The systematization of the features of the transformation of business models of the service sector, which is based on a comprehensive understanding of the business model, strategic directions of innovative development of organizations in the service sector, allows to choose promising directions for improving their management. The article is devoted to the issues of business models of service industries within the B2B interactions and estimations of business models of service industries efficiency in dynamic environment conditions. There is a need to consider the business of clients comprehensively, to focus on the implementation of business management methodologies, optimization of business processes to combine two business models – agency and client within a model M². Authors consider the main aspects of the activities of modern digital agencies. In addition to the static assessment of the company's performance indicator, authors also consider a short-term 3-year dynamic performance characteristic (Malmquist index).

Keywords: business model, efficiency, service sector.

JEL classification: L10, M20

Problem statement. The sphere of services is one of the most promising sectors of entrepreneurial activity in the economy for beginning businessmen, since business ideas in this sphere do not require significant initial investments in fixed assets, relate directly to the target sphere of activity of the entrepreneur, are provided with a constant level of demand, are capable of competition even at the primary at the stage of implementation of the organization under the conditions of effective promotion. The systematization of the features of the transformation of business models of the service sector, which is based on a comprehensive understanding of the business model, strategic directions of innovative development of organizations in the service sector, allows to choose promising directions for improving their management.

Analysis of recent researches and publications. Conceptual foundations of business model research are presented in the studies of Osterwalder A., Pigneur Y. [1], Calof J., Richards G., Smith J. [2]. Service-oriented architecture of a dynamic intelligent business process management system is considered in studies of Batovrin V. K., Zinder E. Z. [3], Danilov A., Kazakov V., Telnov Ju. [4]. Peculiarities of functioning models of IT companies in Ukraine case is considered in research of Somkina T. V., Lytvynova O. V., Loban O. O. [5]. Despite the availability of works, the problem of business models of digital services of Omelyanenko V., Braslavsk a O., Biloshkurska N., Biloshkurskyi M., & Omelyanenko O. [6; 7] development in the conditions Industry 4.0 innovation networks requires further research.

The article is devoted to the issues of business models of service industries within the B2B interactions and estimations of business models of service industries efficiency in dynamic environment conditions.

Main material. The need for many types of services leads to the creation of an equally large group of goods that, apart from services, would not be needed by themselves. Collins writes “As we all move further and further into the age of information and the service economy, we are finding that many of the new products flooding the market are not products in the usual sense of the word. Rather, they represent information and services tied to physical products”.

This type of service can include information services of digital agencies – satisfaction by the information system or the owner of the information resource of the user's request for the preparation and receipt under agreed conditions of a certain information resource of a certain thematic orientation, given type and final volume. Instead, the logic of digital transformation requires businesses to take a deeper look at their customers' businesses and be included in their processes, starting with strategic marketing as an organized process of "customer research" and ending with sales promotion. Thus, there is a need to consider the business of clients comprehensively, to focus on the implementation of business management methodologies, optimization of business processes and automation of their elements, that
is, to combine two business models – agency and client (model within a model, model M2) – fig. 1.

Based on the above, we will determine the key drivers of the effectiveness of the business model of digital business in the service sector:

1. The client is not offered services, but the result;
2. The enterprise focuses its efforts on certain segments and chooses the main technologies for work;
3. Instead of the horizontal structure of the enterprise, it is necessary to apply the holacracy approach.

The system, based on the principles of holacracy, allows maximum speedy development in the minds of the growing market. The peculiarities of the holacracy approach are those that the IT team takes part in the discussions with the client and can directly join the conversation, push through the water and promptly pronounce the best solutions.

Digital transformation transfers a review of the priorities of the business model from the satisfaction of new business needs, as well as revealing shortcomings and gaps in the business model of the client from the position of digital transformation. One of the tools that form the basis of such a review is M2 as a complex approach to the introduction of this service into the digital medium.

In essence, a model of type M2 can be seen as a service to information and analytical security, as in the minds of the transition to an information economy, it becomes an invisible part of any business. With the implementation of the tasks of strategic management, the presence of a kind of informational support is one of the key factors in the success and competitiveness of this type of business.

In our opinion, M2 is a kind of foresight technology, because it transfers various methods for expert assessment of strategic directions in innovative development, revealing technological breakthroughs, building impacts on the economy and prosperity in the mid-term prospects [2]. Technological roadmap as a result of foresight analysis for business – the purpose of identifying potential market niches and a choice of technologies that allow the maximum possible expansion (imagination) of competitive services for new markets.

The concept of “information service” of the crime of induced appointment, which transfers training, possession of that task in the order of coristuvacha of information authorities, for the sake of such wines, one gets better;

b) the specific result of material and spiritual development, which is volody by signs, which characterizes one's purpose, and information authorities, for the sake of different products.

c) a complex of notable and elusive authorities (characteristics, functions), signs for satisfying the informational needs of the people;

d) the result of the non-viral activity of the enterprise of either an individual, directing to satisfy the information needs of a person or an organization from a variety of different products.

In our opinion, the relevance of maintaining information services from the position of a digital agency is based on the specifics of the activities of enterprises of this type, the foundation for them is the life of an important effective implementation of projects in the minds of non-insignificance. The “non-materiality” of the services of this type of business, the improvement of ICT and communications, the massive replication of software and technical platforms ensure the security of their development, and at the same time make it necessary to reconsider the business model with the method of ensuring dynamic efficiency.

As part of building a business model, a digital agency must create its own "face" and its own positive image on the market. It must be known as a reliable and competent market participant, have a positive and convincing background of projects. The specialization of a digital agency involves the creation of its own portfolio of information and analytical services, the development and replication of unique offers based on the specifics of the client.

According to the classification of Cusumano M. and Namhisan S., presented in the work [5, p. 85], typical business models of IT enterprises, which, in our opinion, can also be used by digital agencies, are as follows:

– the product model assumes that the IT company is the developer of its own product, which then becomes a licensed software product and is installed on the customer's server equipment without prior ownership of such intangible assets; revenues are generated from sales of software licenses and updates to already installed software products; at the same time, the product has the appearance of standardized software;
– the service model assumes that the IT company develops software to the customer's order, individually forming its own architecture for each project, while all intellectual rights are transferred to the client-customer; in addition, this model includes enterprises providing IT consulting services (implementation of IT solutions from

| Partners | Key activity | Value proposition | Relationships with consumers | Customer segments |
|----------|--------------|-------------------|-----------------------------|-------------------|
| \(f(P^i_n; P^j_n; \ldots; P^k_n)\) | \(f(D^a_n; D^b_n; \ldots; D^s_n)\) | \(f(U^a_n; U^b_n; \ldots; U^s_n)\) | \(f(C^a_n; C^b_n; \ldots; C^s_n)\) | \(f(H^a_n; H^b_n; \ldots; H^s_n)\) |

Key resources: \(f(P^i_n; P^j_n; \ldots; P^k_n)\) – key activities types of client, \(D^a_n; D^b_n; \ldots; D^s_n\) – key activities types of value proposition of client, \(B^a_n; B^b_n; \ldots; B^s_n\) – types of relationships with consumers of client, \(C^a_n; C^b_n; \ldots; C^s_n\) – customer segments of client, \(U^a_n; U^b_n; \ldots; U^s_n\) – distribution channels of client, \(H^a_n; H^b_n; \ldots; H^s_n\) – sources of income of client.

**Figure 1** – M2 business model

Source: developed by the author based on business model template by O. Osterwalder and I. Pinney [1]
third-party organizations and maintenance of information systems installed at clients). According to the authors, in accordance with the realities of the Ukrainian IT market, to the service model should be added those enterprises that ensure the development of a full cycle of products based on revised best practices, from business analysis to their deployment and support;

– a hybrid model is a combination of various combinations of the first two models. An example can be IT companies that, in parallel with the creation of their own product, are engaged in the provision of IT consulting, configuration, implementation, training, integration with other systems, and technical support services. According to observations of the development process of IT companies, the hybrid model is most often a transitional stage on the way from a service model to a product model.

– the business process outsourcing model can provide either only work to the order of foreign customers, which includes the execution of routine business operations related to the IT industry, or from the adjustment of a pre-developed project by other developers to the unique requirements of customers.

In our opinion, a detailed classification of business models of IT enterprises is useful, in which a special role is assigned to the monetization scheme [5, p. 86]:

– a business model of obtaining constant income, or a self-sufficiency model, according to which the income of the IT enterprise consists of regular periodic payments from the end user in a fixed (for example, quarterly access fee) or variable amount (access to "cloud" services according to their download); or the end user receives the service and software for free, and third-party organizations pay for these services instead of the client, for example, advertising on the site, sponsorship support, a system with payment for clicks and links, content licensing, etc.;

– the payment model involves receiving income from a one-time payment personally by the consumer of ready-made software or services in the field of IT;

– a model of long-term income, the essence of which is that before the direct monetization of its product or service, the company needs to create a stable audience that will significantly increase the value of the product or service in the eyes of the market. Operations can be resale / re-execution of content; creating a platform and selling access to it; branding and licensing; selling the audience as a whole;

– metamodels that provide additional monetization opportunities when combined with the above models, for example, the ability for the consumer to act as a reseller (resell the service); providing service under someone else's brand, etc.;

We believe that a business model should organically combine the useful elements of all analyzed models. In the conditions of the formation of the B2B segment of the digital market, digital agencies have problems with managing sales processes and developing (designing) services, which is quite often expressed in slow loading of the agency's "production". In these conditions, there is a problem of forming the competencies necessary for mastering new areas of activity and maintaining the achieved competencies at the required level. For this, it is necessary to accumulate knowledge of the enterprise as a whole and its employees in the form most convenient for use.

In order to build an effective business model, it is important that the main feature of a digital agency is a full range of internet marketing services.

We will consider the main aspects of the activities of modern digital agencies using the example of an IT company specializing in digital and Internet marketing services. An important place in the company's activities is occupied by digital and Internet marketing of restaurants. It was determined that the IT company's products are tools for working with information related to the digital marketing of restaurants in the Sumy region, the same information in the required form. They have an intangible nature, created to solve various practical tasks of information management and implementation of IT projects.

A feature of the enterprise's activity is the variability of the market, which requires rapid adaptation to new conditions, as new technologies and areas of their application appear.

In a digital agency, a client (in our case – a restaurant) can order the following types of services:

1. Creation of a site. Corporate site, information portal, media project, mobile game, interface, startup, identity development, web design, A/B-Testing, installation and correct setting of counters for web analytics systems.

2. Site promotion. The list of services in this case is identical to any Internet advertising agency, which may include banners, media displays, work with forums, direct marketing, advertising campaigns in mobile applications, search remarketing, etc. It is not only about placing an advertisement, but also about its creation.

3. Site support. Any successful resource needs qualified support: both technical and content. Therefore, a digital agency can offer hosting services, site improvements, user behavior analytics, corporate blogs and pages in social networks, as well as redesign and restoration of functionality if necessary.

4. SMM.

As we can see, many of these services are interdependent. If the company can develop the design of the site, then the design of advertising banners is an accompanying service. And the site developer today is obliged to take into account the possibilities of SEO optimization, which is impossible without knowledge of the principles of search engine promotion. Therefore, it is quite logical that the company actively expands the range of services, hires additional related specialists and essentially moves from its category to the category of business operating according to the M² model.

Based on the analysis of leading experience, we can determine the following components of the work of a digital agency:

1. Analysis of the technical feasibility of the project and analysis of requirements. To develop a software system that best meets the client's requirements requires knowledge of the subject area and technological processes. For this, it is necessary to be in close interaction with the representatives of the client in order to determine and analyze the exact system requirements for the software system.

2. System design. Developing the right architecture and system building concept is a critical factor for the success of the project. After the analysis and verification
phase is completed, the system is designed. In order to develop a cost-effective solution, it is very important that it is scalable and flexible. When designing a system, its component composition and means of its development are determined.

3. Development. A standard development process includes prototyping, coding, unit and system testing. At the development stage, an iterative approach is used, which allows to ensure the required quality of service.

4. System testing. Since there is a steady increase in requirements for such characteristics of software systems as reliability, scalability and performance on the part of customers, the role of the system testing phase becomes critically important for the success of the project as a whole. Before delivery of the developed system to the client, it goes through several stages of testing according to the requirements of the quality management system.

Implementation and integration. After the delivery of the system, the process of its installation in the working environment on the client's territory and its integration with existing business applications begins. The enterprise must provide the client with the necessary documentation, training, technical support and support for the developed system.

As options for solving the title of business model transformation, we offer to consider the use of a process approach, which increases the level of understanding of the listed features of the IT company's work and allows to ensure a higher quality of management, and therefore, market advantages for it. Process management technology is often used within an IT company for its own purposes and is offered to customers as one of its products.

As a primary point, we can define management processes that allow for reliable functioning of digital services due to systematization of work and formalization of interaction between the parties involved in their implementation. In addition, management processes will use the accumulated experience of working with existing processes and already made investments in automation tools.

It is also worth noting that one of the important trends in the development of digital business transformation is the emergence of service-oriented architecture, which is characterized by a focus on providing services (services) and working with services as a central architectural element of the enterprise. The architecture of the enterprise covers the service understanding and representation of the business as such, as well as some service structures of information resources.

Service-oriented enterprise architecture can be considered as one of the simplifications of enterprise architecture, however, the architectural approach provides a foundation for service-oriented design from business services to basic IT services, taking into account the specifics of their use.

There are reasons that complicate the wide implementation of sufficiently developed general schemes of enterprise architecture. The most important of them is that it is not easy for many specialists to work even with three-dimensional structures, and when working with the architecture of an enterprise's business model, six or more relevant dimensions can objectively be present, which must be harmonized with each other and with the processes in the system. In general, the dimensions of the architectural scheme form the following list of architectural axes [3]:

- the axis of "architectural aspects" of the enterprise or system (corresponds to the columns of the Zachman matrix);
- axis of representation of the enterprise or system (Zachman matrix);
- the time axis of the development of the architecture of the enterprise or system (stage of the project cycle, stage of the life cycle of the system, stages of the development of the enterprise and the stages of these stages);
- axis of generalization/specification of architectural blocks and elements;
- axis of aggregation/detailing of architectural blocks and elements;
- is the axis of applied segmentation of the scheme.

The task of forming a complex of the specified architectural axes as a prerequisite for rapid adaptation of the software is complicated in the conditions of changes in market requirements and innovative transformation of business processes. At the same time, the problem of choosing and adapting services for specific projects arises. In these conditions, the tasks of organizing a distributed network repository of services, role allocation of agents to executors and process coordinators, establishing the interaction of agents and services [4] are solved with the help of a multi-agent approach.

The implementation of a service-oriented architecture based on a dynamic intelligent system for managing innovative business processes based on a multi-agent approach within projects ensures a quick configuration of the business model in accordance with the conditions of the external environment and specific tasks.

It is worth noting that the digital agency uses all the main communication channels in order to be as accessible to customers as possible. An integrated approach to promotion in the Internet space not only expands the audience of the agency, but also proves professional capabilities in the digital sphere. Also, the company is widely presented in the pool of social networks, and its main feature is a full range of Internet marketing services.

In addition to the static assessment of the company's performance indicator, we also considered a short-term 3-year dynamic performance characteristic – the Malmquist index (MPI). Values of MPI < 1, MPI = 1 and MPI > 1 indicate, respectively, a decrease, stability or increase in the efficiency of the enterprise during the studied period.

The results of calculations of the Malmquist index for three groups of enterprises are summarized in the Table 1.

On the basis of Table 1, we can note a decrease in the dynamic efficiency of all analyzed groups of enterprises in 2020, however, only digital agencies remained efficient in terms of resource costs, and in terms of gross revenue – businesses in the field of education, which corresponds to socio-economic trends.

As for digital agencies, in 2019 there was an increase in the Malmquist index as a resource cost by 0.063. However, in 2020, due to the general economic crisis, the situation is changing. The Malmquist index for resource costs drops from 1.015 to 1.001, and for gross revenue – from 1.007 to 0.951.

The conducted analysis indicates insufficient stability of the business models of the analyzed groups of
enterprises in the service sector, which actualizes the need to use the potential of the identified strategic vectors of transformation of business models.

**Conclusion.** The systematization of the features of the transformation of business models of the service sector, which is based on a comprehensive understanding of the business model, strategic directions of innovative development of organizations in the service sector, allows to choose promising directions for improving their management.

This type of service can include information services of digital agencies – satisfaction by the information system or the owner of the information resource of the user's request for the preparation and receipt under agreed conditions of a certain information resource of a certain thematic orientation, given type and final volume. Based on the above, we will determine the key drivers of the effectiveness of the business model of digital business in the service sector:

In essence, a model of type $M^2$ can be seen as a service to information and analytical security, as in the minds of the transition to an information economy, it becomes an invisible part of any business. With the implementation of the tasks of strategic management, the presence of a kind of informational support is one of the key factors in the success and competitiveness of this type of business.

In order to build an effective business model, it is important that the main feature of a digital agency is a full range of internet marketing services.

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**References:**

1. Osterwalder A., & Pigneur Y. (2010). Business Model Canvas. A Handbook for Visionaries, Game Changers, and Challengers. Wiley, New Jersey.
2. Calof J., Richards G., Smith J. (2015) Foresight, Competitive Intelligence and Business Analytics – Tools for Making Industrial Programmes More Efficient. Foresight, vol. 9, no 1. pp. 68–81. DOI: 10.17323/1995-459x.2015.1.68.81.
3. Batovrin V. K., Zinder E. Z. (2006). Arhitektura predprijatija i servisnyj podhod. Chast 1 [Enterprise architecture and service approach. Part 1]. Korporativnye sistemy, no. 4. URL: http://www.management.com.ua/ims/ims123.html (accessed: 10.12.2020). 
4. Danilov A., Kazakov V., Telnov Ju. (2010). Servisno-orientirovanaja arhitektura dinamicheskoj intellektualnoj sistemy upravlenija biznes-processami [Service-Oriented Architecture of a Dynamic Intelligent Business Process Management System]. Otkrytoe obrazovanije, no. 6, pp. 78–84.
5. Somkina T. V., Lytvynova O. V., Loban O. O. (2018) Osoblyvosti modelei funktsionuvannia IT-kompanii v Ukraini [Peculiarities of functioning models of IT companies in Ukraine]. Naukovyi visnyk Uzhhorodskoho natsionalnoho universytetu. Seriia: Mizhnarodni ekonomichni vidnosyny ta svitove hospodarstvo, no. 19 (3), pp. 84–87.
6. Omelyanenko V., Braslavska O., Biloshkurska N., Biloshkurskiy M., & Omelyanenko O. (2021). C-Engineering Based Industry 4.0 Innovation Networks Sustainable Development. International Journal of Computer Science & Network Security, № 21 (9), pp. 267–274.
7. Omelyanenko V. A., & Omelianenko O. M. (2021). Digital services as a component of reginal innovation systems. Economy digitalization in a pandemic conditions: processes, strategies, technologies: International scientific conference (January 22–23, 2021. Kielce, Poland). Riga, Latvia: «Baltija Publishing», pp. 172–176.
8. Omelianenko V. A., & Omelianenko O. M. (2018). Analitiko-strategichni aspekti sistemnoi stiikosti innovatsionoi sistemi [Analytical and strategic aspects of the system stability of the innovation system]. Prichornomorski ekonomichni studii, no. 32, pp. 61–65.
9. Omelianenko O. M. (2019). Analiz transformatsii biznes-protesiv pidprijemstva v khodi tsyfrovoho marketytny [Analysis of the transformation of business processes of the enterprise in the course of digital marketing]. Prichornomorski ekonomichni studii, no. 47 (1), pp. 136–140.
Список використаних джерел:
1. Osterwalder A., & Pigneur Y. Business Model Canvas. A Handbook for Visionaries, Game Changers, and Challengers. Wiley, New Jersey, 2010.
2. Calof J., Richards G., Smith J. Foresight, Competitive Intelligence and Business Analytics – Tools for Making Industrial Programmes More Efficient. Foresight. 2015. Vol. 9, no 1, pp. 68–81. DOI: 10.17323/1995-459X.2015.1.68.81.
3. Батоврин В.К., Зиндер Е.З. Архитектура предприятия и сервисный подход. Корпоративные системы. № 4.
4. Данилов А., Казаков В., Тельнов Ю. Сервисно-ориентированная архитектура динамической интеллектуальной системы управления бизнес-процессами. Открытое образование. 2010. № 6. С. 78–84.
5. Сьомкіна Т. В., Литвинова О. В., Лобань О. О. Особливості моделей функціонування IT-компаній в Україні. Науковий вісник Ужгородського національного університету. Серія: Міжнародні економічні відносини та світове господарство. 2018. № 19 (3). С. 84–87.
6. Omelyanenko V., Braslavska O., Biloshkurska N., Biloshkurskyi M., & Omelyanenko O. C-Engineering Based Industry 4.0 Innovation Networks Sustainable Development. International Journal of Computer Science & Network Security. 2021. № 21 (9), pp. 267–274.
7. Omelyanenko V.A., Omelianenko O. M. Digital services as a component of regional innovation systems. Economy digitalization in a pandemic conditions: processes, strategies, technologies: International scientific conference (January 22–23, 2021. Kielce, Poland). Riga, Latvia: «Baltija Publishing», 2021. P. 172–176.
8. Омельяненко О. М. Аналітико-стратегічні аспекти системної стійкості інноваційної системи. Причорноморські економічні студії. 2018. № 32. С. 61–65.
9. Омельяненко О. М. Аналіз трансформації бізнес-процесів підприємства в ході цифрового маркетингу. Причорноморські економічні студії. 2019. № 47 (1). С. 136–140.

Омельяненко О.М.
доктор філософії
Сумський державний педагогічний університет імені А. С. Макаренка

Кудріна О.Ю.
доктор економічних наук, професор
Сумський державний педагогічний університет імені А.С. Макаренка

Божкова В.В.
доктор економічних наук, професор
Сумський державний педагогічний університет імені А.С. Макаренка

Омельяненко В.А.
доктор економічних наук, доцент
Сумський державний педагогічний університет імені А.С. Макаренка

НАУКОВО-АНАЛІТИЧНІ ОСНОВИ ПОБУДОВИ ТА ОЦІНЮВАННЯ ЕФЕКТИВНОСТІ БІЗНЕС-МОДЕЛІ ЦИФРОВОГО АГЕНТСТВА

Систематизація особливостей трансформації бізнес-моделей сфери послуг, яка трується на комплексному розумінні бізнес-моделі, стратегічних напрямків інноваційного розвитку організацій сферу послуг, передбачає використання відповідного прикладного аналітичного інструментарію, що дозволяє обрати найбільш перспективні напрямки вдосконалення управління бізнес-моделлю. Стаття присвячена питанням бізнес-моделей сфери послуг у рамках B2B взаємодії та оцінки ефективності бізнес-моделей сфери послуг в умовах динамічного середовища. Логіка трансформації бізнес-моделі вимагає від компаній глибшого вивчення бізнесу своїх клієнтів і залучення до їх процесів, починаючи зі стратегічного маркетингу як організованого процесу «дослідження клієнтів» і закінчиючи стимулюванням продажів. Авторами визначено, що в рамках ключових бізнес-процесів необхідно розглядати бізнес-клієнтів комплексно, зосередитися на впровадженні методологій управління бізнесом, оптимізації бізнес-процесів та автоматизації їх елементів, тобто поєднати дві бізнес-моделі – агентську та клієнтську (модель у моделі – модель М2). Ця модель заснована на принципах холакратії та дозволяє швидко розвиватися у вумовах зростаючого ринку. Особливості холакратичного підходу полягають в тому, що сервісне підприємство бере участь в обговоренні з клієнтом та може безпосередньо підключатися до його діяльності, оперативно пропонувати найкращі рішення. На основі цього автори визначають ключові драйвери ефективності бізнес-моделі цифрового бізнесу в сфері послуг. Модель типу М2 розглядається як сервіс інформаційно-аналітичної безпеки, оскільки в свідомості переходу до інформаційної економіки вона стає непомітною частиною будь-якого бізнесу. Автори розглядають основні аспекти діяльності сучасних цифрових агентств на прикладі IT-компаній, що спеціалізується на послугах цифрового та інтернет-маркетингу. Крім статичної оцінки показника ефективності компанії, автори розглянули короткострокову 3-річну динамічну характеристику ефективності – індекс Мальмквіста.

Ключові слова: бізнес-модель, ефективність, сфера послуг.