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DIGITAL RADIO DAB+ IN THE DIGITAL AGE

RADIO CYFROWE DAB+ W ERZE CYFROWEJ

Abstract

The contemporary media market is going through a phase of technological revolution in virtually every sector. This phenomenon is influenced by innovative technologies entering the world of media through the general digitization of analogue radio and television stations, Internet networks and the increasingly ubiquitous social media. The study contains an analysis of the impact of general trends of innovative transformations in digital media, in confrontation with the essence of human capital, and presents the answer to the bothering question whether, in the new perspective of electronic digital media and their impact on the environment, efficient HR can constitute the basis for the development of a given media organization. The increase in the benefits of the DAB+89 digital radio implementation, as indicated in the research analysis by public opinion, should contribute to the rapid development of this innovative technology.

Keywords: digitization, media, DAB+ radio, innovation, management

Streszczenie

Współczesny rynek mediów przechodzi fazę rewolucji technologicznej praktycznie w każdym sektorze. Na zjawisko to wpływają innowacyjne technologie wkraczające do świata mediów poprzez powszechną cyfryzację analogowych stacji radiowych i telewizyjnych, sieci internetowe oraz coraz bardziej wszechobecne media społecznościowe.

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Badanie zawiera analizę wpływu ogólnych trendów innowacyjnych przemian w mediach cyfrowych w konfrontacji z istotą kapitału ludzkiego i przedstawia odpowiedź na nurtujące pytanie, czy w nowej perspektywie elektronicznych mediów cyfrowych i ich wpływu na otoczenie, efektywne zarządzanie zasobami ludzkimi może stanowić podstawę rozwoju danej organizacji medialnej. Wskazany w analizie badawczej wzrost korzyści z wdrożenia radia cyfrowego DAB+ w opinii publicznej powinien przyczynić się do szybkiego rozwoju tej innowacyjnej technologii.

Słowa kluczowe: cyfryzacja, media, radio DAB+, innowacje, zarządzanie

Introduction

The media has been accompanying people for several decades (Briggs, Burke, 2010), along with the transport of goods on ships, books and scripts containing new knowledge and ideas were covered more and more distances, but it was only electronic media that enabled access to information. Meanwhile, digital electronic media (Adamski, Gralczyk, Kwasik, Laskowska, 2012) have gone a step further, providing entertainment, information and education in an interactive form. Their role cannot be overestimated, we watch DVB-T television every day, listen to DAB+ radio, browse social networks and even participate in educational activities. The ubiquitous and widely listened to radio (Adamski, 2012) plays the leading role in the multitude of information provided in the entire maze of public and commercial media. Digital media is used for information, training, work, entertainment and business. As research has shown (McKinsey, 2016), digitized service companies in EU countries were ranked fourth after ICT (Information and communications technology) and traditional media, reflecting the high level of digitization of their own resources. Digital electronic media indirectly owe their development to innovative information technologies, which have made IT equipment (computer and software) become the basic instruments in practically every workplace, in particular in media organizations. Computerization and artificial intelligence connected in intranet and Internet networks (clouds) connecting communities of producers, intermediaries, sellers and consumers of electronic media, providing the community, in addition to information and entertainment, the possibility of organizing classes, meetings and teleconferences. (Pańkowska, 2017). Digital media, and DAB+ radio in particular,

often serve individuals, smaller communities, and ultimately the general public (McKinsey, 2017). Digital media deals with topics relating to virtually all areas of social life. We value this medium due to the speed and wide range of access to information, its diverse and frequently updated selection of national and global services, and above all, an easy-to-use and 24/7 means of social communication. The modern user of electronic services available in the latest DAB+ standards (ETSI, 2019) cannot imagine everyday life without immediate access to media services. According to recent research (UKE, 2019), the population increasingly uses digital network media and DAB+ radio.

Media environment for the subject of the study

DAB+ digitization is a new perspective of development opportunities for the radio media organization (Lamri, 2020), both in terms of technology and programming. An innovative element is introduced in the form of new opportunities, an additional information channel (graphics, video, text information), an increase in the number of programs (Ogrodowczyk, Rosłan-Kuhn, 2019) enabling the expansion of the competences of the current staff, employment of a new higher qualifications, or possibly transfer to other jobs (Skałkowski, 2016). Innovative technology initiates new challenges for the organization, increases competitiveness among existing broadcasters and enables additional economic entities to enter the media market. New media players entering the market, on the one hand, pose a competitive threat to the existing broadcasters, and, from another perspective, inspire mobilization and improvement of the quality of services offered. The real threat to the current order may be foreign corporations with large capital, new broadcasters with greater programming and capital possibilities, world tycoons who have not been present on the internal media market so far. The digitization of the media also increases the number of media entities, which creates the threat of fragmentation of the advertising market, which is particularly important for smaller commercial broadcasters (Mazurek, 2021).

Purpose of the study and research methods

In this study, the author will analyze the impact of factors determining the success of digitization in relation to entrepreneurship, innovation, as well as competitiveness against other media economic entities (Chałubińska-Jentkiewicz, Nowikowska, Wąsowski, 2021). The study will explain the issue of correlations that directly affect human resources management and the existing external factors, directly related to the environment of the organization and internal ones related to the employed staff, in the context of modern management methods and concepts (Martyniak, 2002). Due to the complexity of the problem, which relates to two issues, both the public opinion poll perceiving the organization from the outside (the audience) and the staff of the DAB+ media organization, creating a product in the form of radio broadcasts for the audience, which is also a specific market brand of the organization (Wojtaszczyk, 2012). In this monograph, the author used triangulation (Stańczyk, 2015), with the help of which he will conduct a research project in both quantitative and qualitative form. In the study, the author used the method of questionnaire research, which focuses on solving the problem on the basis of empirical approach, which requires methodological rigor (Majetun, 2016). The author decided on the form of public opinion poll, using the CAWI (Computer-Assisted Web Interview) technique, which, in addition to the ease of establishing contact with a potential respondent, uses the Internet with computer software that watches over the smooth running of the survey, while controlling the correctness of the interview process. Thanks to the use of this technology, the process of collecting data is shorter and is less time-consuming for the respondent. For the author of the study, the group of uninformed converts should be the subject of special attention in the research process concerning the implementation of digital radio DAB+, because at present they constitute a significant group of public opinion that may disturb the credibility of the measurement results. Therefore, along with the form, respondents receive a short brochure explaining the issue of radio conversion. After a thorough analysis of various ways and methods of applying the type of research, the author decided to combine the quantitative and qualitative methods with the use of CAWI. Such an analysis will be more reliable than

a unit study (Dźwigoł, 2015). The respondents participating in the analysis were divided into four groups, which ultimately form two groups defined as: "Beneficiaries" – (radio listeners) women and men and "Producers" – office workers and program creators as "Substantive" and technical staff employed in the radio and broadcasting stations, as well as broadcast vans, were referred to as "Technical".

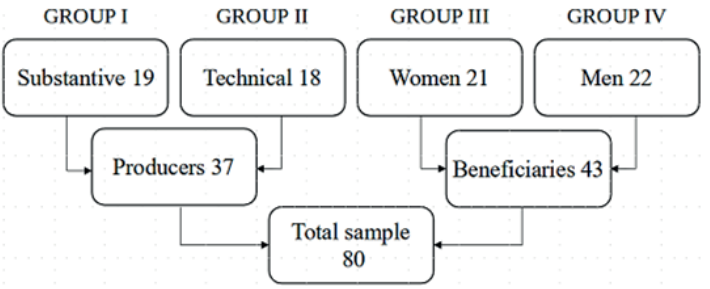


Figure 1. Diagram of the research procedure divided into groups and a list of the number of respondents used in the analytical chain
Source: own study.

Public opinion polls

Quantitative "how much" methods combined with qualitative "how and why" methods allow to obtain answers to important questions, incl. how many listeners (of the public opinion) know DAB+ technology and what they think and how many media professionals associate DAB+ well with "producers" and how many people are generally satisfied with the introduction of media digitization. The practical case study ("case study") plays the role of an additional tool increasing the credibility of the "producer" (DAB+ radio) in relation to the potential "beneficiary" (radio listener). An important element of such credibility are the responses of people directly involved in the creation and dissemination of radio programs and the recipients of their programs included in the "case studies". As a result of the analysis of the above examples of the types of research procedures used, it can be concluded that qualitative research is in some cases more attractive than quantitative, but at

this point it should be noted that it is the research problem that determines the use of the most appropriate research procedure (Milic-Czerniak, 2021). The sample representative for the regional population was n=80, age: 20-65 years. The sample in terms of: gender, age, profession, education and region according to the Central Statistical Office. The questionnaire contains specific questions based on a previously specially prepared list. The answer is obtained automatically, it is enough for the respondent to fill in the received "e-form". An important element in the study is the selection of appropriate groups of respondents and a set of questions for the issue at hand. The representative sample consists of four survey groups for which a set of basic questions was prepared, selected from the list of issues. The thematic questions are specific and focused on the issues of human resource management in the DAB+ organization.

Research procedure

In the survey group of "beneficiaries" and "producers", a total of 80 people randomly selected from among employees of electronic media and a significant number of listeners of radio stations were surveyed. Each group consists of two factions. Producers differ in terms of employment, which for research purposes they named them as substantive and technical in the proportions of approx. 24% and 23%. The beneficiaries are women and men in the amount of 26% and 28%, respectively (Table 1). The research used a set of various questions that allow for the drawing of conclusions and conclusions in the field of "media digitization interaction analysis in correlation to human resource management on the example of digital radio DAB+", to which relatively consistent and authoritative answers were obtained.

Table 1. Percentage share in a given research group

	Analyzed basic survey groups			
	Women	**Men**	**Substantive**	**Technicians**
Number of people	21	22	19	18
Participation	26,25%	27,50%	23,75%	22,50%

Source: own study.

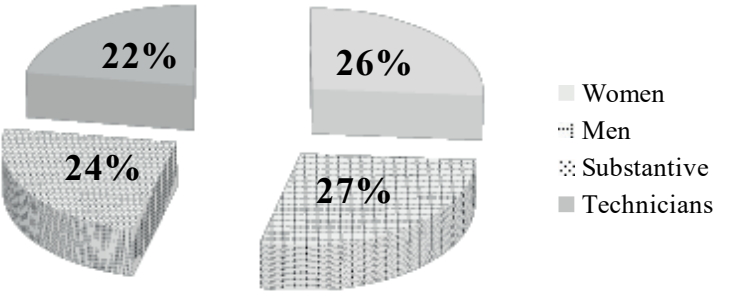


Figure 2. Percentage share of respondent groups
Source: own study.

Beneficiaries and Producers – the results of the analysis

The type of CAWI (on-line, internet) interview was used, in which the respondent provides answers on his / her own. This method is currently one of the most popular, more frequently used and fastest spreading new methods of social research (Lutostański et al., 2021). A set of questions was used in the questionnaires, to which various answers were obtained. The research hypothesis concerned the basic issues related to the impact of digitization of DAB+ radio on HR and, consequently, on the entire media organization. The main goal of this survey is to prove that the hypotheses formulated therein are true or false (Czakon, 2015). The study was conducted on people related to or interested in the analyzed subject, i.e. the digitization of DAB+ radio. By using the methods of electronic data acquisition and analysis, you can test whether a hypothesis is proven or not. Already initially, after a short analysis and compilation of a few more important parameters listed in Table 2, you can initially evaluate the research results and draw the first conclusions.

Table 2. List of the twelve highest and lowest rated responses

Survey question	A: no.	Answers with the highest ↑ and the lowest ↓ scored	No of points
What impact will the digitization of DAB+ have on radio employees?	2	It will motivate to education and development	24
	3	Discourage to further education	5
How many% of employees, according to you, will benefit from the digitization of radio?	5	80 %	32
	1	10 %	3
What will the organization be characterized by after the implementation of DAB+?	4	Build careers	29
	5	Worse work and pay	2
How do you assess the impact of DAB+ on staff changes	1	It will increase the number of jobs	26
	2	It will reduce jobs	6
What elements of HR will be influenced by the introduction of DAB+ in the organization	4	Staff development	21
	3	Nothing will change	1
To what extent will higher qualifications of employees be needed in the DAB+ radio?	6	6	24
	1	1	1
To be successful in DAB+ radio on in the professional field:	3	Continuous learning	23
	5	Work on personal development	6
Which factors are positively influenced by the introduction of DAB+ in the organization?	4	Personal development	20
	6	Training	9
To what extent is the possibility of development decisive for starting work in the DAB+ radio	6	6	29
	1	1	2
What, in your opinion, are the factors that determine the choice of DAB+ as a workplace	5	Social advancement, ennoblement	24
	1	location	5
To what extent are financial factors decisive for starting a job in DAB+ radio?	5	5	24
	1	1	1
Which crew characteristics are influenced by the introduction of the DAB+ radio	2	Knowledge	18
	5	Value system	6

Source: own study.

The survey methods of searching for research used for the purpose of searching, which enable the search for data acquisition and provide the collected data. By using the method of data discovery and analysis, you can find out whether it is possible to prove that there is a method or not. Already at the first

steps, after a short analysis and compilation of a few new parameter elements (Figure 3), you can start evaluating the projects and the first solution.

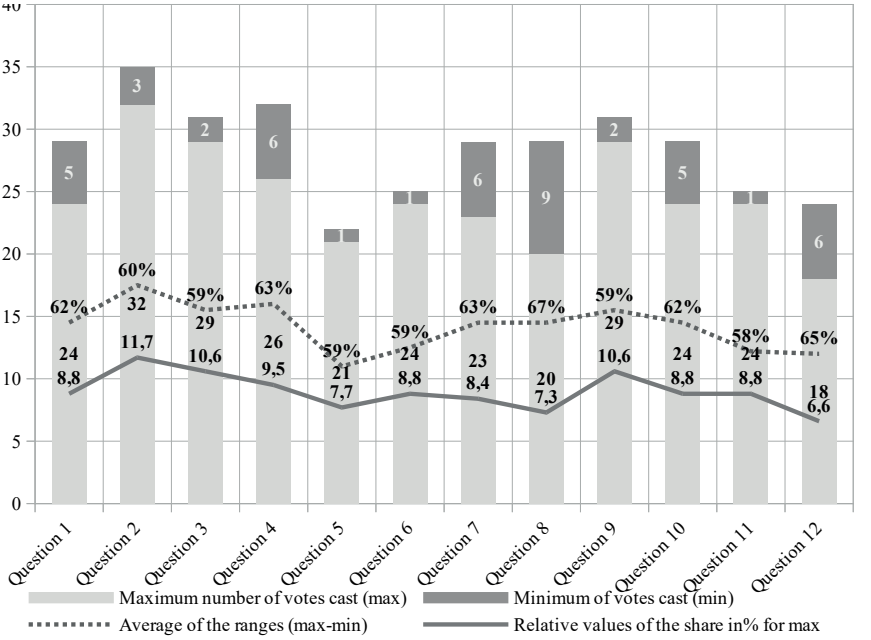


Figure 3. Percentage of the highest and lowest opinions and relative values
Source: own study.

The results of the author's interest were obtained and analyzed from the CAWI electronic questionnaire. The data includes the number and proportions of votes cast for each of the twelve closed questions. Depending on their experience with the media, the respondents expressed their opinions and views by voting on the presented responses (one or multiple choice). In addition to quantitative data, the chart shows statistical measures, min. the most intuitive measure of variability of cases in the sample population, called the range, which characterizes the empirical area of variability of the studied case (feature).

Professional career as a boon of digitization

According to the research results, thirty-two respondents expressed their opinion that as many as "80% of the workforce should benefit" from the benefits of digitization in a media company. The second very important premise for introducing a new technology into an organization will be, as it was shown by twenty-nine respondents, "the possibility of creating professional careers" in a modern media institution. No less important element, which was also noted by the participants of the public opinion poll, which is related to digital radio, will be the possibility of "increasing jobs" in the organization of electronic media. On the other hand, the highest rated data, as shown in Table 3, clearly indicate that 80% of employees will benefit from digitization. In addition, an important message for the digitization process is also the information on "development opportunities", which reached 6 points, placing it in the second position of the highest-rated benefits for HR.

Table 3. List of the highest rated favorable answers for HR according to the sample of 80'

Rated the highest for DAB+ related responses	Points	Ranking position
It will motivate to education and development	24	4
80% of employees will benefit from digitization	32	1
Build careers	29	2
It will increase the number of jobs	26	3
Staff development	21	6
Higher qualifications of employees -6 points	24	4
Continuous learning	23	5
Personal development	20	7
Development possibility - 6 points	29	2
Social advancement, ennoblement	24	4
Financial factors - 5 points	24	4
Knowledge	18	8

The confirmation of the legitimacy of the choice of an innovative technology, which is DAB+ digital radio, is the unequivocal research results, on the basis of which it can be concluded that there is a general public acceptance

of the concept of media digitization, which is indicated by the result of the ranking of the highest rated answers and their position according to the 80' sample shown in Figure 4.

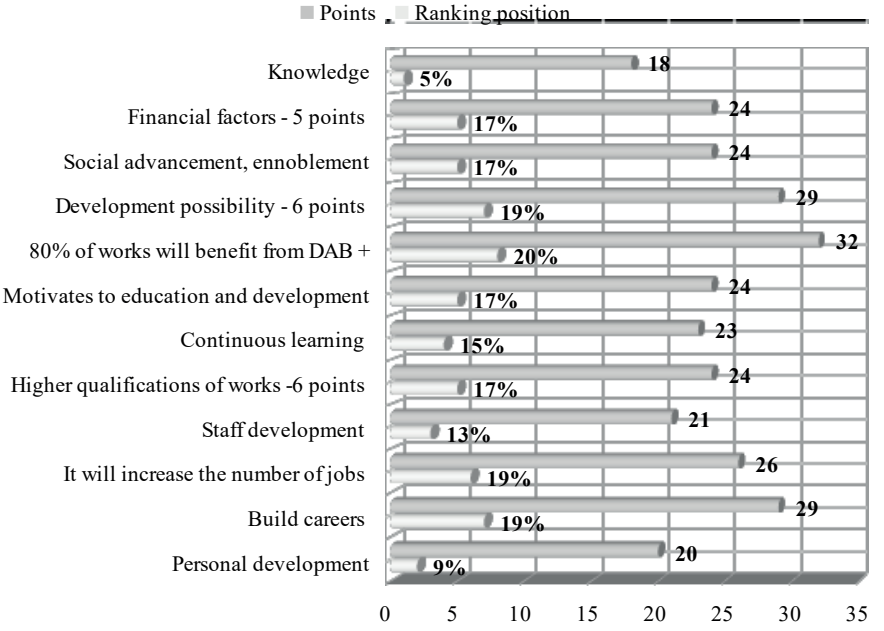


Figure 4. Ranking of the highest rated answers and their position according to the „a sample of 80" / „80-person sample"
Source: own study.

The results of the research procedure

The analysis showed the dependence of the influence of art and HR management skills and their impact on the organization in the era of digital transformation of electronic media. According to the surveyed groups of respondents, the employees of DAB+ radio will definitely benefit from digitization. Out of the entire group of respondents, thirty-two people voted for the survey item indicating the introduction of DAB+ as "80 percent benefit for the radio crew", obtaining the best result in the ranking. The second position was taken by two parallel factors relating to "career creation" and "development opportunities". The next place, also highly classified (third),

as a benefit for the organization, shows that DAB+ will "increase the number of jobs". Apart from the podium (fourth place), there are four equal factors, which cover a wide segment of the human resources economy of the organization, signaling that DAB+ will "motivate education and development", will ensure "social promotion and ennoblement" and "will affect financial factors and higher qualifications of employees". Observing the results of the research procedure, it is worth noting that the analysis can be extended with additional research tools in the field of decision-making effectiveness of management, including the implementation of benchmarking, which may supplement the above query (Fliśnik, 2021). Using additional research instruments, it can be assumed that on the basis of the entire study, both from the group of respondents and the additional benchmarking process, it can be assumed that the results obtained in this way will be sufficiently consistent and, above all, reliable.

Conclusions from the opinion poll

The increase in the benefits of DAB+ digital radio, indicated in the above research analysis by the public, may contribute to the rapid development of this innovative technology. Assuming confirmation of success in practice, it can be stated that employees should benefit in all social terms from the digitization of radio. Certainly, in the initial period, it will be necessary to invest in the new technology, but in the long term the balance of profits should be positive. An important element will be the method of managing innovations and acquired knowledge, which, combined with innovative technology, will result in a decisive competitive advantage (Makieła, Stuss, 2018). The analysis of planned changes in the HR system in DAB+ media organizations should be supplemented with consultations to help the management understand how innovative changes are perceived by the staff, and to capture the complexity of non-rational elements that appear in the implementation of digital radio. Experience shows that the staff is the basic segment of the media organization, also in the sense of its unreliability, and as a result, it can become a critical link in the organization management chain (Przytuła, 2019). The perception of the crew, their features and attributes as human capital

supports the shaping of professional careers and improving the qualifications of employees in a manner consistent with the needs and goals of DAB+ radio. The above theses clearly show how important it is for HR management to be competent and responsible for decisions made in the field of organization management (Edmondson, 2021). It can therefore be assumed with a high degree of certainty that modern innovative human resource management plays an equally strategic role as digital DAB+ radio in the twenty-first century.

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