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Digital Audio Workstation (DAW) As A Technology Communication Medium in the Convergence of Music Production Practices in the Digital Age

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ABSTRACT
The rapid development of digital technology has significantly transformed the music industry, particularly in the processes of production, distribution, and consumption. One of the key innovations driving this transformation is the Digital Audio Workstation (DAW), which enables musicians to produce music independently within a flexible and digital ecosystem. This research analyzes the role of the Digital Audio Workstation (DAW) in the convergence of technology and music production practices in the digital era. DAW is not only a music production tool but also serves as a communication medium that shapes musicians' creative patterns. Using McLuhan's technological determinism theory and Jenkins' media convergence theory, the study finds that DAW introduces flexibility in music production, allowing cross-border collaboration. The results indicate that DAW has democratized music production, enabling independent musicians to control both the creative process and music distribution, although challenges such as digital literacy and quality standards remain. DAW plays a crucial role in shaping musicians' identities, facilitating communication with audiences, and accelerating the emergence of a more collaborative and global digital music culture. This research also shows how DAW transforms the way musicians interact with technology and the broader music industry.

Keyword: *Digital Audio Workstation; media convergence; technological determinism; digital music; collaboration.*

INTRODUCTION

This research examines how the Digital Audio Workstation (DAW) functions as a technology communication medium in the convergence of music production practices in the digital era. It employs the concept of technological determinism proposed by Marshall McLuhan, emphasizing that the medium is not merely a channel for delivering messages but also shapes users' patterns of thinking and behavior.

The development of digital technology has brought significant implications to various aspects of life, including the music industry (Yang et al., 2024; Zhang & Li, 2023). This transformation is marked by the increasing integration of digital technology in the processes of production, distribution, and consumption of content across various sectors, including music (Manovich, 2013). Music is no longer produced, distributed, and consumed through conventional systems alone, but also through a flexible, interconnected, and software-based digital media ecosystem (Bian et al., 2025; Borisova et al., 2024; Michałko et al., 2022).

One of the key innovations that has contributed to this transformation is the Digital Audio Workstation (DAW), a software system that allows music production to be carried out independently by individuals or groups without relying on conventional studio facilities ((Kjus, 2021; Morris, 2020; Prey, 2020). As stated by Lev Manovich in The Language of New Media, DAW software is not only a technical tool but can also be classified as cultural software, as it plays a role in shaping artists' patterns of thought in the digital age. In this context, DAW is not only a means of producing music but also influences how musicians communicate, collaborate,

interact, and construct creative identities in the digital environment (Tofalvy & Koltai, 2023; Towse, 2020; Wikstrom, 2020).

The global music industry has undergone major transformations alongside the evolving digital technology landscape (Towse, 2020; Wikstrom, 2020). According to the IFPI (International Federation of the Phonographic Industry) 2024 report, more than 79% of independent musicians worldwide use DAWs as their primary production tool (IFPI, 2024). In Indonesia, research conducted by the Creative Economy Agency indicates that the digital music sector grew by 18.7% in 2023, driven by the widespread adoption of DAWs and digital distribution platforms such as Spotify and YouTube (Jan et al., 2020). This demonstrates that DAW functions not only as a technical tool but also as a central infrastructure within the global digital music ecosystem, including in Indonesia (Bonnici et al., 2021; Michałko et al., 2022; Yang et al., 2024; Zhang & Li, 2023).

This development reflects a significant shift in how musicians interact. DAWs enable music production to be conducted independently and flexibly, without limitations of space and time. Creative processes that previously required expensive recording studios can now be carried out using basic computer devices and DAW software. This transformation significantly enhances musicians' productivity, allowing them to produce work more efficiently and at lower cost compared to conventional studio-based production.

However, despite the convenience and flexibility offered by DAWs, their communication and social implications remain underexplored. Most existing research focuses on technical and artistic aspects, while studies from a communication science perspective are still limited. In fact, the use of DAWs has direct implications for how musicians communicate, collaborate, and construct their creative identities in the digital era. In other words, DAW does not merely function as a technical instrument but also as a communication medium that shapes interactions between musicians, technology, audiences, and other industry actors.

From a communication science perspective, this phenomenon is highly relevant for analysis. Through the lens of technological determinism proposed by Marshall McLuhan, media and technology are not only channels for conveying messages but also shape human ways of thinking, behaving, and interacting. McLuhan famously stated that "the medium is the message," meaning that the technology and media used influence not only the content of communication but also how it is received and processed by individuals.

In relation to this research, this concept is used to analyze the role of DAWs in the convergence of technology and musicians' productivity. DAW technology not only enables music creation but also facilitates interaction with technology and communication among musicians. The use of DAWs, particularly in remote collaboration contexts, illustrates how technology shapes more open and flexible patterns of collaboration, creating space for new forms of communication within the music industry.

In addition to McLuhan's concept of technological determinism, the theory of media convergence proposed by Henry Jenkins is also relevant. Jenkins explains media convergence as the flow of content across multiple media platforms, involving collaboration among media industries and the migration of audiences. Media convergence highlights how the use of different media platforms can generate new experiences, new forms of media, and hybrid content shaped through social interaction, where both consumers and corporate producers participate. This phenomenon arises from the development of digital technology and new

media. In this context, DAW serves as a medium that integrates both production and distribution functions within a single digital platform.

Several previous studies have demonstrated the relevance of DAW in communication contexts. A study by Thompson and Lashua (2021) found that musicians use DAWs not only for technical purposes but also as tools for creative exploration. Further research shows that preferences for specific types of DAWs influence the aesthetic style of students' music, indicating that digital technology also shapes artistic identity (Jaohari et al., 2025). Other studies highlight the integration of artificial intelligence in digital music production, where symbolic interactions between musicians and technology create new forms of creative communication (Fajriansyah & Ardiyanti, 2024). Additionally, research on traditional media such as radio demonstrates how adaptation to the digital era occurs; for example, studies on the strategy of Sonora 102.6 FM show that integrating social media and digital live streaming helps maintain audience engagement. These findings are relevant to DAW research, as both illustrate the concept of media convergence, where media platforms must adapt to technological developments to remain sustainable. Although numerous studies on DAWs exist, most focus on technical and artistic dimensions, while research from a communication science framework—particularly viewing DAW as a medium of creative communication within Indonesia's creative economy ecosystem—remains limited. This gap underpins the necessity of this study.

By integrating the technological determinism approach of McLuhan and the media convergence theory of Jenkins, this research seeks to address this gap. While previous studies have explored DAWs in technical and artistic contexts, research positioning DAW as a communication medium within these theoretical frameworks is still scarce, especially in the context of independent musicians in Indonesia. By incorporating recent global industry data, this study demonstrates that this phenomenon is not merely theoretical but reflects a broader global trend, where music production, distribution, and consumption have been fundamentally transformed by digital technology. Accordingly, this study aims to analyze the role of DAW in technological convergence and musicians' productivity, as well as to examine how DAW functions as a medium of creative communication in the digital era. The findings are expected to provide both theoretical and practical contributions. Theoretically, this research contributes to the advancement of communication studies, particularly in understanding digital media and technological convergence in creative industries. Practically, it offers insights for musicians and creative practitioners in optimizing DAWs for production and communication, as well as for stakeholders in the music industry in developing more adaptive and inclusive digital strategies.

METHOD

In this study, the author uses a qualitative approach, which is used by an individual/group in responding to certain things. This research uses a descriptive type, where it aims to make a factual, actual and systematic description of the facts on the population of certain objects. The qualitative approach provides an opportunity for researchers to understand the perceptions of others and explore how individuals give meaning to everyday life experiences. According to

Neuman, qualitative data is empirical because it is obtained through direct observation of a phenomenon, analysis of interview transcripts, and the study of written documents. The main focus is on the research process and the resulting meanings.

The subjects of this study are several active Digital Audio Workstation users. Some of the research subjects are:

1. Resource person : Hafiz / 28 years old / Jakarta / Musician
2. Resource person : Bimo / 31 years old / Jakarta / Musician
3. Resource person : Kunto/ 32 years old/ Jakarta / Musician
4. Resource Person : Rio / 33 Years Old / Jakarta / *Audio Engineer*
5. Resource person : David/ 43 years old/ Jakarta / Musician
6. Resource Person : Eky/ 30 Years Old / Jakarta / Musician

This study uses two types of data sources, namely primary and secondary. Primary data were obtained through in-depth interviews with six informants, while secondary data were collected through a review of literature relevant to the research topic. The use of secondary data is intended to strengthen the findings of the primary data, so as to provide more comprehensive support for research analysis. The range of this data collection is May - July 2025. The data analysis technique in this study uses an interactive model consisting of data reduction, data display, and conclusion drawing. Data from interviews were transcribed, categorized, and interpreted to identify key themes related to communication patterns, creativity, and technological use. The findings were then analyzed using the perspectives of technological determinism and media convergence to ensure a comprehensive understanding of the phenomenon. This analytical process allows the researcher to systematically interpret the meaning of the data and draw conclusions based on empirical evidence.

RESULTS AND DISCUSSION

DAW as a Medium of Technology and Social Determinism

The findings of the study show that musicians position the Digital Audio Workstation (DAW) as the primary medium in the creative process. Musicians are no longer dependent on large studios but can create works from their personal spaces. This phenomenon supports the idea of technological determinism proposed by Marshall McLuhan, which suggests that the medium does not merely convey messages but also shapes the mindset and behavior of its users.

These findings can be further understood through McLuhan's perspective on technological determinism, which asserts that the medium is never neutral. The medium is not only a carrier of messages but also influences how humans think, behave, and interact. DAW has created new standards in musical creativity, efficiency, precision, and flexibility, which musicians have subsequently internalized. Furthermore, its implications extend to changing communication patterns, where collaboration is no longer limited by physical space but can occur across borders through online storage and data exchange. This phenomenon aligns with McLuhan's concept of the "global village," where digital technology reduces distance and enables more intensive interaction despite physical separation.

However, this transformation also presents a paradox: the convenience of technology may lead to the homogenization of creative works. Musicians risk becoming confined to uniform production patterns, potentially reducing diversity in musical output. Therefore, DAW can be

understood as having a dual function—not only as a technical medium but also as a socio-cultural medium that shapes creative practices and cultural expressions.

Musician Creativity in Digital Media Ecology

The results of the interviews show that DAW provides musicians with virtually unlimited space for experimentation and exploration. Even cross-genre collaboration becomes more feasible due to the flexibility of the software's features. Musicians can combine genres, utilize virtual instruments, and produce quick demos without incurring significant costs.

This finding aligns with the perspective of media ecology proposed by Neil Postman (1970), which suggests that technology creates a new communication environment that directly influences human habits. In the digital era, creativity is not only understood as musical ability but also as the capacity to navigate within a media ecosystem. This is consistent with media ecology theory, which examines media, technology, and communication, as well as their impact on the human environment.

However, these findings can also be interpreted through the lens of cultural production theory proposed by Pierre Bourdieu (1993), which argues that creativity remains closely tied to the forms of capital individuals possess. In this study, musicians with higher levels of technological literacy are better able to maximize the potential of DAWs, while those with limited skills face greater challenges in producing competitive work. Thus, although DAWs expand creative opportunities, the distribution of technological capital continues to determine who can fully benefit and achieve productivity.

Democratization of Music Production and Distribution

From the results of the interviews, almost all informants emphasized that the DAW opens up wider access for independent musicians. Where, it does not require large capital to join this industry. Distribution can now be done through *the Spotify, Youtube, or Soundcloud platforms,* so that their works can directly reach the audience.

This phenomenon is in line with the media convergence theory stated by Jenkins, where it is emphasized that the boundary between producers and consumers is increasingly blurred. Where today, musicians not only create, but also manage distribution and promotion. So they can become prosumers, which is a combination of producers and consumers at the same time.

However, this democratization also gives rise to fierce competition. Easy access has flooded the market with music, raising new challenges regarding how musicians build identity and differentiation amid the massive flow of digital content. Democratization, therefore, does not mean that all voices are heard equally, but it demands a more careful communication strategy.

Digital Literacy and Technology Access

The results of the interviews show that not all musicians have the technical ability to make optimal use of DAWs. Some informants claimed to have learned self-taught through online tutorials, while others took music production courses. This shows that digital literacy is a key factor in maximizing technology.

Digital literacy here is not only about technical skills, but also ethical understanding, such as the use of licensed samples or *plugins* and digital distribution strategies. Musicians who have digital literacy, are able to optimize DAWs not only for production, but also build communication with audiences through social media and *streaming platforms.* The digital literacy gap can create a new hierarchy in the digital music industry. Those who are tech-literate certainly have more advantages, while those who are not, can be left behind. Thus, access to technology and digital literacy skills is part of the dynamics of communication in the modern music ecosystem.

Social - Cultural Impact in the Digital Music Industry

The use of DAWs has also brought about significant socio-cultural changes in the music industry. Collaboration between musicians across countries has become easier, as works can now be shared online. Informants noted that DAW has fostered a new culture of collaboration, enabling musicians to connect beyond geographical boundaries and form global networks that enrich local music traditions.

On the other hand, DAW has also shifted audience perceptions of music. Today, the public is increasingly accustomed to a polished digital aesthetic and often demands standardized quality. This standardization creates a dilemma: on the one hand, it raises expectations for quality; on the other hand, it reduces space for diversity and uniqueness that may not align with prevailing digital standards.

This condition can be understood through the theory of the production of culture, where technology is considered a structural factor shaping the cultural ecosystem, alongside economic and social influences. DAW functions as a new infrastructure that reconstructs the dynamics of contemporary music production. It acts as a catalyst that accelerates the creative process while simultaneously restructuring the music industry. As a consequence, a new music culture has emerged—one that is collaborative, digital, and globally oriented. Furthermore, according to Roger Fidler's (1997) theory of mediamorphosis, DAW represents a stage in the transformation from old media to new media, shifting from physical studio environments to more flexible digital ecosystems. Thus, DAW not only changes music production practices but also shapes the mainstream digital music culture of today.

CONCLUSION

This study found that DAWs play a central role in shaping the creative process, communication patterns, and identities of musicians in the digital age. First, DAW functions as a technological medium in accordance with the theory of Marshall McLuhan, which posits that the medium is not neutral but shapes the mindset, habits, and aesthetics of digital music. Second, DAW expands the space for musicians' creativity within a new media ecology while remaining tied to the distribution of cultural capital, as described by Pierre Bourdieu. Third, DAW democratizes music production and enables independent musicians to become prosumers, although distribution still encounters hierarchical challenges. Fourth, the use of DAWs has not only technical but also socio-cultural impacts, transforming musicians' identities and accelerating the emergence of a global culture of collaboration. Thus, this study confirms that DAW is not merely a technical tool for producing music but also a communication medium

that mediates the relationship between musicians and audiences, shaping new interaction patterns and redefining digital music culture.

Therefore, it is recommended that musicians enhance their digital literacy and continuously develop both technical and creative skills to maximize the potential of DAWs. Additionally, stakeholders in the music industry, including educational institutions and policymakers, should provide more accessible training and support systems to reduce technological gaps and improve the quality of digital music production. Future research is also encouraged to explore DAWs in broader contexts, including their economic impact and their role in shaping digital creative industries.

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