A STUDY ON THE ADOPTION AND USAGE OF DIGITAL AUDIO WORKSTATIONS

Federico AVANZINI (federico.avanzini@unimi.it) (0000-0002-1257-5878)[1],
Riccardo DELLA LONGA (riccardo.dellalonga@studenti.unimi.it)[1],
Davide FANTINI (davide.fantini@unimi.it) (0000-0003-1332-0890)[1],
Luca A. LUDOVICO (luca.ludovico@unimi.it) (0000-0002-8251-2231)[1], and
Giorgio PRESTI (giorgio.presti@unimi.it) (0000-0001-7643-9915)[1]

[1]*Department of Computer Science*, **University of Milan**, via G. Celoria 18, Milan, 20133 Italy

ABSTRACT

This paper presents an analysis of the adoption and usage patterns of Digital Audio Workstations (DAWs) among amateurs and professionals in the field of music production and audio engineering. The study is based on a web survey conducted from December 2023 to January 2024. The responses were collected from a heterogeneous audience in terms of age, geographical origin, level of experience, and goals in DAW usage. The results highlight trends in DAW preference, software adoption over time, and the relationship between tasks and specific DAWs. We discuss the implications of these findings for future software development and education in digital music production. The collected dataset was made publicly available to support further investigations.

1. INTRODUCTION

Digital Audio Workstations (DAWs) have become an essential tool for music production, audio editing, and sound design. These software applications provide musicians, producers, and sound engineers with a versatile platform for recording, editing, mixing, and mastering audio. Modern DAWs offer a fully digital environment where users can manipulate audio with high precision, apply effects in real time, and integrate virtual instruments and plugins.

The widespread adoption of DAWs has transformed the way music and sound are created, making professional audio production accessible to a broader range of users, from independent artists working in home studios to large-scale commercial producers. DAWs have not only revolutionized the way music is produced but have also allowed new forms of electronic music, created entirely in the computer, to be written and recorded on a personal device [1].

Beyond music production, DAWs are extensively used in various industries, including film scoring, podcasting, game audio design, and sound engineering for live performances. Their adaptability and powerful capabilities have made them a cornerstone of contemporary audio work, shaping the sound of modern media and entertainment.

Over the years, various DAWs have emerged, each catering to different user needs and workflows. This study aims to analyze the current landscape of DAW usage among professionals and amateurs, focusing on the most preferred software, usage trends, and the impact of professional training on DAW choice.

The remainder of the paper is structured as follows: Section 2 provides the background of our work, addressing the variety and diversity of DAWs, listing some of the most common use cases, and mentioning the relevant scientific literature; Section 3 describes the survey; Section 4 reports on the most significant results emerging from the answers; finally, Section 5 draw the conclusion.

2. BACKGROUND

A DAW, in the form of a digital hardware workstation or a software application, is a computer-based system typically used for recording, editing, mixing, and producing audio. Early DAWs were developed in the late 1970s and have later evolved to incorporate more and more extensive functions. Currently, these integrated computer-based systems present common features such as: Multitrack audio recording, editing, and mixdown; MIDI sequencing, editing, and visual representation; Video and/or video sync capabilities; Integration with peripheral hardware, including MIDI and audio interface devices; Support for plug-ins; Support for integrating timing, signal routing and control elements with other production software. An extensive list of typical features of a DAW is provided in [2, Table 43.2].

2.1 About the Variety and Diversity of DAWs

Many DAWs have emerged throughout history, and numerous ones still compete in the market today, often targeting different user groups and offering specialized features tailored to specific needs.

Some DAWs are beat, groove, and loop-oriented. For instance, *Ableton Live*'s Session interface was originally designed for DJ performance and electronic music artists, and *Bitwig Studio* has a similar Clip Launcher. Other DAWs, such as *Pro Tools*, have been extensively used in the early digital music industry, television and movie industry for mixing dialog with music. *Nuendo* is often used in sound production for audio-video synchronization.

ISBN 978-3-200-10642-0

Concerning costs and licenses, while most professionally used DAWs are commercial and proprietary apps (e.g., *Ableton Live*, *Cubase*, and *Logic Pro*), others are free and open-source (e.g., *Ardour*, *LMMS*, and *Rosegarden*).

Another dimension that characterizes DAWs is their extensibility. A DAW typically supports external plugins in various formats (VST, AU, AAX, LADSPA, ARA, etc.). *Max for Live* lets users extend and customize *Ableton Live* by creating unique instruments or effects. *Reaper* provides an integrated scripting language that allows users to customize and extend its capabilities. This includes hacks such as customizing the look and feel of the app, adding novel MIDI operations, and adding a stutter function. From 1998 to 2022, it was also possible to have multiple DAWs natively exchange audio streams thanks to the ReWire protocol, jointly developed by *Propellerhead* (now *Reason Studios*) and *Steinberg*. Unfortunately, the protocol support has been discontinued in the early 2020s. Today, similar audio stream sharing functionalities can only be achieved using third-party plugins.

2.2 Related Work

The scientific literature explores the topic of DAWs from different perspectives.

Yang [3] compares and analyzes three commonly used DAWs (i.e. *Apple Logic Pro X*, *Cubase 12*, and *Ableton Live Lite 11*) from the perspectives of budget requirements, user experience, software operating system compatibility, long-term development, and live-performance proneness.

Some research focuses on the evolution of compositional practices explicitly driven by the availability of DAWs. New-generation DAWs move away from the traditional recording studio paradigm and, instead, emphasize loop-based control and the networked logic of ubiquitous computing culture. Drawing on new media theory, Reuter [4] examines how hip-hop and EDM practices are digitized within DAWs and explores their implications for pop music production.

Many recent papers discuss the applicability of DAWs in the context of music education [5–7]. As a noticeable result, the adoption of DAWs can foster not only the development of musical competencies and awareness but also the acquisition of extra-musical skills, e.g. critical, creative, and analytical thinking. Furthermore, some implementations, in particular those oriented to the web, can also encourage the development of soft skills such as collaboration, communication, and conflict resolution. Collaborative music making is also mentioned in [8, 9].

Specific technical aspects of DAWs are also discussed in the scientific literature. Examples range from the implementation of DAWs on GPU [10] to the accessibility of DAWs with respect to visual impairments [11].

Closer to our work are two twin studies [12, 13] that present the results of an online survey with more than 800 valid responses. The goal is to identify the fit between various tasks music that artists must perform during music creation and the technical characteristics of the tools used, focusing in particular on modern DAWs. Ultimately, the study tests whether the Task-Technology Fit (TTF), a well-established information systems theory model [14], can be considered a good predictor for the inclination to use DAW systems by music artists. The main difference between this research and ours lies in a narrower focus, which includes the testing of low-level tasks only (e.g., zoom, scroll, etc.), the involvement of musicians only, and the interest in music production only.

Outside of scientific research, some studies offer insights into DAWs' popularity. Examples are provided by the surveys conducted by *Ask.Audio* in 2017 [15] and *Production Expert* in 2024 [16]. As a noticeable difference, the work presented in this paper has been conducted with more general goals than investigating DAWs' spread only.

3. THE SURVEY

In our study, we conducted a survey on the usage of Digital Audio Workstations (DAWs). However, instead of focusing on simplistic metrics – such as identifying the most widely used DAW, which we consider a relatively uninformative exercise – we adopted a more nuanced perspective. We recognized that many users do not rely on a single DAW exclusively; rather, their choice varies depending on multiple factors, including their level of expertise, the specific task they are working on, and their personal workflow preferences. Our approach acknowledges that DAWs serve different purposes and are often used complementarily rather than competitively. By analyzing usage patterns across multiple DAWs, we aimed to gain deeper insights into how professionals and enthusiasts navigate the diverse landscape of music production tools.

The survey was addressed to social media groups, academics, and professional audio communities. It was administered via a web form to ensure the largest distribution, sharing a link via mailing lists specialized in sound and music computing (SMC), social networks, domain-experts forums, music-related institutions, and direct messages.

3.1 Design Choices

In our survey, respondents were presented with a predefined list of DAWs, with the option of selecting "Other" for software not included in the initial selection. The process of curating this list was based on multiple sources. First, we analyzed publicly available categorizations of audio software, particularly those found on Wikipedia, [1] applying a cutoff to exclude tools that lacked audio sequencing capabilities. In addition, we consulted domain experts to refine the list, ensuring that it was comprehensive and relevant to professional and educational contexts. By "domain experts," we refer to professionals with extensive experience in working across multiple DAWs and diverse contexts. Our insights were gathered through unstructured interviews with individuals actively engaged in fields such as music production, sound for video, new media art, content creation, and audio research. Their broad expertise allowed us to capture a well-rounded perspective

[1] `https://en.wikipedia.org/wiki/Category:Audio_software` and other similar pages.

ISBN 978-3-200-10642-0

Table 1. Demographic questions asked to the survey participants, along with possible responses. Values enclosed in square brackets denote multiple-choice questions, whereas curly brackets indicate single-choice questions.

Question	**Response**
Gender	{Male, Female, Non binary, I don't want to answer}
Age range (*Age*)	{≤17, 18-24, 25-29, 30-34, 35-39, 40-49, 50-59, ≥60}
Country of residence (*Country*)	Choice of one country
Can you play an instrument (*Instrument*)	[Acoustic or electroacoustic instrument (with teacher), Acoustic or electroacoustic instrument (self-taught), Electronic instrument (with teacher), Electronic instrument (self-taught)]
Do you record or do any audio production?	[As a hobby/myself, As a job]
Do you work in an audio production studio, post-production studio or audio service? (*Company*)	{No, Employee, Business owner, Freelance}
Have you taken training courses related to sound manipulation? (*Training*)	{Yes, No}
If you had to choose only one DAW, what would it be? (*PreferredDAW*)	Choice of one DAW

Table 2. Questions asked to the survey participants for each of the indicated use cases, along with possible responses. Values enclosed in square brackets denote multiple-choice questions, whereas curly brackets indicate single-choice questions.

Question	**Responses**
DAW	Choice of one DAW
Operating system (*OS*)	[Mac, Windows, Linux]
Use context (*Level*)	[Amateur, Semi-professional, Professional]
Usage time span	Start and end years
Task	[Draft, Tracking, Editing, Sequencing/Programming, Mixing, Mastering, Post-production, Live performance, Live sound engineering, Restoration, Teaching, Scientific research/measuring, and Other]
Production type (*Context*)	[Acoustic music, Electroacoustic music, Electronic music, Sampling, Sound art, Sound design, Sound foley, Soundtrack, Speech recording, Voice dubbing/Voice-over, Other]

on DAW usage across various professional and creative domains. The full list of DAWs includes 52 items, and can be retrieved in the accompanying data of this work [17].

Beyond identifying the DAWs themselves, we also structured the survey around specific tasks and activities associated with audio production. The full list of tasks can be seen in Table 2. It was compiled based on common industry practices and further validated through expert interviews. This approach allowed us to frame DAW usage within a functional perspective, rather than simply cataloging software preferences.

Lastly, we considered the broader contexts in which DAWs are used. The full list of contexts can be seen in Table 2. Rather than assuming a single-purpose application for each DAW, we defined broad usage categories that reflect real-world scenarios. These categories were determined with input from domain experts to ensure they accurately represented the diverse environments in which DAWs are employed, from professional studios to educational settings and personal projects.

3.2 Collected Data

The survey was structured in two parts. In the first part, participants were profiled based on their gender, age range, country of residence, ability to play an instrument, involvement in audio production as a hobby and/or as a job, company affiliation (owner, employee, freelance, or none), and training in sound manipulation. The related data can be seen in Table 1.

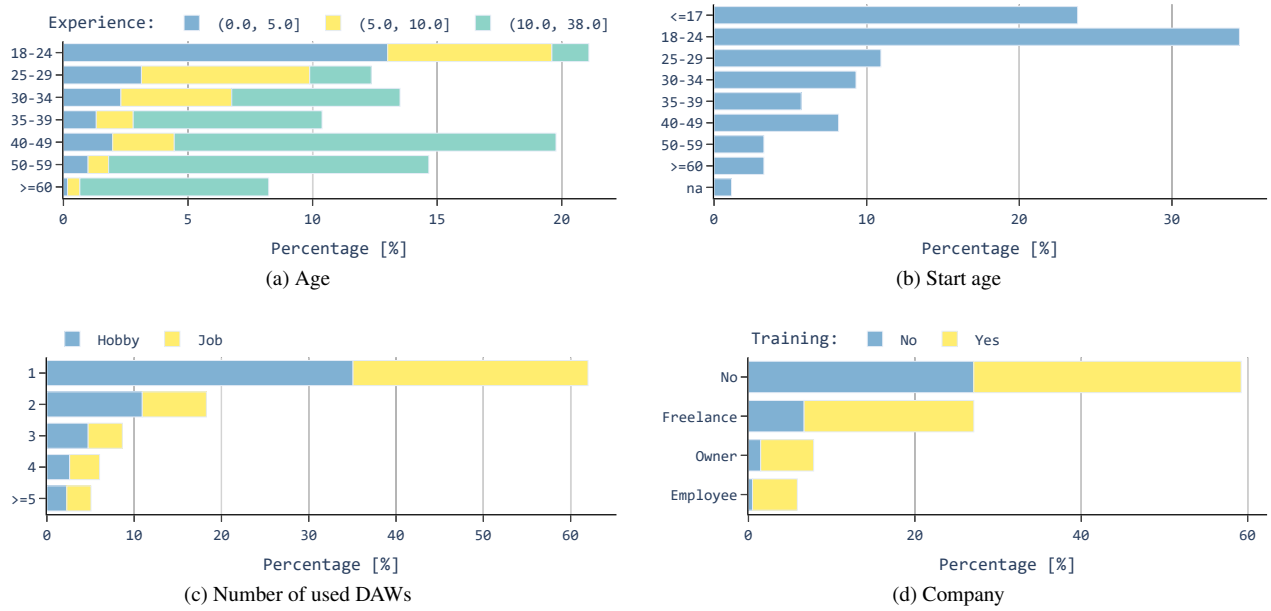
In the second part, participants were asked about their experience with DAW usage. This part was structured around the concept of "use cases". For our purposes, a use case identifies the use of a given DAW for specific tasks and context, as discussed in Sec. 3.1, plus additional information. More precisely, a use case is composed of the data reported in Table 2. Participants had to insert at least one use case and were allowed to add as many use cases as desired. This approach allowed for a wide range of behaviors from participants. In particular, it allowed participants to insert different use cases where the same DAW was used, albeit for different tasks or contexts, or during different time ranges, and so on.

The collected use cases allowed the calculation of several derived data, such as the number of years of experience with a DAW (computed as the difference between the survey date and the earlier year of usage), the start age in using a DAW (computed as the self-reported age minus the years of experience), and the distribution of the DAWs in use per year. Another interesting derived information concerns unique DAWs or DAW combinations preferred by users, also as a function of the tasks to complete. Moreover, the collected data were analyzed to identify the clusters and trends that will be reported in Section 4.

4. RESULTS

In this section, we will report on the most significant results concerning demographics, DAW preferences, usage over time, and typical use cases. Additionally, to facilitate further research on the topic, we are making the entire dataset of collected responses available to the scientific community in JSON format [17] together with other plots,

ISBN 978-3-200-10642-0



(a) Age (b) Start age

(c) Number of used DAWs (d) Company

Figure 1. Bar plots that cluster some demographic results gathered during the survey.

numerical results, and the Python script used to analyze data.

4.1 Demographics

A total of 613 responses were collected. The demographic data of participants are summarized in Fig. 1. The responses were obtained from 44 countries, but the majority of participants (57.6%) were from Italy. For this reason, in the following analysis we clustered all non-Italian together so as to have a balanced comparison between Italy and the rest of the world when dealing with nationality. As an example, respondents from Italy showed some peculiarities: *Ardour* and *Bitwig* are underrepresented in Italy compared with the rest of the world (respectively 31% and 27% of the DAW's user base are from Italy), while *FL Studio* is far more adopted in Italy (78% of its user base), especially by young amateurs (see Fig. 2b).

In our survey, age groups covered from the age of 18 to over 60. Responses highlighted that the majority of responders are aged 18 to 24, or 40 to 49 (see Fig. 1a). Although the age group under 18 was never selected, the start age computed as a derived data turned out to be also before 18 (see Fig. 1b). This phenomenon is conditioned by the specific DAW in use. In particular, 51% of *FL Studio* users adopted it before 18 (and 90% before 24), and 41% had less than 6 years of experience with DAWs. Conversely, only 10% of *Pro Tools* users started before 18. In general, more than 50% of the responders started using DAWs before being 30.

Another aspect captured by the survey was the number of DAWs adopted by users (see Fig. 1c). As we could expect, the majority of amateur users declared the adoption of a single DAW, but, more surprisingly, also professional users often base their experience on a single product. As the number of DAWs increases, the number of users decreases, but the distribution between amateur users and professional users remains fairly balanced. Noticeably, some users who define themselves as hobbyists use or at least tried five or more products simultaneously.

Unfortunately, the answers are heavily unbalanced in terms of gender representation; the majority of respondents (87.1%) identified themselves as male. The issue of gender balance in SMC is a well-documented concern, reflecting broader disparities in both the technology and music industries. Despite efforts to promote diversity, the field remains predominantly male, with women and non-binary individuals significantly underrepresented in academic research, professional environments, and creative roles [18].

Approximately 64.3% of participants had received formal training in audio manipulation activities. A noticeable number of users of *Bitwig*, *Pro Tools* and *Studio One* were trained (82%, 80%, 72% respectively), but also for other DAWs the percentage was above 50%. Only in the case of *FL Studio*, formally trained users were a minority (34%). As visible in Fig. 1d, about half of amateurs have a formal training, while the trained professionals are way more than untrained professional, especially when working in a company.

The great majority of subjects (95.9%) were able to play an acoustic/electroacoustic instrument (29.2%), an electronic instrument (10.0%), or both (56.8%). In particular, 25.4% of them received formal training, 38.8% had formal training plus some self-taught experience, and 31.6% was self-taught only. Only 4.1% reported that they cannot play any instrument. These results highlight a strong connection between musical practice and DAW usage, suggesting that most DAW users come from a background in instrumental performance. The data indicates that playing an instrument is nearly universal among respondents, reinforcing the idea that DAWs are widely adopted by those with prior musical experience rather than complete novices to music-making.

Finally, Table 3 shows an over-representation of re-

ISBN 978-3-200-10642-0

Table 3. Responses clustered by source.

Source	Count	%
SMC mailing lists	181	29.5
Social networks (Italy)	133	21.7
Direct messages	100	16.3
Social networks (rest of the world)	94	15.3
Music-related academies	92	15.0
Domain-expert forums	13	2.1

sponses gathered from specialized Sound and Music Computing mailing lists and an under-representation of domain experts, indicating that caution should be exercised when generalizing the results. Fig. 2c reports on the impact of sources on the preferred DAWs.

4.2 DAW Preferences

One of the goals of the survey was evidently to discover the preferences of users toward DAWs. User profiling allowed us to unveil relationships with the kind of usage (see Fig. 2a), the level of user experience (see Fig. 2b), and the source for the answers obtained (see Fig. 2c).

Ableton Live emerged as the most preferred DAW among respondents, followed by *Reaper* and *Logic Pro*. Nevertheless, the study highlights a divide between professional and amateur DAW users. *Pro Tools* remains the industry standard for professional audio engineers, while *Ableton Live* is gaining traction among hobbyists and independent producers, and *Reaper* appears to be well balanced between professionals and hobbyists.

Some interesting insights about the surveyed communities are also offered by Fig. 2c. For instance, most of the *Bitwig Studio* user base samples come from specialized forum users, whereas *Ardour* is the leader in SMC mailing lists. Furthermore, the use of *Cubase* and *Reaper* seems to be minor in the music academy context.

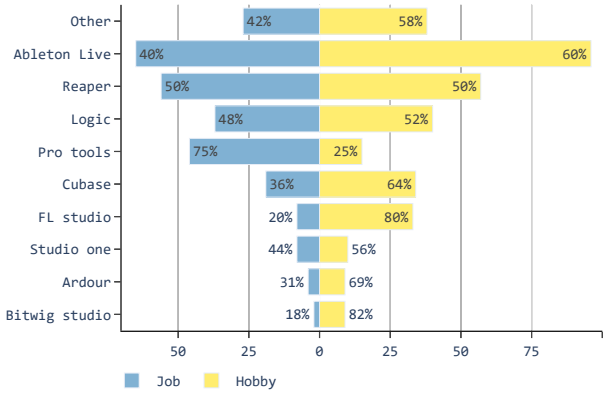
4.3 Temporal Evolution

Concerning the adoption and usage of DAWs over time, Fig. 3 provides interesting insights by looking also at different levels.

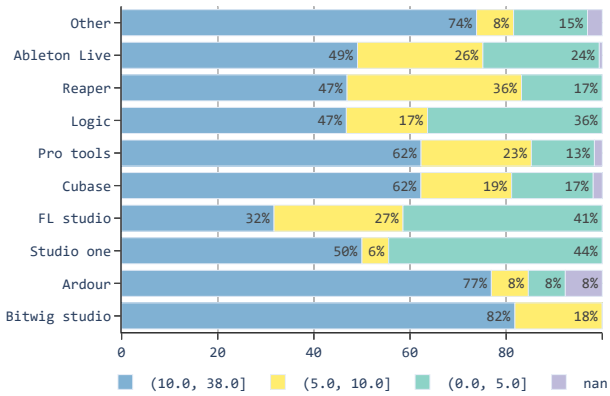
Focusing on the most interesting trends, between 2005 and 2010 *Cubase* saw a slowdown, possibly linked to Steinberg's acquisition by Pinnacle in 2003 and subsequently by Yamaha in 2004. From 2010 to 2015, *Ableton Live* began to emerge as the most widely used DAW, likely due to its innovative live-electronics-oriented features, including the "session view". Concurrently, *Reaper* also experienced a sharp increase in adoption, likely attributable to its "non-expiring free trial" distribution strategy, which engendered the erroneous perception of it as free software.

A historical analysis of DAW adoption revealed an increasing shift towards *Reaper* and *Ableton Live* among newer users. *Pro Tools* remains dominant among seasoned professionals.

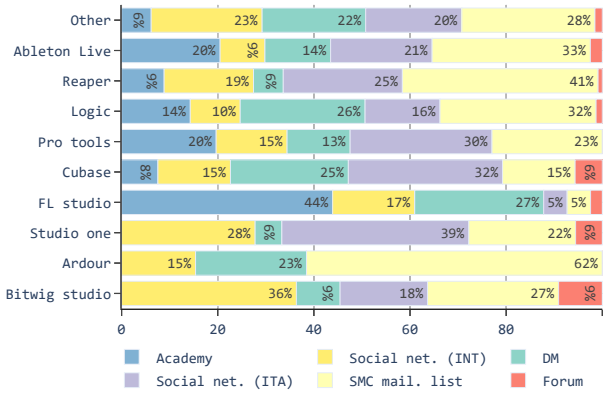
As a final consideration, the fact that the "Other" category ranked second in the general diagram suggests a constellation of DAWs that make the market diverse and dynamic.



(a) Hobbyists vs. professionals



(b) Years of experience (normalized)



(c) Source (normalized)

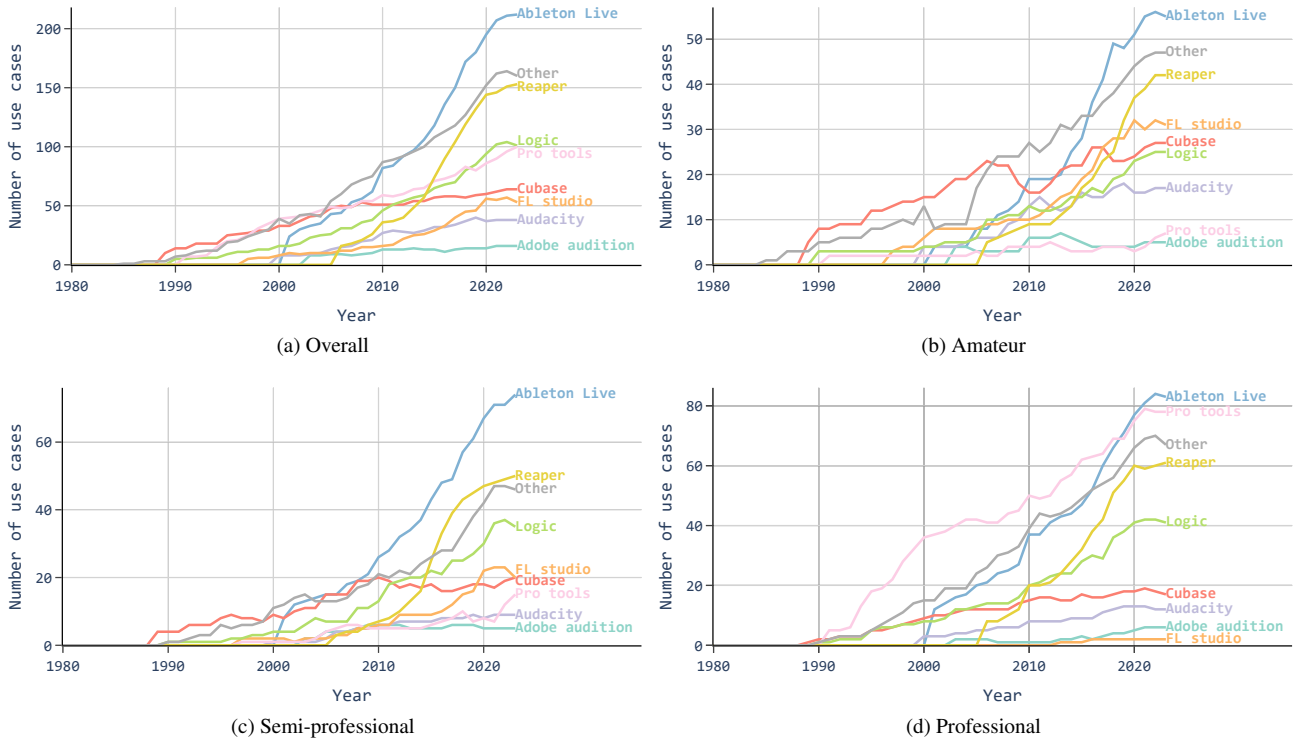
Figure 2. Distribution of preferred DAWs by (a) hobbyists vs. professionals, (b) years of experience, and (c) source.

Further analyzing the historical data dividing company workers/owners from freelance/amateurs, it emerges that, in the first case, *Protools* is widely more used than *Ableton Live* and *FL Studio* is almost absent, while, in the latter case, *RX* appears in the charts at the expense of *Studio One*.

4.4 Use Cases

Data about the adoption of each DAW depending on the user level, the task to be accomplished, and the context of use are well represented in Fig. 4a, Fig. 4b, and Fig. 4c, respectively. Almost all DAWs' user bases are equally split between macOS and Windows. Only *FL Studio* and *Cubase* are more spread under Windows (83% e 76% of

ISBN 978-3-200-10642-0



(a) Overall (b) Amateur

(c) Semi-professional (d) Professional

Figure 3. DAW usage trends over time, overall and by level.

users respectively), while *Pro Tools*'s users under Windows are only 14%; this is probably due to the fact that *Pro Tools* was originally available only for Apple systems, a feature that, during the 1990s, contributed to spread the idea that "professional studios use Apple computers". The most adopted DAWs under Linux are *Ardour* (83%), *Audacity* (19%), and *Reaper* (8%). The widespread adoption of *Ardour* under Linux can be explained by its open-source nature, which aligns with the preferences of Linux users. *Logic* represents a particular case since it has been available only for macOS since 2002.

Analyzing the use cases by level of professionalism confirms previous observations. For example, *Pro Tools* is more appreciated at a professional level, while *Ableton Live* and *Reaper* are more versatile. The analysis that includes the semi-professional level provides a more detailed view, revealing that *Ableton Live* and *Reaper* more evenly cover the different degrees of professionalism (see Fig. 4a).

4.5 Tasks and Contexts

By looking at Fig. 4b and 4c, it can be noticed that *Cubase*'s user base is primarily focused on music production, with a significant relevance across virtually all musical genres, while showing little interest in other audio-related tasks. By contrast, *Audacity* is adopted more widely for non-musical purposes, such as research and education. This is likely due to its free and open-source nature, coupled with its reputation as an easy-to-use audio editor rather than a professional DAW.

In terms of Task versatility, *Reaper* stands out, with an even distribution of usage across various audio tasks. *Pro Tools* is instead the most versatile in terms of Use Contexts, being widely used in both music production and audio post-production.

The most frequent Use Case for each DAW is reported in Table 6. This can be regarded as a general overview of the strengths of each DAW. In conjunction with the preceding discussion in this section, it can act as a point of reference for selecting the most suitable DAW for one's specific requirements.

In comparison, Tables 4 and 5 show the actual rankings of DAW usage for specific Tasks and Contexts (in particular, the first and second most used DAWs, for each professional level). Despite the ubiquity of *Ableton Live* due to the high absolute number of users, these rankings depict trends that are coherent with the DAWs' strengths discussed above.

Please note that these results are not a direct evaluation of DAWs' features; rather, they represent an empirical evaluation based on DAWs' distribution. An objective evaluation of the features of the single DAWs is outside the scope of the present work.

5. CONCLUSION

This study provides an updated view of DAW adoption and usage patterns, reflecting shifts in industry standards and user preferences. The survey results reveal significant trends in how different Digital Audio Workstations are utilized across professional levels, tasks, and contexts. As such, it contributes to the understanding of how DAWs serve different purposes across various contexts, from music production to sound design, research, and education.

Our findings highlight that *Ableton Live* has emerged as the most preferred DAW overall, followed by *Reaper* and *Logic Pro*. However, clear divisions exist between profes-

ISBN 978-3-200-10642-0

Table 4. The two most used DAWs for each task and level.

Task	Amateur	Semi-professional	Professional
Draft	Ableton Live, Reaper	Ableton Live, Reaper	Ableton Live, Logic
Tracking	Ableton Live, Reaper	Ableton Live, Reaper	Pro tools, Ableton Live
Editing	Ableton Live, Cubase	Ableton Live, Reaper	Pro tools, Ableton Live
Sequencing and Programming	Ableton Live, Cubase	Ableton Live, Logic	Ableton Live, Logic
Mixing	Ableton Live, Reaper	Ableton Live, Reaper	Pro tools, Ableton Live
Mastering	Ableton Live, Reaper	Ableton Live, Reaper	Pro tools, Reaper
Post-production	Ableton Live, Reaper	Ableton Live, Reaper	Pro tools, Reaper
Live performance	Ableton Live, Reaper	Ableton Live, Reaper	Ableton Live, Reaper
Live sound engineering	Cubase, Reaper	Ableton Live, Reaper	Ableton Live, Pro Tools
Restoration	FL studio, Adobe audition	Ableton Live, Reaper	Pro tools, Reaper
Teaching	Reaper, Ableton Live	Ableton Live, Reaper	Ableton Live, Reaper
Research or measurement	Ableton Live, Reaper	Reaper, Ableton Live	Reaper, Ableton Live
Other	FL studio, Audacity	Ableton Live, Logic	Ableton Live, Pro Tools

Table 5. The two most used DAWs for each context and level.

Context	Amateur	Semi-professional	Professional
Music (Acoustic)	Cubase, Reaper	Logic, Reaper	Pro tools, Ableton Live
Music (Electroacoustic)	Ableton Live, Cubase	Ableton Live, Reaper	Ableton Live, Pro Tools
Music (Electronic)	Ableton Live, FL studio	Ableton Live, Logic	Ableton Live, Pro Tools
Sampling	Ableton Live, FL studio	Ableton Live, Reaper	Ableton Live, Pro Tools
Sound art	Ableton Live, Cubase	Ableton Live, Reaper	Ableton Live, Reaper
Sound design	Ableton Live, Cubase	Ableton Live, Reaper	Pro tools, Ableton Live
Foley	Cubase, Ableton Live	Ableton Live, Reaper	Pro tools, Ableton Live
Soundtrack	Ableton Live, FL studio	Ableton Live, Logic	Pro tools, Ableton Live
Speech recording	Cubase, Reaper	Ableton Live, Logic	Pro tools, Reaper
Dubbing or Voice-over	Cubase, FL studio	Reaper, Ableton Live	Pro tools, Logic
Other	Audacity, FL studio	Reaper, Logic	Pro tools, Reaper

Table 6. Most frequent context and task for each DAW.

DAW	Most common context		Most common task	
Ableton Live	Music (Electronic)	Semi-pro	Seq. and Prog.	Semi-pro
Ardour	Music (Electroacoustic)	Amateur	Mixing	Amateur
Bitwig Studio	Music (Electronic)	Amateur	Draft	Amateur
Cubase	Music (Electronic)	Amateur	Editing	Amateur
FL studio	Music (Electronic)	Amateur	Mixing	Amateur
Logic	Music (Electroacoustic)	Professional	Editing	Semi-pro
Pro tools	Music (Acoustic)	Professional	Mixing	Professional
Reaper	Music (Electroacoustic)	Professional	Editing	Professional
Studio one	Music (Acoustic)	Professional	Editing	Amateur

sional and amateur usage patterns, with *Pro Tools* maintaining its position as the industry standard for professional audio engineers, particularly in recording, editing, mixing, and post-production tasks.

The historical analysis demonstrates an increasing shift towards *Reaper* and *Ableton Live* among newer users, while demographic data indicates strong connections between musical practice and DAW usage, with nearly 96% of respondents having experience playing instruments. The data also reveals interesting patterns in DAW adoption age, with some software like *FL Studio* being predominantly adopted by younger (Italian) users before the age of 18.

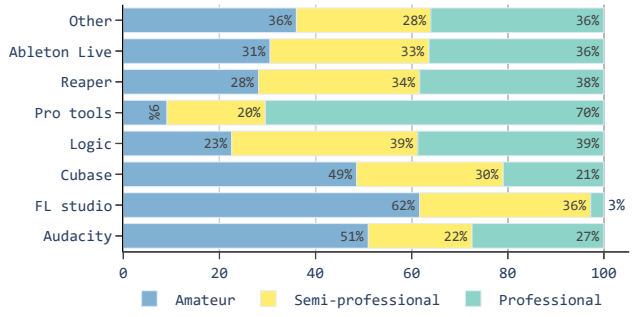
Concerning the limitations of our research, the low number of responses, while valuable, does not provide the level of statistical robustness needed for broad conclusions, particularly considering the global scope of the survey. With only 600 responses, we risk over-generalizing findings that may not reflect the full diversity of DAW users worldwide. The fact that the majority of responses came from Italy introduces a national bias, which limits the generalizability of the results to global trends. Furthermore, the imbalance in the sources of responses – such as the heavy reliance on specific platforms like SMC mailing lists – might not represent the diversity of DAW users in different contexts.

In addition, future research should explore how emerging technologies, such as AI-assisted audio production, impact DAW usage patterns and workflows. Further studies should examine the role of education and accessibility in shaping DAW adoption trends, particularly addressing the gender imbalance observed in our sample. The complete dataset made available to the scientific community [17] provides opportunities for deeper analysis and follow-up investigations on specific aspects of DAW usage.

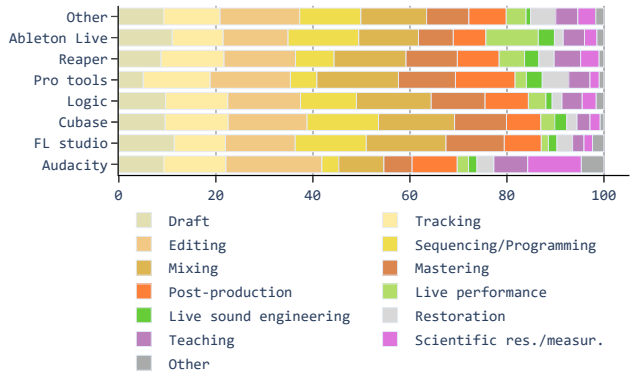
Acknowledgments

The authors wish to acknowledge Project "CHANGES – Cultural Heritage Active Innovation for Next-Gen Sustainable Society", National Recovery and Resilience Plan (PNRR), Mission 4 "Education and Research" – Component 2 "From Research to Enterprise" – Investment Line 1.3, "Partnerships extended to universities, research centres, companies for the funding of basic research projects", PE 00000020, SPOKE 2, CUP G53C22000430006, funded by the European Union - NextGenerationEU.

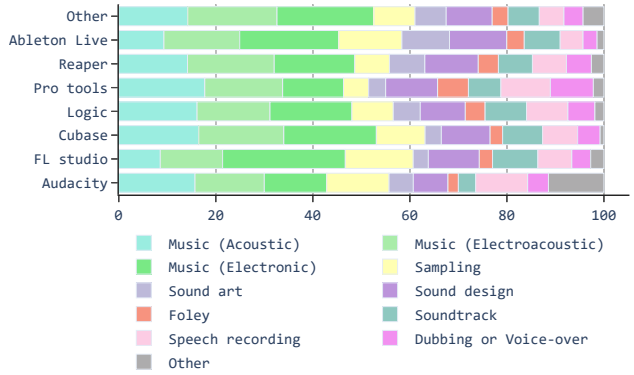
ISBN 978-3-200-10642-0



(a) Level



(b) Task (warm colors are used for music production-related tasks)



(c) Context (light blue to green shades used for explicit music-related contexts)

Figure 4. DAW usage by (a) level, (b) task, and (c) context.

6. REFERENCES

[1] C. N. Leider, *Digital Audio Workstation*, 1st ed. USA: McGraw-Hill, Inc., 2004.

[2] C. Roads, *The computer music tutorial*, 2nd ed. MIT press, 2023.

[3] Y. Yang, "Analysis of different types of digital audio workstations," *Highlights in Science, Engineering and Technology*, vol. 85, pp. 563–569, 2024.

[4] A. Reuter, "Who let the DAWs out? the digital in a new generation of the digital audio workstation," *Popular Music and Society*, vol. 45, no. 2, pp. 113–128, 2022.

[5] S. Pendergast, "Creative music-making with digital audio workstations," *Music Educators Journal*, vol. 108, no. 2, pp. 44–56, 2021.

[6] A. Baratè, L. A. Ludovico, and G. Presti, "A Collaborative Digital Audio Workstation for Young Learners," in *Proc.Int. Conf. on Computer Supported Education (CSEDU 2022)*, vol. 1, 2022, pp. 458–464.

[7] G. Yanan, "Use of digital audio workstations in music education to develop creative thinking and increase self-efficacy," *Current Psychology*, vol. 43, no. 29, pp. 24 320–24 331, 2024.

[8] M. Buffa and A. Vidal-Mazuy, "WAM-studio, a Digital Audio Workstation (DAW) for the Web," in *Proc. ACM Web Conference*, 2023, pp. 543–548.

[9] S. Stickland, R. Athauda, and N. Scott, "Design and evaluation of a scalable real-time online digital audio workstation collaboration framework," *J. Audio Engineering Society*, vol. 69, no. 6, pp. 410–431, 2021.

[10] D. Bianchi, F. Avanzini, A. Baratè, L. A. Ludovico, and G. Presti, "A GPU-Oriented Application Programming Interface for Digital Audio Workstations," *IEEE Trans. Parallel and Distributed Systems*, vol. 33, no. 8, pp. 1924–1938, 2021.

[11] G. Pedrini, L. A. Ludovico, and G. Presti, "Evaluating the accessibility of digital audio workstations for blind or visually impaired people," in *Proc. Int. Conf. on Computer-Human Interaction Research and Applications (CHIRA 2020)*, 2020, pp. 225–232.

[12] D. Etinger, "Tools of the trade: Digital audio workstation usage antecedents," *Informatologia*, vol. 49, no. 1-2, pp. 61–73, 2016.

[13] ——, "A Task-Technology Fit Model for Digital Audio Workstations Evaluation," in *Proc. Int. Conf. on Intelligent Human Systems Integration (IHSI 2023)*, 2023, pp. 468–473.

[14] D. Marikyan and S. Papagiannidis, "Task-technology fit: a review," *TheoryHub book*, 2023.

[15] R. Sethi, "Top 12 most popular DAWs (you voted for)," https://ask.video/article/audio/top-12-most-popular-daws-you-voted-for, 2017, accessed: 2025-03-11.

[16] J. Rodgers, "2024 DAW user survey - the results," https://www.production-expert.com/production-expert-1/2024-daw-user-survey-the-results, 2024, accessed: 2025-03-11.

[17] L. A. Ludovico, F. Avanzini, and G. Presti, "Data for: DAW Usage Survey (2023)," 2025. [Online]. Available: https://doi.org/10.13130/RD_UNIMI/YNQHKI

[18] D. A. Mauro, F. Avanzini, A. Baratè, L. A. Ludovico, S. Ntalampiras, S. Dimitrov, and S. Serafin, "Sixteen Years of Sound and Music Computing: A Look Into the History and Trends of the Conference and Community," in *Proc. Sound and Music Computing Conference*, Torino, 2020, pp. 3–10.

ISBN 978-3-200-10642-0