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THE "ATOMS INTO BITS" TRANSFORMATION, OR THE MEDIA COMMUNICATIONS DIGITALIZATION

In the following article there was accomplished the review of the literature about the digital nature and culture of the communications that includes a wide issue specter consisting of the new strategies of the self-expression and collaboration, characteristics, acceptability and limitations of the new digital media as well as the identity formation and communities self-organizing in the digital screen culture.

The separate accents are made on the digital nature of the media, their adaptations to the digital environment, applying of the digital tools during collecting and production of the media product. The media communications digitalization is an irreversible process of the transition from the professional analog communications to the digital forms of collecting, processing, recording and disseminating of the information. Some scientists associate digitalization with the convergence but we think that the digitalization is only the instrument for the realization of the convergence processes.

Key words: digitalization, media communications, convergence, digital conversion.

The late XX – early XXI centuries is the milestone of the total transformations: in economy, geopolitics, culture, sociology, etc. Nevertheless, the biggest changes are happening in the media environment: a digitalization of the production, a convergence, new media platforms and media formats that covered almost the entire mass communication sector from book printing to cellular communication, an integration of different media in the global networks. As a result of these changes, there is taking place the extension of social discourse about virtual environment, the dominance of the information flows, the restructuring of mass communication and the emergence of a new phenomenon which is called media communications.

Media communications digitalization is a historically caused process of the mediums' transmission technologies transformation. Unconditionally, the parallel existence with the gradual "analog to digital" displacement is relatively limited by a short timeframes although the irreversibility has some regularity. This regularity is peculiar not only to the technically mediated communications, almost all the areas of social life get digitalized features: the research laboratories use digital analytical instruments, the judicial system considers users' digital records, the astrophysicists were able to analyze the universe more deeply, and the physicists tried to recreate the birth of the universe using the collider.

The study of the media communications scientific rhetoric nature helps to explain how traditional communication strategies and functions of persuasion are used in the digital area. Among the technically based studies of the mass communication, the considerable role is given to the studies that put a computer as an instrument in a place of the object (and a software connected to it) which simplifies the exchange and processing of the information; as a means of simulating causal processes of communication; as a social subject that realizes itself through various physical, psychological, linguistic and social signals (Fogg , Siaper , etc.).

A number of studies show how traditional media and mediums expand and transform in the digital communications theories and how such theories contribute to the integration of communication forms and means as well as identify the key aspects of the scientific critics of this theory and technology in particular (Ivanov, Horodenko, Zappen).

Media computerization became one of the important stimulus for the development of the information society. After all, an adjective "digital" is often used as its synonym. The issue of the "digital in media" is explained in one or another way in the works of the information society theorists. McLuhan's "The Gutenberg Galaxy" (1962) and "Understanding Media: The Extensions of Man" (1964), Masuda's "Computopia" (1980) and Toffler's "The Third Wave" (1980) are considered as the substantial works. In these works, the impact of the computers and communication through the computers during the formation

of the new society form in partly viewed. Another significant article is Bell's "Social Frames of the Information Society" where he focuses on the society computerization and introduces the "compunication" concept.

In Ukrainian science the issues of the interaction of the computers, communication and journalism in the period of the early internatization (early and middle 90s) were studied by Ivanov (1996), Zernetska (1999), Meleschenko (1998), Rizun (1992), Partyko (1996). The last years studies are dedicated to the wide spectrum of the problems in communication and digitalization starting from the digital impact on the adaptation processes in media, the specifics of the digital communication in the depersonalized digital world finishing with the narrow issues of the digital media and digital communications features definition. In particular, these are the researches by Horodenko (2011), Vasylyk (2015), Shevchenko (2015), Tsymbalenko (2012), Sytnyk (2015), Potyatynyk (2010), Chabanenko (2011) and others. The multimedianess and convergence as the parts of the media industry digitalization are described in the dissertation of Vyhovska (2015).

Lets define what exactly is explained as the digitalization in the mass and media communications theories. Among the most comprehensive definitions we focus on: *digitalization* is the conversion of the any information kind (textual, graphical, audio, visual, audiovisual and others) into the digital format accessible for the modern computers and portable digital devices; the computerization of all the transmission processes, saving and processing of information with the usage of the binary code for it. The digitalization is being realized with the help of the special programs and devices. It is the foundation for the media convergence as it allows to "change" the content of one or another media through any channel of electronic communication[1].

Furthermore, the digitization can be interpreted as the process of media transition into digital format from the transformation of all content forms (text, graphics, sound, video) to the distribution technologies (computers, cell phones, etc.). The Internet is considered to be the main modern digital information and communication environment where digital media formats become democratic out-of-space phenomenon with the loss of the time limit identifiers.

The emergence and improvement of a cable and satellite television, personal computers, the Internet and cell phones accelerated the development of the information society to a large extent and "contributed to the opportunities growth for the spread of journalistic texts for an unprecedented distance and with an extraordinary speed"[2].

A media transition to the digital mediums with the usage of digital forms for information saving is one of the most revolutionary development milestones for media industry. At the same time, the MC transformations is a system process connected to the society transformations that "transform humanity into a single structural and functional system." According to the researchers Zernetska and Zernetskyy, "on one hand, we are observing the information society where there is increasing the power of so-called "datacratia" ie, the people or the institutions that own large amounts of information (in other words, information power) and other societies that are more or less behind from the developed countries"[3]. This idea partly echoes with the idea of digital society theorist Negroponte that was expressed in his book "Being Digital" and points that humanity is on the stage of development when we observe the death of traditional media as a result of "atoms into bits" transformation (Negroponte, p. 4). The scholar called this process "digitization".

In other way, the digitalization is described by new media theorist Manovych: "When new media objects are created on a computer, their origin has a numerical form. But many new media objects are converted from the diverse forms of old media. Though many readers understand the difference between analog and digital media, for some the convergence processes require more detailed clarification. This process is based on the principle of prolonged data. The prolonged data conversion into a digital format is called digitalization"[4].

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Today, there are ongoing debates about the digital revolution with its relatively inevitable result of scientific and technological progress. In terms of digital transformation various media actively compete and cooperate in the search for stability.

Certainly the digitization in the foundation of media convergence. And now there are many critics and cautious forecasters of the "digitization = convergence" idea. As pointed out by Nightingale, "where was once assumed that digitization and convergence will lead to the mono-media world, is now clear: instead, the digitization led to a dramatic expansion and diversification media platforms, devices and functions. The digitization and media convergence process change forms and contours of modern media system, but it is still far from the world simplified media. On the contrary, this system becomes even more complex. Instead of concentrating various media formats in one device, there are used various devices with the wireless Internet connection for the personalization of the private and work contacts network, resources for recreation and entertainment, etc."[1]. That is we observe the divergence not only in the content personalization, but also in the technical area through the adaptation of the named devices to meet the needs of the individual access to information and communication networks.

The convergence in the media is happening during their transition to a single digital platform. As a result of the digitization, media acquire multichannel, multimedia, interactivity characteristics, the ability to reflect events in real time and continuous updating of information resources.

Studying the new transformation processes, a scholar Tsvyk stresses: the digitization is leading to a creation of a combined (converted) media and to a journalistic profession universalization, when the convergence of media requires the convergence of their analysis methods[2].

The research of new digital media explains some of the basic communication characteristics in the digital environment and some of their operational difficulties. These parameters are studied through the highlighting of the unique and universalized new media features, new digital rhetoric that promotes self-expression and creative collaboration, a support of traditional cultural values by new media, etc. For example, Hurak defines and explains the accessibility and limitations of such main characteristics of media digitalization: a speed, a coverage, an anonymity, and interactivity[3].

Various media are used for the data transmission from one computer terminal to a central computer or to other computer systems within some networks. The most common means of communication include wired connection (twisted-pair), cable coaxial connection, microwave transmission, satellite connection, fiber-optic connection, wireless connection.

The communication mediums appear as a communication channel to connect the various computing devices so that they can interact with each other.

Modern communication means facilitate communication and data exchange between the masses of people over long distances via social networks, email, TV conferences, online forums, chats, twitts, blogs, etc. On the other hand, traditional media such as television, radio and press help to communicate one-to-many.

There are two communication forms:

Analog: traditional radio, telephone and television broadcasts.

Digital: computer-mediated communications, computer networks and telegraph.

The digitization, except for a number of local positives in the work of media, caused a significant global problem – the digital divide that engage in solving the international organizations, including UNESCO. The reports of this organization are clearly focused on a direct proportion of digital communications level, the convergence of media s well as local and global information gaps. In the UNESCO "Information for All" Programme among the main challenges for the future civilization there is determined the need to preserve the world's information heritage. The major challenges that require the priority activity applications both by UNESCO and the international organizations and national governments are defined as an access to the information is not equal and universal; the increased gap between informationally rich and informationally poor; the reduction of public ownership in information industry; the change of public goods concept understanding; the rapid changes in the ethical, legal and

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[3] Gurak, L. (2003). *Cyberliteracy: Navigating the Internet with Awareness*. New Haven, Yale University Press, 29-46.

social concepts; the increased usage of ICT by governments for the transparency improvement, efficiency and impact through the guaranteeing access to the internal and external information; the global information inheritance in danger[1].

The main stimulus for the real development of media communications was the widespread usage of the Internet by ordinary citizens. This process had a number of social suppositions that were systematized by Barr: a small but statistically significant decrease in social activity that is used for measuring communication of the family and local social groups, and the increase of loneliness, the change in mental state connected to a social activity; the depression increase. While the effects of communication in a wide circle, a social support, a stress does not reach the standard levels of significance[2].

The media communications is the synthesized form of professional and semiprofessional communication, which is based on the mass and individualized processes created on an indirect relationships: "Taking into account the impact of modern communication technologies, we can go further and determine the indirect relationships that require a support for the complex communications system"[3]. A communication environment of media communications is completely dependent on the technologies.

A technological progress have changed the "straight" world of information perception. The basic technologies such as digitization, form the foundation for the creation and usage of modern communication devices. Technologies and computers have changed the understanding of the production process organizing, leisure, "have expanded our thinking" (McLuhan), and transformed social relations.

The definition of "digital" in the social communications theories has different contextual meaning in conjunction with the dominant concept. Among other things, it indicates an unequal access to the information, communication and ICT (so-called "digital divide"). Moreover, an adjective "digital" is widely used to differentiate journalism means (eg., digital camera, digital voice recorder, digital video camera etc.), and information delivery technologies (eg., digital television).

Are there any positive aspects in the application of this "digital" journalism? Certainly, there are. The efficiency of printed press with the usage of new tools for journalistic texts and images preparation is coming to television and radio, especially when publishing reports in the online editions version. Nevertheless, this "universalism" has negative characteristics: a journalist must be professional in all media sectors – as an author, as a photographer, as a designer. The editions, where the preparation of texts, photographs, drawings and design is led by particular specialists, favorably differ from the universalized newspapers and magazines. Another quite devastating aspect of this digital journalism is defined in the moral and ethical sphere. The efficiency used for information transmission in the chain the witness (reporter) – the reader quite often exclude editor's participation; the published opinions can have a subjective meaning, not always fully reflect the reality, cover the events selectively. As a result, these journalistic works can cause a negative reaction both from the side of the events participants and by the final information consumer. The various manifestations of the digital information nature in media society is associated with the gradual replacement of most media types by their electronic analogues. In particular, in the social communications there is observed a transformation of the receiving, exchanging, saving, using and selling information system towards its "electronization." People get the great bulk of the messages through the electronic media channels information communications channels of electronic media – through the Internet, television, radio; at the same time, the communication transmits from interpersonal to electronic and network neutrilizing the concept of interlocutors geographic placement: these are phone calls, emails, chats, forums, social networks and the blogosphere. With the introduction of coding systems and information security systems an electronic document flow is more often used instead of the traditional. Thus, there is happening the synthesis of the information in the social communications theory with the entry of new features inherent to the digital media society such as multimedianess and interactivity.

In the media society, information is the main product. However, itself it does not mean anything; it is only a set of symbolic elements. The knowledge, the skillful information understanding and awareness provides a basis for a future world order and ensures maximum possibility for individual realization. The change of the essential information characteristics led to a change in the occupations structure and to a

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different professions adaptation to the conditions of digital reality. In this sense, the journalism is one of the most flexible professions that is associated with a digital media society as it fully embodied and implemented the entire rich arsenal of electronic tools and technologies.

The digital form of the information presentation, which was made possible after the development of computer technology, completely changed the nature of media and pledged scholar and practical communities to put into circulation, interpret and comment the convergence phenomenon. And it is not only about the Internet socialization as a digital media environment. The "digital" touched absolutely all processes from data collection and materials processing of the preparatory editorial stage, printing, radiopresentation, the television presence, etc., to the blogosphere and social networks. Each of these processes is based on the digital industry segments. For example, periodicals has the following production stages, based in digital technologies:

• *the stage of information collecting*: recording the interviews or comments with the digital recorders, photographing events using digital cameras;

• *the stage of information preparing:* processing of photo illustration materials in raster computer graphic programs, creation of graphics (including – infographics) in specialized software products and vector graphics programs, typing the text in the text processors;

• *the editing stage*: making changes in the journalistic material in an appropriate program editor;

• *the layout making stage*: preparing a media layout for transferring to the publishing house in one of the computer layout design systems;

• *the printing stage:* coloring, copying and digital printing.

No fewer digital stages passes the information on television and radio. It is also materials recording, their processing, and preparation for the broadcasting via specialized software, the design effects program recovery created in computer processors and digital broadcasting.

Regardless to a narrow production specialization all media have a common digital media segment – *the Internet-stage,* or posting information on theit websites.

Thus, we can talk about a new era of journalism, which uses digital devices in its production; the processed information is distributed through the digital channels and a final user gets it mostly in digital format. The scholar debates on media digitization only confirm the irreversibility of the transition from analog to digital, and an information explosion is the result of the digitization of the information that has become available for a mass audience.

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