Business model transformation and business viability. Case of Yellow pages.

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ABSTRACT

The article discusses the theoretical aspects of the digital transformation impact on business models. The empirical study examines the evolution of the Yellow Pages (YP) industry, which was significantly transformed by the impact of technological progress. Studying the evolution of the elements of the YP business model, the authors conducted a thorough analysis of secondary information sources, using scientific literature, industry expert reports, published materials from industry conferences and other sources. The aim of the study was to analyse what factors and risks should be taken into account in order to keep the positive financial results of business and what aspects of profit retention could be useful for other sectors as well.

Keywords: business model, business ecosystem, digital platforms, digital transformation, disruptive innovation, pricing strategies, Yellow Pages.

1. INTRODUCTION

The development of IT technologies and introduction of the Internet offer the society new opportunities which, however, are not easily identified as traditional stereotypes are broken. The introduction of the Internet created the conditions for transforming people's behavior and types of communication by moving physical things to a virtual environment. The business ecosystem has supported the process of turning competitors into collaborative partners. Innovations offered by digitization can be used not only as innovative tools for the sustainable development of a company, but also as destructive innovation, replacing existing products with alternative solutions [3].

The authors studied the impact of destructive innovations through the evolution of a particular YP industry business model, including the transformations of the elements of value proposition and value creation as well as their effects on the attainment of positive financial outcomes. Following the successive consideration of each element of the business model, the authors analyzed how companies in the industry were able to adapt to the new competitive conditions in the global market, which completely disrupted the long-standing industry standard. The authors were looking for the answers to the following questions: (1) How does the disruptive innovation transform the business model? (2) How does the transformation of business model elements and their interactions form a new viable BM? (3) What risk factors could be generalized and taken into account in order to retain positive financial outcomes in the business?

The research is based on the theoretical analysis of scientific literature on the development of external environment and technologies on business model transformation, as well as on the publications of industry leaders, experts, associations, conference materials and Website companies.

2. LITERATURE REVIEW

The Internet and digitalisation is more than just another technology, it is something of a new, powerful communication tool [12]. With the advent of the Internet, companies have constantly been trying to discover new ways of expanding collaboration, organizing economic activities through virtual and real world interaction [22]. Consumer products, refrigerators, televisions, telephones are equipped with digital features that connect and that are connected to the Internet. The technologies are no longer just for data input and output, they enter the human life at an extraordinary pace, changing their behavior and various phenomena [24]. The existence of a virtual world opens up new opportunities for new marketing channels that are more efficient than the print media [22].

The organisation's strategy is no longer confined to the internal view of the company, but focuses on the business environment, the ecosystem [13]. The business ecosystem consists of individuals, organizations, public authorities, as well as rules that ensure the company interacts with customers, competitors, media, and others [16].

However, the exchange of services in the ecosystem is not effective without a service platform that helps to collect and distribute resources as a result of their effective work. Platforms bring together several consumer groups and create value only on the basis of mutual interest of consumer groups. "With two-sided network effects, the platform's value to any given user largely depends on the number of users on the network's other side. Value grows as the platform matches demand from both sides"[7].

Digital technologies have had a significant impact on the economy, changing the way businesses interact with each other and with their customers. They created not only an innovative environment in which companies operated at a higher level - faster, cheaper, smarter, but also they developed many new business opportunities. The Internet has enhanced both the speed of information gathering and the availability of a significant amount of information [12].

Innovative development can work in two ways, for example, in pertinence to the innovation in enterprise sustainable development by improving existing products that can be sold at higher prices and attracting more customers or by destructive innovation [3]. Destructive innovation offers an alternative to existing products that are much cheaper and simpler to use, and partially or fully replace existing products. Destructive innovations do not try to create better products, they introduce new products that are not currently available on the market. At the same time, while for one business, it can be destructive innovation, for another one it can be productive as it can promote sustainable development [3].

In recent years, the concept of a business model has become the subject of a growing number of both academic and practitioner studies [1], [2], [4], [9], [26]. Scholars from different research areas have recognized the potential of new business models in promoting competitive advantages of enterprises [4].

Scholars confirm that a business model can be a source of competitive advantage [2]. Thomas Clauss [4] summarising definitions given by scholars, considers business models as templates of how enterprises run and develop their businesses at holistic and system-levels. Many scholars consider that a business model integrates three main business dimensions – the value proposition, value creation and value capture [4]. The value proposition dimension contains a portfolio of solutions for customers and ways of how they are offered. The value creation domain defines how and by what means enterprises create value along the value chain. Value capture defines how value propositions are converted into revenues [4].

There is an increasing consensus that the business model innovation is key to enterprise performance [9]. Digitalization is a new source for business model innovations; therefore, it results in a higher degree of enterprise competitiveness. The main objectives of digital transformation are the obtaining of new data and using these data to reimagine old processes. A more data-oriented approach creates an opportunity for gaining new knowledge and reimagining business models. While the concept of digital transformation has been discussed for many years, the digital transformation of a business model is still disputable. Topical issues here are how to digitally transform business models, and what kind of tools should be considered [17].

In the phase of business model digital transformation, the investment in R&D plays an important role in keeping Value Capture at a positive level [5].

3. METHODOLOGY

To determine today's dominant business standard in the YP industry, its evolution over the past 25 years, the current status and forecasts of future trends have been explored. The authors have studied the YP industry conference information, publications by industry associations, such as SIINDA (Search & Information Industry Association https://www.siinda.com), LSA (The Local Search Association https://www.thelsa.org), EASDP

(eadp.org/), publications of the industry leaders in several Internet resources and documents of the World Economic Forum. The Annual Reports for the world's largest YP companies published in 2018 were studied in detail - Yellow Pages Limited (Canada) and European Directories Midco S.a.r.l., which includes more than 30 group companies in Europe. In order to determine the new sources of the revenue stream, the research of modern business niche products in the Internet resources has been studied. The data was discovered using the internet browser Google search for keywords, such as the internet business directories and yellowpages. Twenty five companies, which have being operating in America and the European market, have been selected. The products most frequently replicated in business offers were selected.

4. RESEARCH RESULTS

YP Business Development Trends

The YP business started in 1886 in America. These were books, printed on cheap yellow paper with telephone and address lists, ranked by company names and sorted by their type of activity in a particular local area. YP is a particularly important marketing channel for small and medium-sized businesses that are unable to organize large marketing campaigns. Books have traditionally been published once a year and distributed free of charge to the largest number of users who need to purchase the products or services offered by the ads [8]. YP is not a registered trademark, but the term has become a symbol of the industry and is used by companies in several countries of the world.

The specificity of the industry supported a small number of market players in each individual region [19]. In 90 years, with the growth of the Internet, publishers transferred their databases to the Internet by creating a variety of online media directories. Business directories with yellowpages.xx have been created in more than 75 countries worldwide. The introduction of the Internet impacted the increase of the number of information users and opened new marketing channels for advertisers.

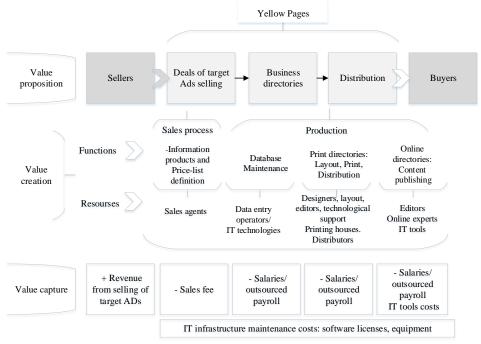


Figure 1 The core business model of YP

With the advent of the Internet, since the beginning of the 2000s, the dominant platform providers have been Google, Yahoo, Bing [7] which have joint the internet business ecosystem in the determinor capacity.

As a result, the number of market participants has increased significantly, breaking the standards of the YP sector monopoly. Google and other search platform providers have influenced the directory business and transformed it [3].

Since 2009, a number of major YP market players have begun to report financial difficulties or initiated bankruptcy procedures.

YP Business Model Evolution

As a result of the YP business analysis, the key elements of the Business Model have been identified by the authors. The core business model of YP is shown in Fig. 1. The original YP Business model is relatively simple, specifially, YP customers pay for ads that are highlighted among competitors' free entries. Books were printed in long-run and distributed free of charge for information users, who could potentially create a clients portfolio for advertisers. The higher volumes of books ensured that the more popular distribution channels were used and the higher was the demand for advertisers.

The development of the Internet has radically affected the YP business model's disruptive and transforming dimension of the "value proposition". As a result, the newly created business model is much more valuable than the original one. Both the original and newly created business models are shown in Fig. 2. The new business model shares the value gained among the members of the business ecosystem - partners, customers and information users [11]. New opportunities for the element innovation of the "value creation" dimension were opened owing to the development of technologies. Taking into account that the value of the information product increases with the increase in the number of its users; digital transformation of the business model opens a wide range of opportunities for "value captures" for companies in the industry.

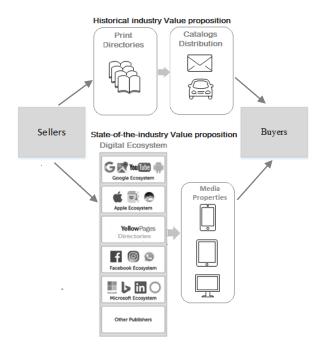


Figure 2. Evolution of YP business model (Source: [23] and authors)

An information product of the YP business can be easily converted into a digital format. The role of printing companies is diminishing and will no longer be needed when the media become fully electronic. Thousands of digital copies can be made by clicking a button and quickly sent over the internet [10].

Value proposition

The key elements of the dimension ,, value proposition" of the business model and their development over the last 25 years are shown in the Table 1. The evolution period of the YP business model has split into three time periods, corresponding to 1 - before the Internet, 2 – the Internet entry stage, 3 – the entry of dominant platforms. The following labels have been used for the meaning of each element within the appropriate timeframe: P - primary, E-equivalent, M - minor. These labels will also be used to track the evolution of business model elements in other subchapters.

Table 1
The key elements of the dimension "value proposition" of the business model and their development

Elements	Period		
Elements		2	3
1. Advertising customer	P	P	P
2. Target ADs components			
Business address	P	P	P
Fixed-line telephone Number	P	Е	M
Mobile telephone Number		Е	P
Logo		P	P
WEBsite, E-mail		Е	P
Industry		P	Е
Market products, Price-lists		Е	P
Customer Reviews		M	P
Discount coupons. Marketing actions. Keywords. Payment options, Business hours		Е	Р
3. YP Media properties			
Print directories	P	P	M
Desktop		P	Е
Laptop		M	P
Smartphone			P
4. Distribution channels of information products			
Distribution of print directories	P	P	M
Local Online Media Directories		Е	P
Dominant provaiders platforms			P
Clients WEBsites			P
5. Information products			
Promotion products:			
Highlighted ads between the competitor entries in a printed directory	P	P	M
Sponsored listing in Local Online Media Directories		Р	P
Digital marketing (Sponsored listing and Promote content) in dominant provider platforms		Е	Р
WEB presence products			

Infopages in YP online directories	P	P
Build and support clients WEBsite		P
Social media point of presence (Facebook, Linkedin, Twitter), Google my business profiles	М	P

Advertising Customers: The YP business model is viable in case of a large number of customers and it is essential that customers repeat their order year after year. According to Google, evaluating the sales cycle, the probability of retaining and reselling the product to existing customers is 60% - 70% of the total turnover, while attracting new customers probability is only 5% to 20% of the total turnover. According to ReachLocal, nowadays the success of retaining existing customers is achievable by investment in customer support and service [25].

Targeted ads: An enterprise's Data units have been modified over time. Initially the basic information about the record consisted of an address and a phone number. At the beginning of the 90s, the mobile phone number was added to information, which gradually replaced the stationary phone number. With the introduction of the Internet, contact information moved to a virtual environment where no human physical presence was required, which is why the company's website and e-mail were added.

Compared to the printed edition, the Internet does not limit the number of pieces of information and allows traders to publicize the assortment, descriptions, instructions and price lists of all offered items. The advantage of the Internet also makes it plausible to publish the most up-to-date information in real time and to announce the current events, such as sales promotion, changes in working hours and new price lists.

With the increasing number of information sources and pieces of information, it has become risky to present incorrect information compiled by intermediaries in a complex web ecosystem. Inaccurate or outdated information can result in dissatisfied users and lost sales [15].

YP Media Properties: After 100 years of existence of YP business, technology and the extensive use of the Internet cause changes in consumer habits. The amount of information that was previously available only in the printed directories has increased rapidly and transformed into the internet environment; the new technologies have outcompeted traditional print media. The printed YP catalogs are no longer available in many European states, such as Ireland, Finland, Denmark and Poland. Consistently with the experts' views, in the countries where such YP directories are still accessible, as in Belgium and Austria, their turnover share constitutes up to 10%, the exceptions being countries, such as Germany, Italy and France, in which the distribution of the printed directories continues to be viable.

With the development of the Internet, the number of devices where you can get information online has been expanding. Cell phones are transformed into Smart phones that provide the Internet connection and therefore information transmission possibilities. According to the LSA research, the popularity of devices used to access the Internet is ranked as follows: laptop 65%, smartphone 61%. desktop - 55% and tablet - 40%.

Distribution channels of information products: Under the influence of destructive innovations, the company's ability to recognize new knowledge and apply it for commercial purposes becomes crucial for business sustainability [5]. The introduction of the Internet opened up a great potential for increasing the number of information users, which cannot be achieved by increasing the print versions of catalogs. The number of printed copies is replaced by an increase in the Internet traffic

and distribution channels - with popular web sites. Digital information contents have the advantage of information in a print edition. There is no need to wait a year until the new catalog is issued to correct obsolete data, current information is published instantaneously.

Customers of any company are the source of life for the company, which is why they must be protected by all means. "It is better to develop competencies that will make money in the future rather than stick to the skills that enabled the past to function successfully [3].

The platform concept has come across several sectors as a disruptive innovation from a totally unexpected perspective. The Google search platform has acted as a disruptive innovation for many types of catalogs including the YP business [3]. Google is defined as a search [20] dominant [14] platform across several categories of existing platforms. On the one hand, digital service platforms are supported by a large number of users; on the other hand, the development of the YP Internet resources, which bring together a large number of companies and increase networking users, which ultimately ensures the sustainability of Google platforms.

Information products: The specifics of the YP business, knowledge and IT infrastructure have been created and a large customer portfolio allows the YP business model to integrate new services into it. In addition to the distribution channels for their products, the advertising promotion can be expanded by publishing information products on dominant third-party search platforms. The production of WEB presence products can become a source of additional revenues.

The analysis of websites of the largest market players points to the most common Digital Marketing products - Google ADs, Search Engine Optimization (SEO), Pay-Per-Click programme (PPC), Social media advertising Management and Online reputation management. WEB presence products include developing of e-commerce, online store solutions, Website Fulfillment, Social media point of presence (Facebook, Linkedin, Twitter), Google My Busines, Google WEB and other Google opportunities.

According to "LSA 2019 Prediction", there are rapid changes in existing digital products and new innovative products are replacing existing ones. The popular SEO product based on the keyword ranking optimization is rapidly being replaced by the Voice search. People are interested not only in gaining relevant selections for their demand, but also in obtaining answers to their questions. Research has shown that investing in the Voice Search eCommerce could now boost Amazon's annual sales by \$1.8 billion USD, and by 2022 the sales could grow by \$40 billion USD per year [18].

Principles of revenue generation: Information products are intangible and may be classified as 'goods of experience', as potential consumers usually need to benefit from them in order to understand its quality [21]. Thus, pricing of products for two-sided networks is highly complex. The seller's price for the promotion of his product will always be higher, as more users are involved in searching for the products offered [7].

The YP business model is designed to charge for the following services: Advertising in YP print and online media, Developing WEB presence products and Digital marketing services on third-party platforms.

Historically, a one-time fee for advertising published in printed and online media was collected from customers. The fee for each item of information was requested separately. Now the market requires regular support and cash is collected as a regular monthly service fee. Informative product offerings combine both the promotion products and WEB presence product development. The products are packed in different proportions and are not

available separately [21]. The expected value of packing makes it possible to achieve higher volumes of sales, greater economic efficiency and a greater profit per product than can be achieved if the same products are sold separately [10]. The evolution of pricing principles within the YP business model is shown in Table

Table 2

The evolution of pricing principles

Pricing principles	Period		
	1	2	3
One-time fee for advertising	P	P	M
One-time fee for the development of the WEB presence product		P	M
Regular fee for the development of the WEB presence product and advertising of regular support			P

Revenues are collected in small amounts from a large number of customer orders. When selling information products, it is important to create a balance between the offered prices and the number of potential customers; it is also important to control the sales performance [21].

Value creation and cost structure

The value of the supply chain is a series of activities that generate and create value over time by increasing the total value of the company [10]. The key steps in the YP business value delivery are the sales process of an information product, the creation and maintenance of an information database, the development of the information product and the dissemination of it. The sequential execution of these steps is ensured by the interaction of external and internal resources. Technology development is seen as an important factor that affects the value chain [10].

Sales: Historically, customer communications and revenues were provided by a direct sales team. Sales agents sign contracts with customers for advertising placement for the next year's printed edition. Direct sales were active in attracting new customers. At the moment, the greatest emphasis in retaining existing customers is put on telemarketing, but in the future online client sites have to be developed.

The creation and maintenance of an information database: To ensure the delivery of information relevant to the user's search, there must be a sufficient number of information units. The volume and accuracy of the database is the greatest business value. Information products may become irrelevant in a short time period [10]: 60% of local business information may be changed in 24 months [15]. Thus, maintenance of the database is a systematic and regular process, which should be based on the use of actual data gathering methods (Table 3).

Table 3

Trends in the development of data maintenance techniques

Database maintenance methods	Period		
	1	2	3
Physical inspection of addresses and search of	P	P	M
them in independent print sources			
Manual data search in the Internet resources		Е	P
Tools and automation based on data collection			P
from other Internet ecosystem resources			

The cost of maintaining a database is not dependent from the amount of advertising sales revenues. In order to attain the best quality of the database at a lower cost, it is important to create a balance between the use of technology and manual data processing. To do it, it is possible to deploy own resources or

outsource. In order to make such decisions, it is necessary to follow the development of technologies at a high professional level, to know the state of current technologies in the industry and to choose the most suitable method of maintenance of the database from the variety of possibilities offered. Technological developments should be monitored not only for data collection, but also for their reliability, control and substitution.

Development of an information development of IT infrastructure: Digital transformation has fundamentally transformed the process of developing and delivering of the YP information product. Although for several years the information products have been distributed in a physical format (book/CD), digitization technologies have significantly increased the number of information users and reduced the cost of information dissemination [21].

The digital innovations of the YP business model has impacted almost every stage and elements of the value creation. The CRM systems (Salesforce, net-linx, Vendasta) support sales functions; the volume and quality of the database maintenance can be enhanced with the techniques of the Web crawler search engine technology. Computer storage capacity doubles every two years, reducing the cost of storing data [10]. The distribution of informative products is also supported by several tools for implementing the SEO campaign - Ahrevs, Silktide, Bootsability, Fairrank; Google, Facebook ADs Campaigns: Adplorer, publoCity, MatchCraft, Aquisio; WEBsite Building Tools: Wordpress, Mono Solutions, Joomla, Duda.

Value capture

The digital transformation of the YP business model has changed the composition of revenues and costs and their share in total profits or loss structure (Table 4). The labels used for resource definition are the following: Staff (ST), Technology (IT), Commercial agents (Ag), Printing houses (PR) Distributors (DIS).

Table 4

D		Period		
Revenue and costs positions		1	2	3
Revenues by product group				
Print media directories		P	Е	M
Local Online Media Directories			Е	P
New media: Digital marketing			M	P
WEB presence products				P
Costs	Resources			
Sales fee	Ag	P	P	P
Database maintenance costs	ST/IT	P	P	P
Layout of print directories	ST/IT	P	Е	M
Print costs	PR	P	Е	M
Distribution of print directories	DIS	P	Е	M
YP Online Media Directories infopages produstion costs	ST/IT		P	P
Digital marketing and WEB presence production costs	ST/IT		M	P
IT infrastructure maintenance	ST/IT	M	P	P
Gross profit				

Risks of value capture

Revenues: In order to provide the infrastructure for business existence, the required level of turnover must be achieved. As a result of the digital transformation of the business model, the strategic task of YP companies is to balance the decrease in turnover from historical products (printed directories) with the new digital marketing turnover. As noted in the 2018 reports, Yellow Pages Limited (Canada) and European Directories Group reported a 10% to 20% total decrease of

turnover over the previous year. The increase of the digital media turnover up to 10% was not able to replace the 30% - 40% decrease in turnover of historical print directories [23],[6]. In turn, the sharp competition in the digital marketing does not allow to reasonably predict the amount of revenue from new business types.

Introduction of IT technology. Risks associated with achieving a positive financial result are seen by companies in: 1) implementing IT technologies, significant additional costs associated with investment in IT, modification of existing products and the development of new products and technologies; 2) non-availability to improve their information technology systems and to develop new types of products in a timely and effective manner [23],[6].

5. CONCLUSIONS

The authors concluded that creating a viable and profitable business model under the conditions of affecting digital transformation is possible only if all elements of the business model interact with each other. It is important to reveal the importance of each element of the business model within a certain period of time in order to leave behind the old, unprofitable elements of the value proposition, thus, aiming to reduce the resources needed for the creation of value. As a result of the analysis of the evolution of the elements of the YP business model, the authors identified some important issues that must be taken into account when creating a profitable BM:

- Conduct research to promptly discover the potential for the development of the business model or the effects of disruptive technology on the existing business model
- Replacing the falling revenues from the old businesses with the revenues from new sources.
- Introducing new, market-driven products, reviewing the cost structure and creating a cost-balanced pricing policy.
- Revising the level of digital maturity of the company. These factors can also be applied to any business model of other industry under the conditions of digital transformation.

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