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DIGITALIZATION OF WORLD ECONOMIC SYSTEM AND DEVELOPMENT OF DIGITAL MEDIA-PRODUCT MARKET

ДИДЖИТАЛІЗАЦІЯ СВІТОВОЇ ЕКОНОМІЧНОЇ СИСТЕМИ ТА РОЗВИТОК РИНКУ ЦИФРОВИХ МЕДІА-ПРОДУКТІВ

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Abstract. *The advent of new technologies, such as portative computers and the internet, favoured the formation and development of a new market — digital media market. In the past 15 years technologies have grown exponentially within media and entertainment, fundamentally affecting film, television, publishing, music and video games industries with new competition, innovative business models and new product landscapes. Thus, the digital media market, with its disruptive influence and growth potential, requires the comprehensive explanation and definition. The article raises a problem of digital media market lacking its clear conceptualization in the context of the world economy.*

The article provides a thorough analysis of existing researches of the digital media market and the overview of its place in the modern industry classifications. The author enunciates their own up-to-date definition of digital media, which is the

following: “Digital media refer to products and services in the digital format, produced by the media and entertainment industry group (according to The Global Industry Classification Standard), which can be created, viewed, distributed, modified and preserved through different digital devices.” The following structure of the modern digital media market was compiled: it consists of 7 segments, namely video-on-demand, video games, e-publishing, digital audio, social media, search engines and digital advertising.

Key words: *digital trade, digital media market, e-publishing, social media, digital (info) product, digital economy.*

Анотація. *Поява нових технологій, таких як портативні комп'ютери та інтернет, сприяли формуванню та розвитку нового ринку — ринку цифрових медіа. За останні 15 років технології у галузі медіа та розваг розвивалися експоненціально, спричинивши зрушення у ряді галузей: кіно, телебачення, видавничої справи, музики та відеоігор. Поглибилася конкуренція, змінилися бізнес-моделі, були створені нові продукти. Зважаючи на сучасні тенденції трансформації світової економіки та значний потенціал ринку цифрових медіа, цей ринок вимагає всебічного вивчення та визначення. У статті висвітлюється проблема відсутності чіткої концептуалізації ринку цифрових медіа в контексті світової економіки.*

У статті подано ретельний аналіз існуючих досліджень ринку цифрових медіа та його місця в сучасних класифікаціях галузей. Автором сформульовано власне сучасне визначення цифрових медіа: «Цифрові медіа — це товари та послуги в цифровому форматі, які виробляються у галузевій групі медіа та розваг (відповідно до Глобальний стандарт галузевої класифікації), які можна створювати, переглядати, поширювати, змінювати та зберігати за допомогою різних цифрових пристроїв». Авторами була побудована структура сучасного ринку цифрових медіа, яка складається з 7 сегментів, а саме: відео за запитом, відеоігри, електронні видання, цифрове аудіо, соціальні мережі, пошукові системи та цифрова реклама.

Ключові слова: *цифрова торгівля, ринок цифрових медіа, електронні*

видання, соціальні мережі, цифровий продукт, цифрова економіка.

Introduction. Until the 1990's, media existed primarily in the print and analogue formats, such as radio and television. The emergence of new technologies, such as portative computers and the internet, facilitated the formation and development of a new market — digital media market. During the first stages of its development, its presence was insignificant and neglected by many leading companies. However, in the past 15 years technologies have grown exponentially within media and entertainment, transforming film, television, publishing, music and video games industries with new business models and product landscapes that benefit a digitally sophisticated consumer base. In view of the aforesaid, the digital media market, with its transformative power and growth potential, requires comprehensive explanation and definition, because the more we go in depth, the more we discover that the digital media market lacks its clear conceptualization in the context of the world economy.

The purpose of research is to enunciate the up-to-date definition of digital media and the essence of modern digital media market in the context of the world economy.

Literature Review. The word “digital” comes from the Latin “digitus” meaning “finger” or “toe”. As B. Peters (2016) has argued, we can say that human beings are “naturally” digital, because they always have to count, point and manipulate with their fingers — just like what digital media are.

As a starting point, digital is often defined in contrast to analogue. A concrete example of a common definition of digital and analogue opposition comes from the music field — comparing and contrasting vinyl records and CDs. The vinyl record sound is a product of physical contact between the player's needle and the grooves scored into the vinyl: a different groove depth produces a different sound. With CDs, on the other hand, sound is broken up into discrete and non-continuous units, which values are registered on support surfaces in binary format as 0s and 1s. The sound is generated by the laser reading the values of these discrete units, which, converted into sound frequencies, can be listened to in sequence, recreating the music continuity (Balbi & Magauda, 2018).

Digitization turns out to be simply a matter of assigning numerical values (in English word “digit” means number). In the analogue model, video, audio and text are transmitted as continuous signals in different forms. With digitization, video, audio and text are, on the other hand, all codified in the same way: in the numerical data that allows information to be transferred and stored independently of the original content format.

Unique features of digital media constitute the key to their commercialization and ultimately to their potential impact on our lives. Unlike the press, radio and television, digital media facilitated the transmission of their content to global audiences. In recent years, this transterritorial quality has been somewhat diminished for legal reasons, as restrictions on publishing rights have proliferated, namely in relation to certain content such as sports videos, audiovisual fiction series and other similar content. Such types of content can be consumed by users in one country, however, they are blocked for users outside that country. Despite these legal limitations, all digital media are, in essence, global (Lister, Dovey, Giddings & Kelly, 2009).

Moreover, digital media are, or can be, personalized. In the last ten years, due to the development of social media based on personal profiles and the refinement of algorithms, which can assign content increasingly adapted to the interests and preferences of each user, personalization became a common quality of most digital media types. The new wave of technologies based on artificial intelligence, which can produce, organize and distribute the individualized information to each user, significantly transformed business models in the digital media market (Carlson, Rahman, Voola & De Vries, 2018).

The speed, at which the technology is expanding and evolving, challenges the ability to define clear-cut boundaries around the concept of digital media market. Digital media include a wide range of products and services that continue to be developed, launched, re-launched and improved every day in different countries all over the world. A review of existing definitions is collected in Table 1.

Table 1. Definitions of Digital Media

Author(s)	Definitions
T. Feldman (2005)	“The forms of media, that we understand in the analogue media world, turned into bits and bytes so they can be manipulated, processed and transmitted by computer systems.”
W. H. K. Chun, B. Soderman (2011)	“Content created, disseminated, and/or stored using digital computers or mobile devices (video games, blogs, e-books, etc.), as well as their physical embodiment (hard drives, DVDs, flash memory sticks, etc.)”
C. Valentini, D. Kruckeberg (2012)	“An umbrella term for the digital technology-based environment that allows networking, multimedia, and collaborative and interactive communications.”
A. Delfanti, A. Arvidsson (2013)	“A set of technologies and media based on computers and networks. Digital media carry information represented by numerical sequences that they can rework and transform.”
S. Thanuskodi (2015)	“Media that are encoded in machine-readable format and can be created, viewed, distributed, modified and preserved on computers.”
World Economic Forum (2016)	“Products and services that come from the media, entertainment and information industry and its subsectors. It includes digital platforms (e.g. websites and applications), digitized content (e.g. text, audio, video and images) and services (e.g. information, entertainment and communication) that can be accessed and consumed through different digital devices.”
Statista (2019)	“Audiovisual media contents and applications that are distributed directly over the Internet. This includes digital video content, digital music as well as digital games for different devices and electronically published written content.”
Microsoft (2020)	“Digital media refers to audio, video, and photo content that has been encoded (digitally compressed). After digital media is encoded, it can be easily manipulated, distributed, and played by computers, and it is easily transmitted over computer networks.”
Dictionary.com (2020)	“(Usually used with a singular verb) video, audio, software, or other content that is created, edited, stored, or accessed in digital form, through numeric encoding and decoding of data.”
Oxford Dictionary of Media and Communication (2020)	“An umbrella term often treated as synonymous with new media or computer-mediated communication. A distinction can be made between media which are based on encoded physical qualities such as light or sound waves through the re-encoding of analogue information (e.g. with digital cameras or digital sound equipment), and media which are based on the re-encoding of previously encoded cultural forms such as such as writing, mathematics, linear perspective, or the Cartesian coordinate system that is used to represent physical space in virtual reality applications.”

Note: made by the author

Main Results of the Research. The thorough analysis of the existing definitions of digital media leads to the conclusion that the most comprehensive definition is the one enunciated by the World Economic Forum, since it reflects the scope of modern digital media landscape, which are not limited only to digitized content. However, one

point in this definition needs more clarification, namely what industry specifically these products and services come from. World Economic Forum indicates that digital media are “products and services that come from the media, entertainment and information industry and its subsectors”, however, they didn’t indicate the essence of this industry and what it includes.

In view of the aforementioned, the own definition of digital media enunciated by the authors is the following: “Digital media refer to products and services in the digital format, produced by the media and entertainment industry group (according to GICS), which can be created, viewed, distributed, modified and preserved through different digital devices.”

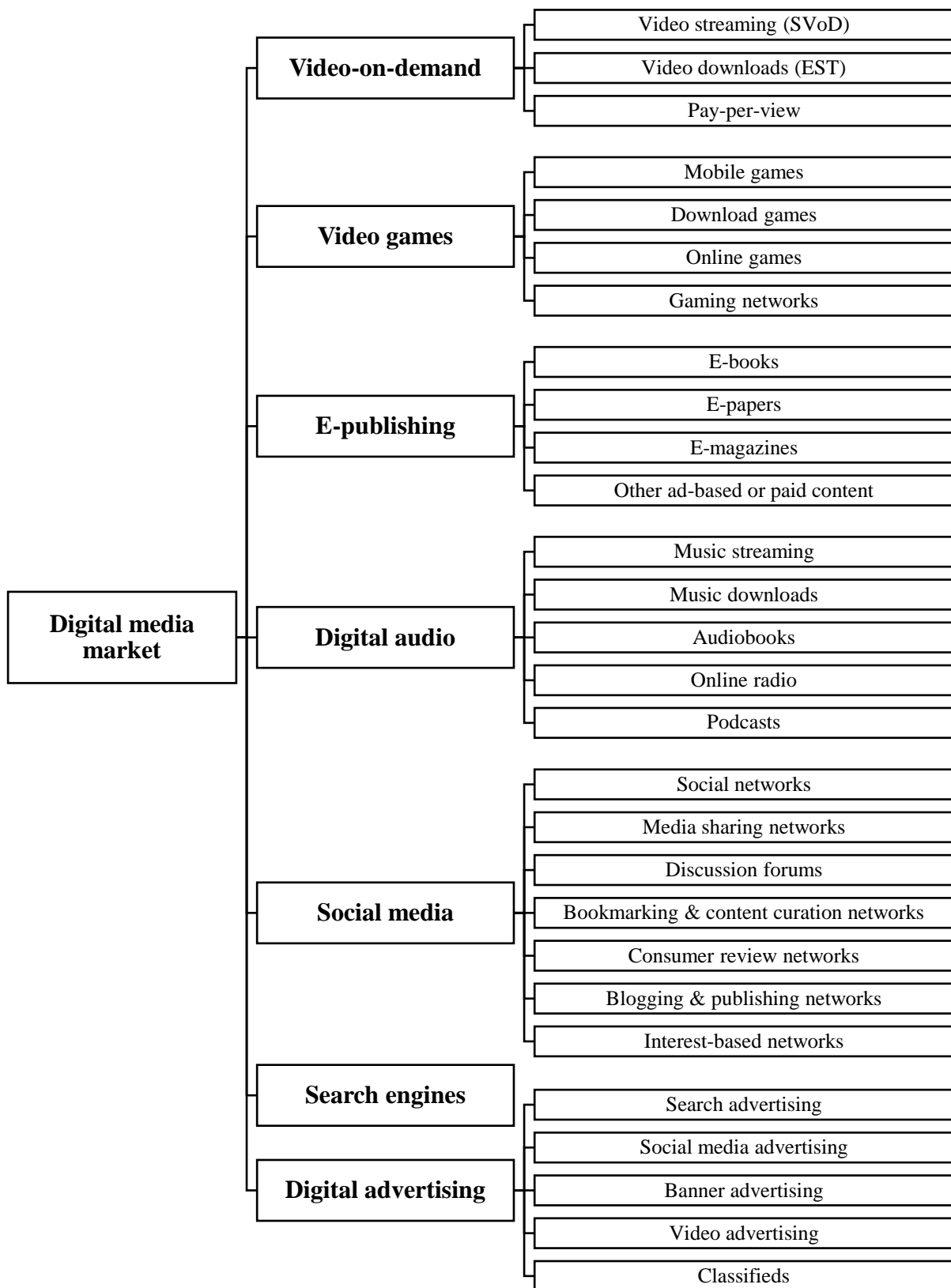
Using the GICS approach, the modern digital media market can be divided into 7 segments: video-on-demand, video games, e-publishing, digital audio, social media, search engines and digital advertising (Figure 1).

The video-on-demand segment includes digital video content which is distributed over the internet. A distinction is made between the following business models: video streaming (SVoD), video download (EST) and pay-per-view (TVoD) (Statista, 2019).

The video games segment includes fee-based digital games which are distributed over the internet. A distinction is made between mobile games for smartphones and tablets, full games that need to be downloaded and installed on consoles or PCs, online games which can played without installing them and fee-based gaming networks that offer additional features and content for subscribers (Statista, 2019).

E-publishing is defined as paid written editorial content distributed over the internet. This editorial content can be differentiated into e-books, e-papers and e-magazines and other ad-based or paid content distributed by publishers through websites or applications (Statista, 2019).

Figure 1. Digital Media Market Structure



Note: made by the author

The digital audio segment includes on-demand streaming services, either subscription based or ad supported, paid digital downloads of professionally produced single tracks or albums/compilations, audiobooks and podcasts (Statista, 2019; Magna, 2019).

Social media segment includes websites and applications that allow people to communicate and share information, ideas, career interests and other forms of expression on the internet using a computer or mobile phone via virtual communities and networks. This segment includes social networks, media sharing networks, discussion forums, bookmarking and content curation networks, consumer review networks, blogging and publishing networks and interest-based networks (Kakkar, 2018).

Search engine segment includes software systems designed to carry out web search (internet search), which means to search the World Wide Web in a systematic way for particular information specified in a web search query. The information may be a mix of links to web pages, images, videos, infographics, articles, research papers, and other types of files (Statista, 2019).

Digital advertising segment includes forms of marketing and advertising, which use the internet to deliver promotional marketing messages to consumers. This segment includes search advertising, social media advertising, banner advertising, video advertising and classifieds (Statista, 2019).

Conclusions. There is no doubt that digital media are now a crucial sector in contemporary society and the modern economy. Unlike traditional media, modern digital media are manipulable, networkable and easy shareable. Moreover, they can be effectively personalized using AI technologies. Such unique features of digital media ensure the further development and revenue growth of companies engaged in the digital media market. However, the more we go in depth, the more we discover that in modern researches the digital media market lacks its clear conceptualization in the context of the world economy.

A thorough analysis of existing industry classifications, definitions and features of the modern digital market led authors to enunciating their own definition of digital

media, which is the following: “Digital media refer to products and services in the digital format, produced by the media and entertainment industry group (according to GICS), which can be created, viewed, distributed, modified and preserved through different digital devices.” All in all, the authors came up with the structure of the modern digital media market, which includes 7 segments: video-on-demand, video games, e-publishing, digital audio, social media, search engines and digital advertising.

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