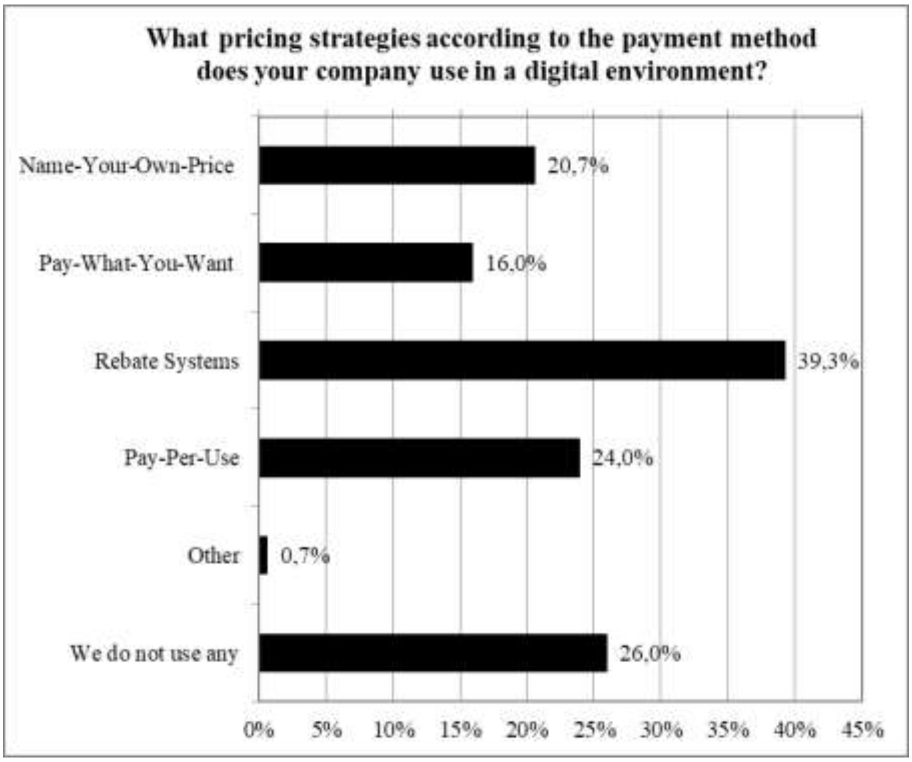
DOI: https://doi.org/10.37075/SPM.2022.14

13,3% of the surveyed companies do not use a product mix strategy.

Pricing strategies according to payment method

In terms of payment method, the most common pricing strategies are: name-your-own-price (NYOP); pay-what-you-want (PWYW); rebate systems (RS) and pay-per-use (PPU).

The distribution of the answers of the respondent companies and according to the payment method is shown in Figure 5.



Note: The total percentage of responses is over 100 because the respondents chose more than one answer.

Source: Empirical survey from 2022.

Figure 5: Company pricing strategies in a digital environment according to the payment method

39,3% of the companies offer discount shopping in a digital environment (Rebate Systems (RS)). The companies implementing this strategy use a digital platform to redirect customers to partner shops and receive commission for each referral resulting in a purchase. Commission varies for different shops. This amount is then credited to the customer's account in the form of a discount. Consumers are satisfied with the purchase of a product at a discount, and the owner company of the platform realizes income from the business partners it works with.

Pay-Per-Use pricing (PPU) is implemented by 24,0% of the companies in the sample. They measure the usage of the product and bill the customer each time he/she uses it. The logic behind this pricing strategy and payment method is that it is not always important for customers to have the product, but rather the needs it can satisfy. The benefits for the users of this payment method are that: they pay only for what is used, no excess capital and other costs are imposed, operational risk is transferred to the company providing the product and responsible for its maintenance. For

DOI: https://doi.org/10.37075/SPM.2022.14

companies, the advantage of the PPU strategy implementation is that they extract value from their customers more effectively since customers' willingness to pay is greater when they pay based on product usage. The main disadvantage of this strategy is the impossibility to forecast the revenue of the supplier company.

20,7% of the respondent companies implement the Name-Your-Own-Price (NYOP) strategy with which the customer offers a price for a given product sold on the Internet and, then, the seller decides whether to sell at this price or not. With NYOP sellers first list products with their own threshold prices that are not visible to buyers. Once a buyer likes a product, they announce the price they would pay for it. If the price offered by the customer is equal or higher than the threshold price, the deal is closed at the price indicated by the buyer. It is binding and payment is secured by credit card number or an automated clearing house. If the price offered by the customer is lower than the threshold prices set by all sellers, the customer is given the opportunity to make another offer.

16,0% of the companies use the Pay-What-You-Want (PWYW) pricing strategy with which the customer sets a price and pays what they want without the seller being able to reject the offer. The low percentage of the surveyed companies that have adopted this pricing strategy can be explained with the fact that with it seller's revenue depends entirely on the buyer and thus the strategy is risky for the seller. What is more, the strategy is applicable mostly to products of social character and the price the customer decides to pay depends on their social preferences and understanding of fairness, and the share of the surveyed companies offering such products is small.

26,0% of the companies in the sample do not use pricing strategies where the leading criterion is the payment method.

In summary, based on the empirical results, a check of the working hypotheses has been done and its results are given in Table 1. The table shows that of the five working hypotheses four have been confirmed and one has been rejected.

Table 1: Hypotheses check results

	Hypothesis	**Result**
H1:	Most companies use different pricing strategies in online and offline environments.	☒
H2:	The most common reasons for companies to use different pricing strategies in online and offline environments are the opportunities provided by digital environment and the differences in the costs for product distribution in online and offline environments.	
H3:	The most common pricing strategy according to the adopted revenue model and used in a digital environment is dynamic pricing.	
H4:	The most common pricing strategy according to the product mix and used in a digital environment is bundle pricing.	
H5:	The most common pricing strategy according to the payment method and used in a digital environment is the rebate systems strategy.	

Legend: ☑ *completely confirmed* ☒ – *rejected*

Source: Developed by the author.

DOI: https://doi.org/10.37075/SPM.2022.14

Conclusion

The results of the conducted empirical research show that the pricing strategies of most companies do not differ in online and offline environments. For companies where such differences exist, the most common reasons for this are the opportunities provided by the digital environment and the differences in the costs of distributing products offline and online. The most common pricing strategy according to the adopted revenue method used in a digital environment is dynamic pricing; bundle pricing is the most common product mix pricing strategy, while the most common strategy according to the payment method is the rebate systems strategy.

Pricing issues have always been topical, significant, complex, multi-layered and vast. To clarify the issue in more depth, in the future it could be investigated whether company pricing strategies in a digital environment differ by product category (digital products; non-digital products that are sold both offline and online or only online, and digitised services, in addition to traditional offers).

References

1) Choi, J. (2012) 'Bundling Information Goods' in: Peitz, M. and Waldfogel, J. *The Oxford Handbook of the Digital Economy*. Oxford University Press, pp. 1-23.
2) Docters, R., Tilstone, L. Bednarczyk and Gieskes, M. (2011) 'Pricing in the digital world', *Journal of Business Strategy*, 32(4), pp. 4-11. http://dx.doi.org/10.1108/02756661111150927
3) Frohmann, F. (2018) *Digitales Pricing: Strategische Preisbildung in der digitalen Wirtschaft mit dem 3-Level-Modell*. Springer Gabler.
4) Hinz, O., Hann, I., and Spann, M. (2011) 'Price discrimination in e-commerce? An examination of dynamic pricing in name-your own-price markets', *MIS Quarterly*, 35(1), pp. 81–98.
5) Kotler, M., Chao, T., Wang, S. and Quiao, C. (2020) *Marketing Strategy in the Digital Age. Applying Kotler's Strategies to Digital Marketing*. World Scientific Publishing Co. Pte. Ltd.
6) Krämer, A., Kalka, R. (2017). How Digital Disruption Changes Pricing Strategies and Price Models. In: Khare, A., Stewart, B., Schatz, R. (eds) *Phantom Ex Machina*. Springer, Cham, pp. 87-103. https://doi.org/10.1007/978-3-319-44468-0_6.
7) Mauri, A. (2014) Foreword: Marketing and Pricing in the Digital Environment in Viglia, G. *Pricing, Online Marketing Behavior, and Analytics*. Palgrave Macmillan, pp. vii-xiii.
8) Simon, H. (2015) Confessions of the Pricing Man: How Price Affects, Everything. Springer.
9) Simon, H. and Fassnacht, M. (2019) *Price Management: Strategy, Analysis, Decision, Implementation*. Springer. pp. 551-552.
10) Yoo, C. (2009) 'The Convergence of Broadcasting and Telephony: Legal and Regulatory Implications'. *Communications and Convergence Review*, 1(1), pp. 44–55.
11) Атанасов, Б. (2016) Ценови подходи в омниканалната търговия в '*Омниканална търговия и иновации*', София: ИК-УНСС, с. 151-155. (Atanasov, B. (2016) Tsenovi podhodi v omnikanalnata tatgoviya in '*Omnikanalna targoviya i inovatsii*'. Sofia: IK-UNSS, pp. 151-155.)
12) Николова, И. (2019) *Факторна обусловеност на конкурентоспособността на хотелиерския продукт*, София: Авангард Прима, с. 241. (Nikolova, I. (2019) *Faktorna obuslovenost na hotelierskiya produkt,* Sofia: Avangard Prima, s. 241.)