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Usage of Newsroom Computer Systems as Indicator of Media Organization and Production Trends: Speed, Control and Centralization

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SUMMARY

A convergent work method within the 24/7 deadline environment has created a need for digitalization and process automation. In order to realize that work method, an increasing number of media uses newsroom computer systems. Those systems are useful for the entire process of news production. Basic characteristics are enabling news gathering, article and scenario writing, communication, video viewing and editing, program length measurement, material archiving, broadcast control, dissemination of finished material and information program planning. The implementation of newsroom computer systems causes changes in the news production workflow, processes and in newsroom organization. Starting with the theory of technological determinism, this article is based on influences of the digitalization process on work routines, newsroom organization and the journalist-management relationship on the Croatian public broadcaster Hrvatska radiotelevizija (HRT). Research used includes the ethnographic method of semi-structured interviews with handpicked personnel, as well as the company's internal document analysis. It has been established that the television news production process has accelerated and become more efficient. Editor's tasks have been directed towards information, and the possibility of journalist control has been introduced. Journalist's tasks have become more complex, resulting in noted resistance to the system's introduction by some journalists. Editors and older journalists work

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progressively less on educating younger journalists, while new routines have been created causing journalists to lose their assignment exclusivity and creation of metadata. Research has established that the introduction of newsroom computer systems represents a foundation for digitalization process implementation, as well as for the implementation of technological innovations in modern media establishments.

Key words: Croatian public broadcaster, newsroom computer systems, organizational change, routine, technological innovation, Croatia

Introduction

Journalism history has been greatly defined by technological changes (Pavlik, 2000). However, the exact role of technological innovations directing changes in news creation processes is the least researched field within media studies. One of the reasons can certainly be attributed to negating technological innovation's important role, causing the changes in the newsmaking process to be mainly researched from the socio-economic, political and institutional aspects (Marjoribanks, 2000; Carey, 2005; Preston, 2009). Said scientific approach is based upon finding of Raymond Williams (2003), who states that new technologies are controlled by human institutions, knowledge, creativity and intentions, and as such represent a foundation for modern cultural and media studies (Lister, M. et al., 2003). Such interpretation could have possibly been applied to the times Williams lived and worked in (1960s and 70s), but not to the present day and age of omnipresent technology. In the days of Williams' critique of Marshall Mcluhan (1994), it was easy to apply the interpretation that people control the machines and technology, since those machines and technology were basic and simple to use. However, such interpretation loses its impact when considering complex machines and systems used nowadays. Individuals ability to control the entire system has significantly decreased, introducing a special relationship between systems and persons operating them. McLuhan has warned that physical relations of humans and new technologies assigns those technologies the role of cultural phenomena which cultural and media studies are unable to address.

> "…technology is something real. Real in the obvious, material sense: we can touch it, it does things, it performs certain actions, it makes yet other actions possible, we rearrange our work and leisure around it, and so on. New technologies do produce highly tangible changes in the way everyday life is conducted: they affect the way which labor power is deployed, how money is invested and circulates, how business is done, how and where identities are formed and so on. In such ways, technology, both in its forms and its capacities, profoundly affects human culture" (Lister, M. et al., 2003: 289).

Therefore, with regard to all other factors, it can be asserted that it is undeniable that technological innovations influence workplace relations (Marjoribanks, 2000: 191). Taking this further, technological innovations have a direct influence on workplace organization and an indirect effect on management organization models, as well as on the employee-management relationship.
Research in the field of broadcast media, (Erdal, 2007) and the precise roles of technological innovations in newsmaking changes are one of the least researched fields within media studies (Preston, 2009). Therefore, it is of great necessity to study specific cases (Domingo, 2008; Marjoribanks, 2003) concerning newsroom computer system implementation.
Using this premise as a starting point, in order to research technological innovation influence most effectively, the chosen research subject needs to be a media company least influenced by other factors (socio-economic, political, institutional). Croatian public broadcaster Hrvatska radiotelevizija (HRT) was the chosen analysis target due to its existence as a media company not burdened either by profit generation or by negative socio-economic consequences of such a business model, in which political influences interfere with news program content (SEEMO, 2006), instead of its technical aspects, and with negligible institutional influences, since employees are divided across nine unions. Also considering the fact that television journalists tend to accept technological innovations, HRT proved to be a logical choice for this research.
While researching business organizations, Michael Barret (2007) came to a conclusion that technological innovation introduction causes: communication speed changes, reorganization, electronics-based control and coordination, organization size reduction, and collaborative planning. In this article, we intend to prove that, due to technological innovations, similar changes occur in media organizations as well. This assumption results in a hypothesis for this article stating that the process of technical digitalization of HRT by implementing newsroom computer systems, has led to: changes in journalistic and editorial routines; changes in journalist-editor relationships; the creation of new work routines.

News production, technology and innovation

One of the main initiators of new technology usage in journalism is the modern media business environment (LeBlanc Wicks et al., 2004) which requires the media to adjust to audience preferences, to become organized more efficiently and to implement new models of convergent and multimedia activities while adhering to 24/7 deadlines. The best example of such a trend is the German "Die Welt", which did not net a profit since its inception in 1946, until it introduced convergence in 2007 (García Avilés, et al., 2009).
As stated by Simon Cottle (2003: 10) digitalization, or technical innovation, is a "process of translating different forms of communication into a common code, technically facilitates multimedia production and delivery and prompts mergers between different media industries and sectors, thereby further extending opportunities for media concentration and market dominance".

The introduction of new technology has resulted in "a radical reconfiguration of broadcast newsrooms and changing professional practices" (Cottle, 1999: 21). We need to, therefore, know more about the "processes of 'technological embedding' and the 'social (and professional) shaping' of news, as well as the impact of these technological changes upon working practices, source involvement and news output" (Cottle, 2003: 20). These transformations can be investigated by researching the relationship between, and experiences of, technological innovation and workplace reorganization. An important role in the process of digitalization is played by "adoption processes" determining whether and how very different "effects" may be manifested in different newsrooms or other locations, even where the same technologies are being adopted and used" (Preston, 2009: 44).
Technological innovations are always linked with organizational changes causing a certain degree of resistance (Marjoribanks, 2003). This can be applied to the news production process regardless of the newspaper or television settings, since the process has remained unchanged for years.

Newsroom computer systems

Apart from organizational changes, newsroom computer systems initiate a trend of deskilling or removing many traditional routines associated with the news production process. Journalists used to be responsible for story writing, while today they have become responsible for the proofreading and layout of their own stories as well. Technology has also provided an opening for editors (owners and managers) to assert control over the production process (Panciera, Winter 2000; Fuller, Winter 2000). However, "media corporation management uses newsroom computer system implementation and technology adoption to strengthen their control over various factors, including operations, budgeting, marketing, employee behavior or content distribution" (LeBlanc Wicks, et al., 2004: 113).
As a consequence of new work methods and newsroom computer system usage, journalist autonomy gained by the previous minimal intervention system has been endangered (Preston, 2009). A majority of journalists work in a more integrated, efficient and planned manner in a temporary employment status, disallowing their task independence and autonomy. An exception to the rule are multi-skilled journalists controlling the entire news production process (Nygren, 2008), with such content becoming more prone to errors.
The introduction of newsroom computer systems into television, radio and print media newsrooms has also accelerated the content production process (Kostantinos & Dickinson, 2007), but resulted in a decrease in news proofreading and editing, as well as in other office bound working practices (Preston, 2009).
"Newsroom computer systems have been developed in order to simplify technical and operational parts of compiling a television news program, improve communication within the news operation, and replace human machines operators where possible"(Keirstead, 2005: 19). "The reason for system implementation is that this simple but vital way of controlling the newsflow ensures that the journalists get their material on air at the right time in the right place and without any confusion" (Boyd, et al., 2008: 254).

A newsroom computer system has the following objectives (Holmberg, 2002):

- Provide a toolkit for quick sorting and selecting information.
- Efficient support of information flow between employees, thereby minimizing working in parallel.
- Easy arrangement and rearrangement of plans for content and resources, with consideration of content format.
- Control of production workflows to manage timeframes and resources.
- Providing employees access to necessary information and permission to perform specified functions.

"Each television organization has its own practices and consequently server-based news-production systems are custom made for each particular broadcaster" (Todorović, 2006: 220). Each system contains basic functions: news gathering, text and scenario writing, messaging, video viewing and editing, program-length measurement, teleprompter management, communication management, material archiving, broadcast control and finalized content dissemination. Newsroom computer systems are also used for informative program planning (Mauthe & Thomas, 2004 (Goliath, Kugelberg, & Matsdotter Bauer, 2003). The main advantage of those systems is the fact that "resource exchange requires a lot of planning, but saves money and time in the long run… Another advantage is that the material is gathered only once, and used on numerous occasions…" (Boyd, et al., 2008: 57)

Methodology

For this research, ethnographic method has been used, including data collection through internal HRT documents analysis, conducting of personal narrative interviews giving individual perspective and expression of an event, experience, or point of view (Madison, S., 2005). Interviewed persons were: The head of HRT's digitalization project, the news program's editor, the international production co-coordinator, the news program journalist, two news program's editors also serving as journalists, the correspondent journalist, the desk co-coordinator and the AV material receiving co-coordinator. Interviews were conducted anonymously; therefore the persons are identified solely by their position.

Based on HRT organizational structure, the selection of interviewees was made keeping in mind the need to represent all persons included in the process of news production as defined previously.

Interviews were conducted on February 5, 2009 on location in the HRT's newsroom.

In addition, quoted within this article, is an analysis of an array of HRT's strategic documents, as well as evidenced problems using INews system (HRT, 2006). The period analyzed began with the first noted problem on October 14, 2005 and concluded on October 10, 2006.

Newsroom computer systems – implementation and adoption at HRT

HRT began the process of digitalization and automation in 2001. Before that period, "The Croatian television desk used no computers, and announcements were written by hand and then transferred to dactylo-bureau for copying. Newsrooms were equipped with several computers, but the majority of journalists brought their hand-written texts to dactylo-bureau. Correspondents sent their articles via telefax to the editor that would correct them initially, and then forward them for further corrections to the redactor, with further corrections being made by a proofreader, and the final version being re-sent to the correspondent journalists" (Perišin, et al.,, 2005: 3).

During 2002, HRT chose to use the Avid Inews newsroom computer system that digitalized news and information content production. System implementation was completed by the end of 2005 (Peruško & Popović, 2008). However, "news program production digitalization and the progressive expansion of the digital system into the entire public television program, as well as the archives, has still not been completed" (Peruško & Popović, 2008).

Avid INews is a system enabling newsrooms to become information- based, as opposed to the previous production process base. Such a system enables planning, creation, dissemination and archiving of journalistic content. This system is geared towards information gathering, news production and processing, and television and radio broadcasting (CSComputersystems, 2005). The newsroom system, editing system and layout application functions are unified (Brautović, 2008). Croatian television's implementation of the system marks the beginning of the digitalization project, which entailed changes in the overall work process and organization. In April of 2003, News broadcasts on Channel 1 started using INews system (Perišin, et al., 2005).

Prior to the introduction of the newsroom computer system into the news program, there was an organizational structure that strictly divided personnel and their work places with regards to technical prowess. Newsroom computers were used strictly for text writing. When communicating with correspondents a telefax was used. In practice, it meant that a journalistic article was sent to Zagreb from the correspondent branch, where the editors would correct it by hand, then send it back by telefax to be reworked ad infinitum. Immediately prior to the INews system implementation, communication was carried out via e-mail, but based on the same principle.

The state of affairs prior to the newsroom computer system implementation is best explained by the international exchange coordinator and slow-paced program associate's statement: "I was raised to work according to the principle – You are a journalist, you do not touch the equipment. To this day, I have a mental hindrance when a rough cut is needed. I always remember the editor warning me not to touch the knob ". The same editor adds: "I started here at the time when journalists were completely separated from the technical aspect. They kept telling me that I am the news program, and they are technical staff, say what you need, we do it. All of the sudden, I am expected to do everything" (Interview, 5.2.2009).

The clear separation between the technical and non-technical staff causes problems during the newsroom system implementation process. The news program editor witnessed some resistance among the journalists, but claims that said resistance was minor. "Everybody quickly realized the ease of implementing the new process. However, I do not recall any resistance among the editors" (Interview, 5.2.2009). On the other hand, we notice a completely different situation from the editors' viewpoint. One of the explanations is certainly the fact that the system allows more freedom for the editor, and more responsibilities to the journalists. "They are now cameramen and editors, assistants and redactor" (Perišin & Škaljac, 2009).

In order to overcome possible obstacles, HRT digitalization project promoters envisioned a gradual show-based digitalization process and education plan for journalists, editors and other personnel within the news program structure. An anticipated newsroom computer system-training program included the education of editors, administrators, super-users, archivists, DNR coordinators, realizers, journalists, multi-skilled journalists, et al. (Perišin, et al., 2005).

Training process organization was witnessed by the news program editor. "As far as we're concerned, system introduction was well organized. We attended training courses where we were taught how to use it, giving us zero problems in accepting and using the system" (Interview, 5.2.2009). The international production coordinator said that the transition to INews was required only of people associated with the news program. "Persons in other programs, myself included (I was at the time on the show called "Good morning", a mixture of information and entertainment programs) realized, however, that the transition could be beneficial to us, so we requested it ourselves. Initially, the system was not installed on all computers, but everyone provided with the chance quickly accepted the new work methods" (Interview, 5.2.2009).

However, the training process encountered some problems, as described in the chapter of the Main digitalization process (Perišin & associates, 2005) titled "Problems pointed out to the management by the project team" on May 11, 2005. "Planned user education, necessary for system usage, has not been performed, with no set date for said activity, since the fees have not been paid, regardless of the fact that they were budgeted in this, as well as in the previous year. Such education type is not purchased together with the equipment, as various user groups (of non-technical background), and are never a part of the tender when purchasing similar systems" (Perišin, et al., 2005). These problems arose from the fact that the project team implementing the system was not a part of Croatian Radio Television's management. Consensus on digitalization was not followed by the agreement on the need for radical changes in the work methods of the large organization that HRT is.

In order to ensure that editors, journalists and other news program personnel receive continuing skilled assistance in system usage, and to offset potential training deficiencies, a special around-the-clock support system was created. As explained by the journalist-editor attached to the news program: "if I noticed I don't know something, our support service can assist me within two minutes" (Interview, 5.2.2009).

The digitalizing of HRT's news production has enabled the integration of the entire production chain – from taping and collecting program material, via processing and editing, to digitalized content management to preparation of digital broadcasting (Masmedia & HRT, 2006). Today HRT has digitalized all fast-paced news program broadcasts (Good Morning News, Channel 2 News, daytime news, News at noon, Daily news, Sports Today and "Otvoreno" news magazine), namely all broadcasts on a daily basis, and in addition some slow-paced broadcasts that expressed interest (Euro Magazin, Alpe Adria,...).
The basis of HRT's current news program organization (Daily newsroom, primarily) is a dual desk system, serving as a central point for gathering various types of information. The first desk is in the news program newsroom (Daily newsroom), and is comprised of editors, planning co-coordinators and organizers (HRT, 2006). This desk serves for the gathering of information arriving over the Internet, telefax and mail, and co-ordination or directing of information toward specialized newsrooms (foreign politics, sport, culture and economy).
Daily newsroom editors manage field crews, take responsibility for taping all events of informational value and, directly or in operation meetings, co-ordinate who does what for whom. The planning of daily, weekly and monthly news program activities is also conducted within this desk. Said activities are conducted through the INews system.
The second desk is used for the storage of audio and video material on the central server named "Media desk" (Perišin & Škaljac, 2009). This desk is used for the reception of correspondent offices' material, international content exchange and daily Zagreb-based production, and their storage on a server to be used in real-time by numerous users simultaneously. Coordination between these two desks is managed primarily through the INews system.
This sort of organization is a result of problems created during the digitalization process "because changes in the work processes brought on by digitalization were not closely followed by television network's organizational changes" (Perišin & Škaljac, 2009). Therefore, in an organizational sense, an old newsroom division of labor has been retained, with two desks added to the mix.
The paradox of a lack of implementation of all suggested measures is even greater when one becomes aware that the measures suggested proved very successful in the example of Flemish public television. However, it is also proof of symbolic context, or a clear example of varying implementations of identical technologies in different organizations.

Changes in journalistic and editorial routine

Changes in routine occurred on all levels and for all tasks performed in news production. The first change occurred during the editorial process. As stated by the news program editor, "INews' introduction allowed us access to all agency news, all exchange news, we can oversee journalist work, keep track of ingested video, final and raw material without needing to visit the editing room. We can also find all finished segments in one place on the computer. We, therefore, have complete control over the entire production process. Great progress!" (Interview, 5.2.2009).

The same person describes practices prior to the system introduction: "I remember us having to ask to be shown certain material in order to find out its content. In order to do so, we needed to go to the editing room, put a video-cassette into the magnetoscope, and observe. This prolongs the process. It is nowhere near as easy when sitting at a computer with all the material in front of you " (Interview, 5.2.2009). The international production coordinator also pointed out the increased speed provided by the new system. "There is no more need to call my colleague, the system lets me know whether the text is finished. I can access all received videos immediately, not needing to go to the archives anymore" (Interview, 5.2.2009). Consensus on the ease and effectiveness of the work methods was agreed upon by all interviewees. Such attitudes are in tune with the attitude of television journalists who interpret technological innovations as a step in right direction (Preston, 2009: 70).

The news program editor, also working as a journalist, acted as the News at noon editor during the research period and admitted to significant changes in that show's production. "Today we can intervene during the show. That's why two people are always involved. I have instantaneous access via teleprompter to my colleague's writing. During the show, I can pull planned segments if we start running long. The director is aware of it immediately. Thanks to INews, when something is pulled from the plan, the segment cannot be produced" (Interview, 5.2.2009). Remembering the prior work methods, the editor explains that the director and their assistants had video-cassettes sorted in a box, and needed to locate and produce them, so the segment schedule could not have been changed during the show. "Every deviation from the plan was stressful, and resulted in frantic box rummaging. Now it's just a matter of clicking the mouse, and the signal goes to the director. They not only see it, but automatically change the order of realization" (Interview, 5.2.2009).

There were also changes in journalistic work methods. "When I power up the computer, the system gives me the daily news assignments. The system identifies necessary contacts for the segment, the camera procurement schedule, and the camera and sound crew availability lists. When returning from the field, I write the text using the system, and the text is reviewed by the editor and the proofreader. Proofreaders are networked as well, and have no need of physically locating us in order to review our texts, since everything is managed over the INews messages. Journalist's work is very complicated due to its immediacy, and this is exactly INews system's advantage" (Interview, 5.2.2009).

Besides the change in routine for editors, journalists and directors, new jobs were created. One such job is desk coordinator. "My task is to collect all fax and e-mail messages, introduce them into the system and distribute them to economy, foreign politics, culture and other newsrooms. News remaining within the scope of domestic politics is distributed as editors see fit. Some tasks are already pre-distributed – Sabor (Parliament) crew, Government crew… In those cases we do our own work. Each event to be covered must be evidenced in the system. All editors can see what shall be done. There is a rule that important cultural and foreign political events are introduced into the system. After the editor determines what shall be covered, I start planning, write requests and assign journalists, and send the in-

formation to the producers and realizers. They decide on the video and sound crew" (Interview, 5.2.2009).

Journalist – editor relationship

The journalist – editor relationship within the system is directed toward an increase in the editor's oversight of the journalist's work. The editor has insight into the journalist's tasks, from the story proposal to the end of editing. The editor can review raw material shot by a camera crew for the segment's needs. The news program editor states that all journalists coming from the field transfer all material onto the server, so the editors have immediate access to all recorded material. "I do not have to accept the sound offered by the journalist if I doubt its quality. I can listen to the material and choose an alternative sound source" (Interview, 5.2.2009).

Prior practices entailed finding a journalist first, finding a cassette, taking it to the editing room, inserting it into a magnetoscope and reviewing it. "Now you can remain seated in one place and do all actions over the computer. The system lets me message my editing room crew after I review the segment and identify acceptable scenes. It removes the need of physically approaching the editing room. No texts can be implemented until the editors review them. I don't need to see a journalist's material in order to check it, as we now have the possibility of assisting the journalists while they are still working on the text. It is easier when the all the material is available, letting you intervene in a journalist's work, talk to them and suggest corrections" (Interview, 5.2.2009).

However, the second editor's statements show a potential downside of the newsroom computer system. "Nowadays, we do not need to see the journalists, or even contact them. Journalists enter their texts into the system, and checkmark them upon completion. We review the text and call them if something is unclear" (Interview, 5.2.2009). The same editor states that "there is no educational work with younger journalists. When the editor corrects a particular text, the journalist sees only the end result. Previously, an editor would note all changes on paper, and the journalist would also get a verbal explanation of those changes" (Interview, 5.2.2009). There is already a trend of older journalists and editors not working with younger journalists, and the introduction of newsroom computer systems sped up that process.

Workload changes and new routines

The news program editor points out that new work methods present her with the need for increased interaction in the news production process, which she perceives as a positive characteristic. "Perhaps the workload using INews has increased, but there was also a previous need for participation in the production process, as we literally ran throughout the building. The advantage is that all the information needed is within the system. Therefore we are able to react faster, give more fre-

quent and better appraisals of journalist's work and send someone to cover the story" (Interview, 5.2.2009).
There is an interesting example of a new routine not connected to the system, but created as a necessity in order to make the work within the system easier and error-free. Namely, after the desk's reception of material, the Media desk needs to name said material, and assign each piece metadata for later ease of access or for locating them on the server.
Problem evidence shows us that naming represented a significant problem. On October 10, 2006 it was evidenced that "…the editor enters into the videoID field 'tvd-1010-corruption', and the journalist working on the segment changes it to 'tvd-1010-pljačka_državе' (theft from state) – including two Croatian language letters and a space…" (HRT, 2006). Due to frequent errors of this type, a special rulebook on material naming has been attached to the server.
"Prior to accepting rules on material naming, basic material data were inaccessible, the same names for different materials caused confusion, taped materials were almost impossible to find, and the result was utter chaos and confusion among all users. This confusion contributed to frequent misunderstandings between employees" (HRT, May 2006). The outcome was the acceptance of unified Rules for material naming in May of 2006, co-opted by some of the leading European television companies.

Conclusion

The digitalization process at HRT, from its inception in 2001 by introducing Newsroom Computer Systems, has resulted in the acceleration of news production processes, enabling increased editorial control over journalists' work, increasing journalists' work scope, centralizing newsroom organization, and finally, introducing new work routines.
The television news production process is becoming accelerated and more effective, which is characteristic for all other media companies worldwide accepting similar work methods.
Editors focus less on production, and more on information – journalistic output. In order to oversee the production process, editors were given a method of controlling the journalists from the idea to the realization phase. Beyond that, the editor exerts control over the journalist's daily, weekly and monthly tasks. Due to increased control, journalist autonomy is reduced, moving in the direction of formal, structured and normative control.
On the other hand, journalist's work has become more complex. Journalists now have to perform duties previously assigned to the editing room, including editing and other tasks. This is a reason for minimal journalists' resistance to the system introduction.
One negative aspect of changes in journalist and editor routines is the fact that editors and older journalists work less on younger journalists' education. The system has no task for such functions, resulting in corrections being made without explanations.

System introduction has also introduced new routines. First is the obligation of uploading audio and video materials onto the central server. Therefore, journalists lose the right to their assignment exclusivity, deeply intruding into previous practices and organizational culture. Also introduced was the need for writing metadata for materials uploaded onto the central server, a practice not in existence prior to the INews system introduction.

The introduction of newsroom computer systems entails internal newsroom re-organization. Even though HRT has not completed it entirely, two central desks were created, resulting in an increased news production centralization trend as a pre-requisite for multiplatform publishing and media convergence. In the future, editorial and journalistic practice would result in one person handling the same information for various media, or in common content usage handled in different manners (depending on the medium) (Perišin & Škaljac, 2009). Thus the role of the journalist as an individual keeps becoming less important.

This research showed some deviations in the implementation of newsroom computer systems in HRT compared to other examples of commercial television. Therefore, it will be necessary to conduct new research in the future to identify if there are and what are HRT specificities in the future processes leading to digitalization, as well as researching other factors that influence the digitalization process. Namely, it needs to be regarded that the link between technological innovations and changes in journalism is not in billiard-ball manner, but that it's a complex interrelated process. Technology is establishing the physical framework for technological and cultural activity in general, making possible and necessitating not only further new technologies forms but also new cultural ones (Lister, M. et al., 2003: 289).

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Upotreba kompjuterskog sustava uredništva kao indikator medijske organizacije i trenda proizvodnje: brzina, kontrola i centralizacija

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SAŽETAK

Konvergentna metoda rada u okružju koje stalno radi na principu rokova stvorila je potrebu za digitalizacijom i procesnom automatizacijom. Kako bi se takva radna metoda ostvarila, sve veći broj medija upotrebljava kompjuterske sustave. Ti sustavi su korisni za cijeli proces stvaranja vijesti. Osnovne karakteristike omogućuju sakupljanje vijesti, pisanje članaka i scenarija, komunikaciju, gledanje i uređivanje video materijala, mjerenje duljine trajanja, spremanje materijala i kontrola emitiranja, proširenje dovršenog materijala i planiranje informativnog programa. Implementacija kompjuterskog sustava uredništva uzrokuje promjene u dotoku posla u stvaranju vijesti, i u organizaciji uredništva. Počinjući s teorijom tehnološkog determinizma, članak se temelji na utjecaju procesa digitalizacije na radnu rutinu, organizaciju uredništva i na vezu između novinara i managementa u hrvatskom javnom mediju Hrvatska radiotelevizija (HRT). Istraživanje uključuje etnografske metode polustrukturiranih intervjua s izabranim osobljem, kao i analizu unutarnjih dokumenata kompanije. Utvrđeno je da je proces proizvodnje televizijskih vijesti postao brži i djelotvorniji. Urednički poslovi su usmjereni prema informaciji, a uvedena je mogućnost kontrole od strane novinara. Novinarski zadaci

postali su složeniji, što je rezultiralo otporom uvođenju sustava od strane nekih novinara. Urednici i stariji novinari rade znatno manje na edukaciji mlađih novinara, a zbog novih načina rada novinari gube ekskluzivnost svojih zadataka i stvaraju se meta-podaci. Istraživanje je pokazalo da uvođenje kompjuterskih sustava u uredništvo predstavlja podlogu za implementaciju procesa digitalizacije, ako i za implementaciju tehnoloških inovacija u suvremenim medijskim kućama.

Ključne riječi: Hrvatska javna radiotelevizija, kompjuterski sustavi uredništava, organizacijske promjene, rutina, tehnološke inovacije, Hrvatska