DISPLACEMENT PARADIGM TOWARDS DIGITAL MUSIC DISTRIBUTION IN THE RECORDING INDUSTRY

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Article history: Received 17 October 2023, Received in revised form 11 December 2023, Accepted 11 December 2023, Available online 13 December 2023.

Highlight
Framing the study by utilising the theory of diffusion of innovation and applying factor analysis (using SPSS. 26. S) in developing a supply chain innovation music model brought the context of digital music distribution. Digital music distribution makes music distribution more resilient and better enabled to displace the superfluity of physical music distribution in the recording industry. In addition, artists have more ways to connect with their fans and opportunities to share their work in diverse and creative ways.

Abstract
Digital music streaming and downloading platforms supervene the stymied superfluity of physical music distribution in the recording industry. The significant transition seems to provide quasi-real-time increased music consumption. The purpose of the study is to identify the challenges associated with the paradigm shift to the digital trajectory of music regarding global market demand and to establish the extent to which digital diffusion innovations influence digital music distribution and consumption in the recording industry. The exploratory research study employed univariate and multivariate statistical analysis to analyse the data collected from 217 musicians. The study found that the customer base of physical retail stores is dwindling due to the increasing number of independent artists and technologically compatible media devices that encourage music streaming and downloads. The practical implications ensue the amplitude of music downloads that is proffered by modular technological developments, such as the buttress of smartphones while it predicates the perspicacity of innovative digital technologies to create independent shrewd music entrepreneurs.

Keywords
Digital music distribution; e-commerce; disintermediation; diffusion of innovation.

Introduction

The music falls within the creative industry and offers global fans a delightful hedonic experience. The advent of digital technologies has transformed the nature of people's musical experiences. Digital recording has the propensity to produce new entrepreneurs through a revolutionary digital operations management cycle. While online distribution systems have facilitated product availability, mobile devices are the pervasive mode for listening to and consuming music. At the same time, social media provides dyadic (Fan-Artist/fan-fan linkage) platforms for sharing, interacting and learning about music [1]. Fans can now listen to music on the move, from the daily commute by car, taxi or bus to jogging through the park and gym facilities. Pervez and Haq [2] note that digital music is "packaged in a flexible, structured way that combines sound with rich, layered metadata to support interactive and adaptive musical experiences". This expanded music experience offers fans a highly immersive and deeply engaging, multi-layered soundscape [3]. The study examined the trend of online music channels, and the distribution strategies employed by record companies and musicians to cope with these changes, as well as the challenges experienced in this journey. The study used the diffusion of innovation theory and crafted the literature review on digital music distribution, disintermediation/reintermediation, and innovative transformation. The quantitative research design was utilized to generate empirical findings. The growth of digital streaming and downloading from Internet platforms entices music retailers and recording companies for direct digital distribution. Conversely, piracy has yielded fewer sales of compact disks (CDs) by music retail outlets with brick-and-mortar stores, undermining their financial viability. Physical retail stores have ceased their operations and music customers have swapped to electronic commerce businesses such as Amazon.com, Kalahari.net, Takealot.com and Loot and streaming on Spotify, iTunes, Deezer and so on.

The study observes the digital paradigm of the distribution supply chain that it resonates with lower cost structure, maximum consumption, the propensity to entrepreneurship and the displacement of physical inventory with virtual inventory. The technology push effect describes developments in technology, including increased awareness, the rise of constrained Internet and broadband accessibility and intense competition that outwits the physical retail music stores. The digital downloading platforms offer access to digitalised music distribution and a quasi-real-time consumption cycle. The trajectory displaced the existing brick-and-mortar business, and the evolving information highway increases global customer demand and the level of supply chain responsiveness (from the supply side) points to market changes in supply chain distribution channels in the music industry. Against this background scenario, the study cogitates on technological innovations that are expected to enhance the digital distribution of music on the Internet. Although the distribution systems have posed challenges within the supply chain network, the foreground scenario for this study attempts to develop tentative model for supply chain digital music distribution, consumption, responsiveness and legitimacy cycles. This study objective deductively delves into the challenges associated with the paradigm shift to the digital trajectory of music global market demand; it ascertains musicians' perceptions of the transition and how it has affected both artists and the industry. It was also essential to establish the extent distribution operations processes are in sync with digital diffusion supply chain innovations and whether they impact digital music distribution and consumption in the recording industry.

Digital Perspective of the Music Industry

South Africa's nascent music industry reflects a slightly developed product of genres on the African continent [4]. The hegemony of international music businesses primarily absorbs the major ownership share [5] ranging from five multinational companies, namely, EMI, Sony, Universal-Vivendi, Time Warner and Bertelsmann (BMG) that control the production and distribution of recorded music [6]. An ambitious digitisation project undertaken by Mpumalanga province in South Africa epitomised the willingness and capability of conventional and native digital artists to engage in digital music production and distribution. According to Netshakhuma [7], a lack of resources hindered the successful implementation of the project.

Skulan [8] also proffered that a lack of skills and knowledge can prevent musicians from digitising their operations and distribution systems. Vermeulen [9] observes that sales of recorded music in physical format in South Africa are shrinking faster than that observed at the global level. Music streaming allows customers to listen to music on their preferred device (PC, iPod, smartphone, tablet, notebook, etc.) without owning a digital music file or a physical format (such as a CD, tape or vinyl). The music files are stored by the streaming provider on a server and are provided to the customer on demand when he/she logs in on a website or mobile app. Subscription services like Apple Music, Joox, Google Play Music, Tidal, Simfy Africa, Rara, iTunes, and Deezer are major companies in the market and are responsible for the majority of total digital sales. Knopper [10] notes that "digital music sales saved the record industry following years of piracy". The exponential growth of digital music distribution is underpinned by the rapid penetration of smartphones, and embryonic streaming services such as Apple Music are gaining a larger market share. Prominent players in South Africa include Google Play, Rara, Simfy Africa and Deezer.

Technology is fundamentally changing the landscape of most consumer-oriented businesses. Consumer buying behaviours and demand patterns are significantly affected by high Internet penetration, ubiquitous information availability, and rapidly growing social networks. This has a significant impact on consumer-oriented industries such as music, publishing, consumer electronics, retail and financial services. Consumers' propensity to adopt technology has a major impact on supply chains through social networks and Internet-enabling digital platforms. The application of emerging technologies to supply chains enables organisations to deliver superior value to customers. Digital music is defined as "a particular combination of data and sound that exists as an entity in and of itself for sale or acquisition in online outlets via computers or other digital portable devices" [11]. Digital supply chains facilitate the exchange of information and enable superior collaboration and communication across digital platforms, resulting in improved reliability, agility and effectiveness. It is thus essential for the music industry to integrate digital production, distribution and consumption into its overall supply chain strategy to generate and measure long-term value. Digitalisation refers to "the increasing penetration of digital technologies in society with the associated changes in the connection of individuals and their behaviour" [12,13]. Developed economies such as the United States, Japan and the United Kingdom have achieved a high level of digitalisation, created millions of job opportunities and boosted economic prospects. Digitisation could assist the South African economy to contribute to the achievement of national imperatives such as improved productivity, welfare, and economic growth. Ultimately it could reduce inequality, poverty, and unemployment,

and also promote social transformation [14].

Theoretical Framework

The symbiotic leverage of disruptive technology and reverberating innovation entrench the culmination of digital music streaming and downloading. Music fans credulously adopt an innovation of digital music distribution platforms, and the innovation will be diffused among the population. Diffusion is "the process by which an innovation is communicated through certain channels over time among the members of a social system" [15,16]. Wu and Chuang [17] concur with Lin and Huang [18] in defining innovation system diffusion as "a process from internal diffusion among functional units within an organisation to external diffusion across inter-organisational trading partners when innovation becomes an integral part of the value activities". Mbhele [19] adds from Mbhele's Law of Oscillation that electronic supply chain management (e-SCM) systems diffusion is "a process from internal diffusion among functional units within an organisation to external diffusion across extended supply chain enterprises" including individual innovativeness, innovation-decision process, perceived attributes of innovations, adoption rate, and different adopter categories with elements of innovation, communication channels, time, and social system. An agile supply chain system enjoys a certain level of flexibility that creates considerable resilience in responding to the disintermediation of the retail music industry. Rogers [15] describes the innovation-decision process as "an information-seeking and information-processing activity, where an individual is motivated to reduce uncertainty about the advantages and disadvantages of an innovation". According to Rangaswamy and Gupta [20], the study of adoption behaviour and the diffusion process for digital products is "based on concepts and theories of individual decision-making and allows one to segment and profile customers based on the time of adoption and on their inclination to adopt an innovation. The Diffusion of Innovation theory focuses on how, why and at what rate novice ideas and technology are disseminated across cultures and generations. It explains how, as time passes, an idea or product gains market share and spreads in a specific social system. The result of such diffusion is that people move away from traditional physical music distribution and adopt new digital distribution ideas, behaviour or products. This theory is used here to establish how early adopters influence the adoption of innovation or digitalised music in the recording industry. The Diffusion of Innovation theory has been adopted in research in the "field of social media, about the adoption of Twitter Hashtags" [21]; "mobile banking technology adoption" [22]; "the radio broadcasting industry" [23] and "the adoption and diffusion of innovation in retro-industries" [24]. The digital business platforms entice the better utilisation of word-of-mouth and entrench market assimilation and communication, thus directly impacting the diffusion of digital music and complementary technologies as well as new ideas and products.

Porter's [25] diamond model provides a framework for the analysis of competitive advantage. Porter states that competitiveness relies on four interrelated components: (1) factor conditions, (2) demand conditions, (3) related and supporting industries, and (4) firm strategy, structure, and rivalry. Factor conditions in South Africa include the positioning of the music industry in the production cycle and the availability of innovative and skilled labour. Firm strategy, structure, and rivalry refer to the conditions that govern how companies are created, organised, and managed, as well as the nature and intensity of domestic competition [25]. The article adopts the diamond approach based on the attributes identified by Parc and Kim [26], namely producers (factor conditions); consumers (demand conditions); distributors (related and supporting industries); and business context (firm strategy, structure, and rivalry). The rapid digitisation of the music industry has changed consumer purchasing behaviour across the world. The process of platformisation appears to fundamentally transform the organisation of cultural production, distribution and marketing. Spotify in particular seems to have become "a model for other services that use digital technology to transform the distribution of cultural goods" [27]. Music distributors, musicians, artists, and companies that share content on these platforms gradually master a variety of tools and strategies that enable them to stand out in these crowded environments. Prey [28] advocates that artists should orient their music towards inclusion on featured playlist shows.

Science of innovation and digital music transformation

The science of innovation for the creative industry is evolving continuously based on the underlying disruptive technologies. According to Omidi, et al., [29], the main difference between service innovation and product innovation is that in the latter, "the audience achieves the new products and has a sense of ownership of them"; while in the former, "the audience receives the services and does not necessarily purchase them in the form of a product, but considers them as a service experience". Modern-day supply chains span multiple geographical boundaries in different socioeconomic settings, each requiring specific checks and balances to ensure the smooth functioning of the chain. The Fourth Industrial Revolution [30] is indeed a revolution, bringing digital technologies

into developed and developing economies that impact modes of interaction, production processes and global value chains [31]. The OECD [32] notes that disruptive innovations in distribution can result in a situation where firms' investment "costs are too high" and "products are not suitable for online purchases". Nevertheless, music distribution services are moving from download shops to online streaming services. The innovation of the CD brought new growth dynamics to the sector while allowing for integration into established markets, and production, marketing and distribution models, as well as copyright and contractual frameworks [29,33]. While major music groups such as Universal/Polygram, Sony Music Entertainment, EMI, Warner Music and Bertelsmann Music previously enjoyed the lion's share of global music sales, the market is now dominated by free music file-sharing forums on the Internet, marked most notably by the rise of Napster. Hull, Hutchison and Strasser [34] trace the evolution and transformation of the music industry through three stages, namely, historical/agricultural (live performances, mobile musicians and music fans), industrial (music delivery via products, recorded tapes and mass media) and informational (content via digital technology, mobiles and the Internet). This transformation was hindered by the non-commercial exchange of file-sharing networks until Apple's iTunes and the establishment of commercial download retailers enabled an extension of the old distribution model on a digital basis. In this context, 'transformation' refers to a radical reorientation that substantially changes a sector's technological basis and, concomitantly, its socioeconomic structures [33].

The transformation process has created a disintermediation chain of modus operandi although music companies remain central producers and rights holders. Parc and Kim [26] opine that the digital music value chain has also ingeniously transformed and infused enterprising music trajectory from analogue to digital; offline to online; albums to songs; specialisation to integration; domestic providers to international suppliers; audio sound to visual images; possession to accessing; and from limited integration to a synergistic network. Digital transformation technologies such as the Cloud, the Internet of Things (IoT), Blockchain (BC), Artificial Intelligence (AI), and Machine Learning (ML) have been adopted by organisations as part of the transformation process. Blockchain technology presents an opportunity to create secure and trusted information control mechanisms [35]. It enables secure and authenticated copyrights and limits the magnitude of piracy [2]. In deploying security technologies like BC, it is important to understand the implications of smart contracts, their integration in workflows, and their effectiveness in complex resource-constrained settings, as in developing countries such as South Africa. Furthermore, understanding the implications of secure and non-erasable technologies like BC is relevant for regulation [36]. On Spotify, copycats, endless birthday songs, and other attempts at visibility like Matt Farley's extensive catalogue, are part of the business model adopted by artists to earn a sustainable income. South African musicians are thus called upon to embrace technological advancement to enhance the competitiveness of the creative industry.

Music distribution systems that predated digitalised distribution involved a distributor that physically distributed CDs in bulk from record labels and warehouses and shipped them on demand to retail outlets or directly to consumers. This entailed a centralised distribution system with a push supply chain. Bowersox et al. [37] describe direct distribution as "the services of premium transport combined with information technology to rapidly process customer orders and achieve delivery performance" Retailers, including supermarkets, live music venues and large-scale record stores place the physical product on their shelves and sell it directly to customers. The operable compact discs (CD) are becoming an obstinate problem by trivialising and circumscribing the quality of sound, lyrics and despicable proclivity of scratches and damages. The topsy-turvy ecosystem of direct music distribution has subsided and vanquished the deluge of intermediaries. The heterodox model epitomises a desideratum seamless digital value chain capable of valorising the coalesce of the digital music ecosystem. The verity of innovation should aver the amplified dexterity of independent entrepreneurship practises and posterity of digital artists underpinned and entrenched by transcending the advent of 4th industrial revolution technologies. The lack of a better description, the semblance of music normality is earmarking for digital transformation with the quixotic desire to do good with slight abrupt enthusiasm for new entrepreneurs.

Digital transformation refers to "the alteration of the business models by the use of innovative and technological processes that leads to immense changes in the behaviour of the society and the consumer" [38]. Technological innovation within various industries has transformed the behaviour of organisations, market structures and individuals. Sundaram, et al. [13] note that digital transformation transforms business competencies, procedures, practices and models to strategically exploit the opportunities emanating from emerging technology. Although emerging technologies have immense potential as equalisers, without sound governance, they could intensify the digital divide in society [2].

Reintermediation in the supply chain

The digital platform vests in the realism of reintermediation where "a reintroduction of an intermediary between supplier and consumer" [39]. Carr [40] defines reintermediation as "the reformulation, realignment and pruning of intermediaries but without total elimination". The reintermediation approach enhances the magnitude of "partnering for access, technology licensing, partnering for content and partnering for application development" [39]. However, Sarkar et al. [41] argue that intermediation is a structural feature of the electronic marketplace and its role is not simply taken over by producers. 'Agile distribution' is defined as the link key among the players in the music industry that focuses on the relationship between production and music usage [42]. Physical or electronic distribution is among the most critical activities in marketing musical products. Digital distribution involves the legal sale of song files through the Internet which represents the ownership model. Digital music reform takes place at the economic, social, and technological levels. Advanced technologies, supply chain resilience, and organisational agility are required for the South African music industry to achieve a sustainable growth trajectory. Music has long been part of the capitalist system, but this is now seen as weakening the music sector as, "in a digital economy that favours 'free' or advertising-subsidized content, the big tech oligopoly is able to use cultural content as a loss leader and promotional medium in efforts to drive sales elsewhere" [43]. Digital servitisation is a service strategy that exploits digital breakthroughs such as smart connected products, industrial Internet platforms, predictive analytics, digital offerings, and advanced services [44,45]. Combining servitisation and digitalisation can make firms less dependent on travel and human interaction. Servitisation refers to a firm's transition from a product-centric business logic, focusing on selling products, to a more service-oriented business logic that focuses on facilitating customer value creation through the provision of advanced services and solutions that better fulfil customers' specific needs [46]. It can make firms more resilient and better able, when faced with adversity, to 'bounce back' and emerge ahead of the competition. Resilience can be built on redundancy (or resourcefulness), which refers to slack in modular resources (production facilities, stock of material, etc.) that can be rapidly activated to reconfigure the value network [47]. However, the transformation underpinning the development and implementation of digital offerings is generally a long-term process [48].

Digital distribution of sound recordings via platforms has broken the established royalty deals based on sales as streaming has become an increasingly dominant mode of access to music; it now constitutes more than half of the music industry revenue in major markets [49]. The business model for music streaming differs from previous arrangements where the royalty paid to songwriters and performers was a percentage of sales. In the case of streamed music, payment is based on revenue from both subscriptions and ad-based free services. Haskell and Westlake [50] observe that while the distribution of music embodied in physical goods (printed music and CDs) can be controlled by the seller, intangible goods require intervention in the market to control misappropriation by non-payers (piracy), copyright to provide statutory protection and an economic incentive for content creation. Copyright law confers various rights to protect musical works by upstream creators (songwriters) and further downstream, protects rights in performers' performances and sound recordings [51,52]. The digital content market is underpinned by social networking and digital technological innovations. Chaffey [53] and Weinberg [54] state that, with the increased number of social network sites (SNS), social networking has become a focal reason for the music industry to adopt the pull strategy. Chaffey [53] defines social media marketing as "monitoring and facilitating customer-customer interaction and participation throughout the web to encourage positive engagement with a company and its brands. Interactions may occur on a company site, social networks and other third-party sites". It constitutes an amplitude of surging omnichannel distribution system to subside the derelict mode of brick and mortar.

Table 1. Global Recorded Music Industry Revenue 2017 to 2019 (in billion US$). *Source: [55].*

Year	Total Physical	Revenue (in US-$ billion) of that (in %)	Downloads & other digital	Streaming	Performance Rights	Synchronisation
2017	17.0	30.6	15.3	38.2	13.5	2.4
2018	18.7	24.6	9.6	49.2	13.9	2.7
2019	20.2	21.3	6.9	56.4	12.9	2.5

In 2018, the remaining three major players in the music industry, Universal Music Group, Sony Music Entertainment and Warner Music Group accounted for nearly 70% of all revenue generated by physical and

digital music sales (Table 1). In 2019, more than half of music companies' global revenue was derived from streaming offers, only 7% from downloads and just over 20% from physical audio media. In addition to Spotify, which held a global market share of 36% in music streaming in 2019, this rapidly growing market includes Apple Music (18%), Amazon Music (13%) and the leading Chinese music platform Tencent Music Entertainment (10%), which has been linked to Spotify via a mutual equity investment since the end of 2017 [56]. The attraction of such services is the instant availability to consumers of huge catalogues of professionally produced music, either free, with adverts interrupting the music, or for a monthly subscription fee, which as well as avoiding adverts, allows offline consumption of tracks saved to devices such as laptops and mobile phones. These services provide access to many thousands of playlists, based on artists, genres, and moods, some produced by the algorithm and some by professional editors (they also allow for the creation and sharing of playlists by users). South Africa's music industry is dominated by international music companies such as Universal and Sony, which are also global industry leaders. Although South Africa's music revenue, including physical, digital, live events and podcasts, has increased steadily, 80% of music sold and consumed locally is international [57]. Revenue from physical format sales such as CDs and records has been declining as streaming has increased. In South Africa, YouTube Music held an estimated 30% of the digital music segment in 2019. Statista [57] predicted that Google Play Stores (20%), Spotify (20%), Deezer (15%), Apple Music (10%), and others (5%) would earn revenue of US$51m in 2020.

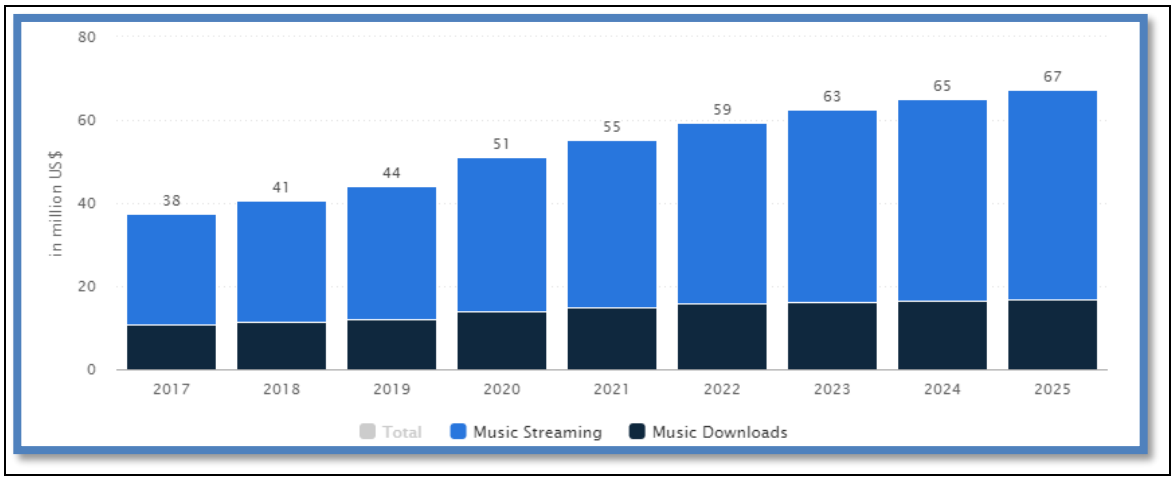

Figure 1. Forecast 2020. *Source: [57]*

Music consumption patterns arising from disruptive technological innovations and progress have influenced the (digital) music market. The disruptive impact of music streaming services like Spotify and Apple Music has overcome illegal digital music distribution while increasing access to all kinds of music genres. Firms are investing in exclusivities, such as pre-releasing new music or offering unique content such as concerts or podcasts. According to the International Federation of the Phonographic Industry (IFPI)'s Global Music Report 2019, the global recorded music market grew gradually from 2015 to 2018. It increased by 9.7 % in 2018 with total reported revenue of US$ 19.1 billion. Thirty-seven per cent of that revenue came from the 255 million users of paid streaming services [55] (Figure 1).

Methods

The study utilised an exploratory design and a quantitative research approach. Creswell [58] describes quantitative research as a method used to test theories by examining the relationships among variables. The researcher purposefully selects respondents or sites using purposive sampling based on the judgement regarding the characteristics of the representative sample. In addition to purposive sampling, snowball sampling offers a quicker and more efficient means to gather data, it was used as the additional technique to improve the return rate of the instrument. Babbie and Mouton [59] opine that this sampling strategy divulges the unknown location of the desired number of members of a special population. Snowball sampling assisted in improving the return rate, where the respondents apprise and assist in identifying the most appropriate and well-versed possible respondents. To compose, produce, record and digitally distribute music, the artist or band needs to reside in an urban area. Urban musicians mostly migrated from rural areas known for stymied music careers and circumvented the revulsion of underdevelopment. The accessibility to technology, infrastructure, and professional business configuration exhorted deluge musicians to locate in the urban areas for enterprising and wider audiences. Although the government has excoriated the urban migration explicated

by engendered by catalytic urbanisation. According to the guess estimation from Statistics South Africa [60], KwaZulu-Natal constituted a population of 3 442 361 million in South Africa, absorbing an estimation of 19.8% of the total population. Despite the scattered rural setting, 84.4% reside in urban areas. The majority of the province's population has access to "cellular phones (90.7%); while 24.6% have access to computers, 78.5% to television, 32.4% to satellite television, 71.8% to radio and 32.6% to motor vehicles" [60]. The overwhelming access allows for enhancing data collection and untangles the predicament of connectivity. Given [61] notes that "researchers who adopt a deductive or theory testing approach, select individuals or cases that embody the theoretical constructs". In this study, the assumptions of the operable theory of diffusion allow for reaching the targeted musicians in the Durban area.

Type of Sample and Sample Size

The RiSA website tentatively divulges growing 250 members affiliates in KwaZulu-Natal. The deductive reasoning applied to authenticate the identified and derived sample size resonates with the phenomenon of digitally distributed music enticing by overwhelming accessibility to technology-enabling equipment, devices and bandwidth speed. The integrated development planning in the city of Durban has flourished while parochial development in rural areas has retrograde. The antecedent plans on technological infrastructural investment created unprecedented access to the resources required to diffuse innovation and accelerate entrepreneurial practices. A target sample of 152 respondents was determined from the estimated population of 250 [62]. However, the final sample was 217, which is almost 87% of the total population, where the researchers commend the utilisation of the snowball technique for improvement from 152 to an adequate sample of 217. Purposive sampling was used to select specific subjects such as musicians/entrepreneurs/managers while snowball sampling assisted in improving the return rate through referrals. Data was gathered utilizing a questionnaire with closed-ended questions. Saunders et al. [63] describe closed-ended questions as those "where participants select responses from a limited number of given alternatives". The questionnaire is composed of a biographical section; dichotomous questions with options (Yes or No); and Interval scale or rating questions using a 5-point Likert scale from strongly disagree (1), to disagree (2), neutral (3), agree (4) and strongly agree (5). The questionnaires were administered personally and via electronic mail to Durban musicians. Personal interaction facilitated the administration of the questionnaires as the researchers were able to provide clarity when necessary.

Results and Discussion

Data analysis entails the "application of reasoning to understand the data that has been gathered" [64] and involves "breaking up the data into manageable themes, patterns, trends and relationships" [59]. The data analysis techniques were to the study's objectives. The data was captured using the Statistical Package for the Social Sciences (SPSS) while construct validation and reliability were checked for accuracy and correctness of the data. Where the constructs are measured with sufficient reliability with 22 variables on the 5-point Likert scale, the Cronbach's Alpha of the instrument is 0.826. The adequacy of the sample was further determined using the Kasier-Meyer-Olkin (KMO) Measure of Sampling Adequacy and Accuracy. The appropriate tests using descriptive analysis and Bartlett's Test of Sphericity (1030.375) were used to verify the assumption of homogeneity of variance with a significant *p*-value of 0.000 at the 95% confidence level to be deemed appropriate.

Seventy-eight per cent of the respondents agreed that digital music distribution has added value to the growth of the South African recording industry (Figure 2), with less than 10% disagreeing with this statement. Eight-five per cent of the respondents confirmed that the Internet has enhanced digital music distribution and 61.1% agreed that the digital platform has assumed the role of record labels in managing musicians, with 30% remaining neutral on this issue. Many of the respondents (77%) opined that digital technology has improved mass consumption of online music, although 72% also concurred that this has resulted in the closure of physical music retail stores. Seventy-six per cent agreed that the Internet plays a role in both creating and promoting music entrepreneurs. Although 32% of the respondents depicted neutrality to establishing a distinction between brick-and-mortar music distribution and digital music distribution, 62% majority didn't observe the blur and confidently accentuate that digitisation supersedes the traditional approach. Finally, the Figure shows that a significant number of respondents applauded the Internet as a propulsion medium for digital music distribution.

In the city of Durban, musicians (Table 2) embraced the diffusion of the Internet platform for digital music distribution illustrated by the highest mean value (m=4.25 and std=0.84), implying that it has made a significant contribution to the massive consumption of music online (m=4.06, std =0.89). The digital distribution of music

resonated with the creating value-added in the growth of the South African recording industry (m=4.05 and std=0.9) while producing new entrepreneurs (m=4 and std=0.86). The displacement effect is evident in physical music retail stores (m=3.95 and standard deviation=0.89) where previously successful brick-and-mortar stores are closing shops. The displacement effect paradigm amongst traditional practices and digital music modelling (m=3.78 and standard deviation=0.9) has not completely removed the effect of disintermediation (m=3.75 and std=0.96), as the impetus of the Internet is deemed relatively essential in playing the role of record labels in managing musicians.

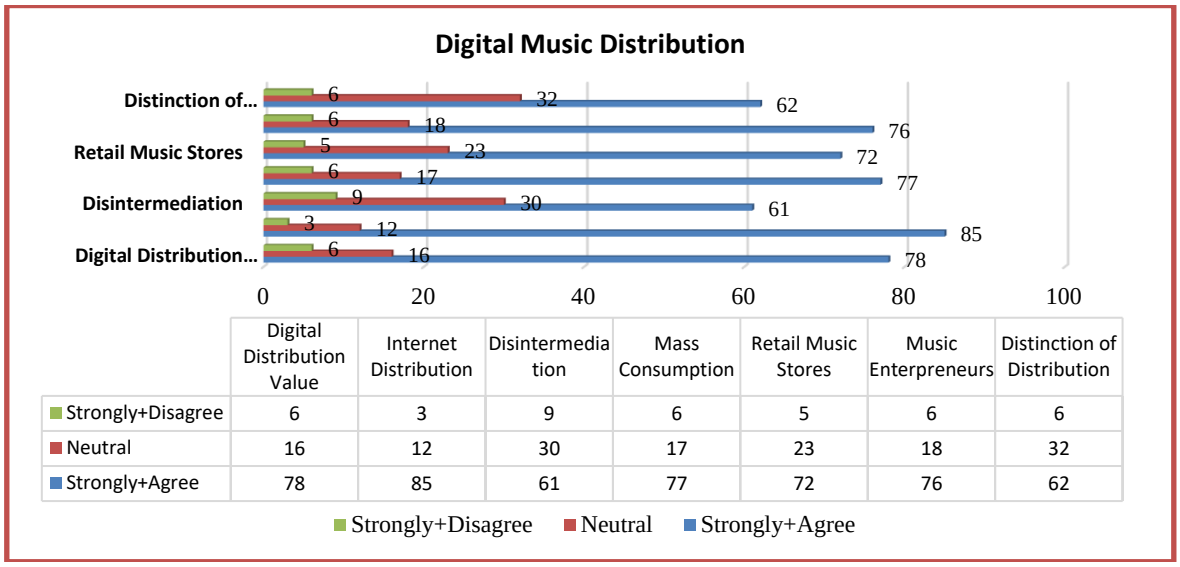

Figure 2. Analysis of Digital Music Distribution. *Source: Authors.*

Table 2. Descriptive Statistics on Music Distribution. *Source: Authors.*

	Internet distribution	Mass consumption	Digital distribution value	Music entrepreneurs	Retail music stories	Distinction of distribution	Disintermediation
N	217	217	217	217	217	217	217
Mean	4.25	4.06	4.05	4	3.95	3.78	3.75
Median	4	4	4	4	4	4	4
Mode	5	4	4	4	4	4	4
Std. deviation	0.842	0.89	0.901	0.885	0.888	0.905	0.959

Factor Analysis

Cronbach's Alpha value resonates with the level of internal consistency underpinning construct validity. The 5-point Likert scale was utilised to measure 22 variables with Cronbach's Alpha value of 0.826. According to Cooper and Schindler (2010), "acceptable alpha values range from 0.7 to 0.95" indicating good reliability. Factor analysis compresses variables to manageable factors. The adequacy of the sample was further determined using the Kasier-Meyer-Olkin (KMO) Measure of Sampling Adequacy.

The KMO score of 0.812 > 0.6 has a desirable value of sampling adequacy with a suitable level of variance (Table 3). Bartlett's Test of Sphericity (1030.375) has the assumption of homogeneity of variance that gave a significant *p*-value of 0.000 at the 95% confidence level for factor analysis to be deemed appropriate. Bartlett's test confirms there is some "level of correlation among the variables" [65] for the application of factor analysis at the degree of freedom (231) [66]. Communality refers to the amount of variance that can be explained by the common factors of a variable [63,65] ranging from 0 to 1. Table 3 shows that all items have an extraction value greater than 3; they thus fit well with the other items in their component. The factor extraction procedure determines the intention of reducing the complexity of the factors by stating the factor loading in a clearer, more understandable and interpretable manner [67,68]. According to Hatcher [68], "principle components analysis converts a set of observations of possibly correlated variables into a set of values of linearly uncorrelated variables called principal components. The number of principal components is less than or equal to the number of original variables". Garson [66] notes that the loadings of Likert scales with 0.6 may be considered "high".

An alternate way to perform factor extraction is to use Kaiser's criterion or the eigenvalues rule. Using the eigenvalues rule, only factors with a value of greater than 1.0 are retained for further investigation. By rule of thumb, any factor that has an eigenvalue of less than 1.0 does not have enough total explained variance to represent a unique factor, and is therefore disregarded [63,65]. In this analysis, components 1, 2, 3, 4, 5 and 6 have eigenvalues greater than 1 and relate to 4.94, 1.824, 1.664, 1.227, 1.105 and 1.072, respectively.

Table 3. Rotated Component Matrix. *Source: Authors.*

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.812
Bartlett's Test of Sphericity	Approx. Chi-square	1030
	Df	231
	Sig.	0.000

Rotated Component Matrix

	Factor Loading	Eigenvalue	% of Variance	Cumulative %	Communalities Extraction	Alpha
Factor 1: Digital Music Consumption Cycle						
Digital music consumption	0.668	4.94	22.454	22.454	0.515	0.635
Free online music consumption	0.633				0.495	0.646
Bandwidth speeds	0.608				0.472	0.628
Factor 2: Digital Responsiveness						
Service delivery	0.742	1.824	8.293	30.747	0.479	0.577
Clockspeed	0.605				0.469	0.568
Factor 3: Digital Music Legitimacy						
Regulation	0.722	1.664	7.594	38.31	0.577	0.662
Disintermediation	0.665				0.636	0.609
Copyright laws	0.636				0.527	0.687
Factor 4: Internet Mass Consumption Cycle						
Mass consumption	0.814	1.227	5.576	43.886	0.685	0.598
Internet distribution	0.749				0.756	0.6
Factor 5: Digital Value Adding Innovations						
Value adding innovations	0.73	1.105	5.023	48.91	0.61	0.644
Digital distribution value	0.727				0.647	0.625
Factor 6: Echelon Disintermediation						
Retail music stores	0.685	1.072	4.873	53.782	0.626	0.631

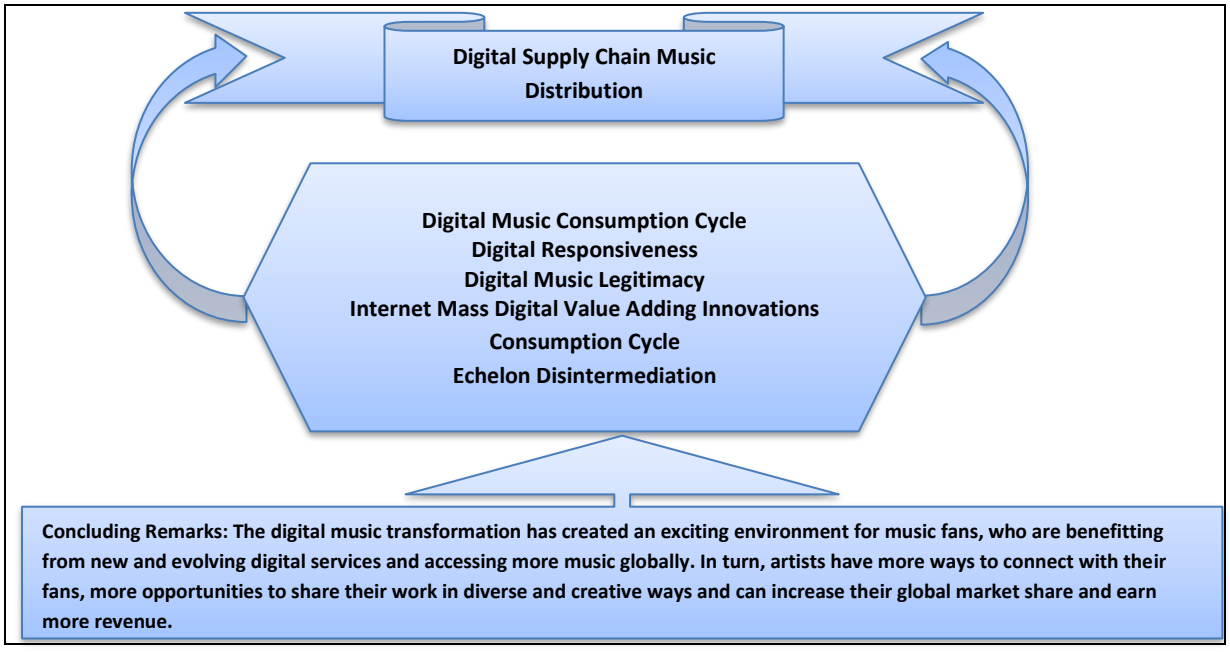

Figure 3. Digital Supply Chain Music Distribution. *Source: Authors.*

Interpretation and Labelling of Factors

Costello and Osbourne [67] state that the purpose of the rotation is "to simplify and explain the data structure". This study employed factor loadings as the basis for imputing a label to the different factors wherein the researcher examined the most highly or heavily loaded indicators in each column and assigned a factor label (Figure 3). The factor interpretations and labels are confined to the assumption of face valid imputation of factor label (face validity) that is rooted in theory.

Factor 1: The Digital Music Consumption Cycle shows the biggest variable loadings on six extracted factors. Subsequently, the loadings on Factor 1 account for 22.454% of the total variance. Digital music distribution using free online music and access to high bandwidth speed online downloads influence the digital music consumption cycle. Datta, Knox and Bronnenberg [69] found that premade playlists expand users' listening habits to a larger selection of artists, music titles and genres while decreasing their level of concentration when listening. Aguiar and Waldfogel [70] showed that music titles that appear in major playlists generate a large number of additional streams. Bandwidth accessibility invigorates fans to consume music frequently online using streaming services where musicians, businesses and Internet radio stations, to name but a few, allow consumers free access to a myriad of music genres through digitally viable medium platforms such as legal channels like iTunes, Spotify and others. Diduck [71] refers to this as "a 'try-some-buy-some' strategy which unfolds either through encouraging the jump to paid streaming services or by spurring traditional sales". Digital transformation widens accessibility to consumers, and so too are the millions of songs produced by musicians freely downloadable.

Factor 2: Digital responsiveness in Factor 2 accounts for 8.293% of the total variance. Both service delivery and clock speed enhance flexibility in the supply chain through agility. The digitalisation of music swiftly responds to consumers' dynamic demands emanating from the marketplace. The technology platforms seem to deliver both music services and products in entrenching supply chain distribution dependability and competent capability. Furthermore, with the introduction of technologies such as the IoT and 5G, the efficacy and utility of supply chain management have improved significantly [2]. Supply chain digitalisation refers to the use of modern technological advances to make logistics processes more dynamic, fast, and resilient [72]. Digitalisation optimises the supply chain by making it faster, more flexible, granular, accurate, and efficient [73]. The IoT is the most effective technology for the digitalisation of the supply chain as it enables inventories to automatically request fresh stocks based on current demand, previous data analysis, and pending stock without human involvement [72]. Big supply chain analytics uses data and quantitative tools to improve decision-making for all supply chain operations [74]. An agile supply chain system enjoys a certain level of flexibility that creates considerable resilience in responding to the disintermediation of the retail music industry. The digital environment facilitates more exposure by broadening musicians' audience base, eliminating the influence of gatekeepers, and facilitating omni-supply chain distribution through discretional social networks.

Factor 3: Digital Music Legitimacy reflects that three items load that account for 7.594% of the total variance. One item relates to disintermediation in the supply chain, while the remaining two relate to copyright laws and the regulation and closure of digital services. Disintermediation is prominent in the literature and the data. The disintermediation of the record label in the traditional supply chain resulted in the mass consumption of free online music downloaded from illegal services without paying a fee. This practice should be transformed into a legitimate business model underpinned by a centralised legal music distribution channel in the South African recording industry. Copyright challenges and regulatory barriers are limiting the capacity of digital music distributors to achieve a sustainable competitive advantage [75]. Digital distribution of music has created new opportunities for artists, enabling them to be independent of legacy labels. It has developed a new digital ecosystem [76] that allows some music artists to become successful entrepreneurs. Using the opportunities offered by new technologies, operators have been able to create and develop new business models. However, illegal copying and sharing of files continue, with streaming posing a new threat to the music industry. According to Poolsawat [77], broadband and Internet-enabled smartphones have exacerbated music piracy and loss of revenue among both music labels and their artists. Chiou, Huang, and Lee [78] describe piracy as the greatest single threat confronting the modern global music industry, while Klym [79] notes that technology has made it easier to acquire digital music illegally.

A well-designed legitimate omni-music distribution model would provide commendable protection for musicians using copyright laws. One solution would be for musicians to stream music through centralised distribution channels such as YouTube, iTunes or Spotify. Although the music will not be paid for, it will be streamed. Regulation and disclosure of various digital distribution services would reduce the illegal downloading of music.

Factor 4: The Internet Mass Consumption Cycle accounts for 5.576% of the total variance capturing fans' mass consumption of music and Internet/electronic distribution. Digital capabilities along the music industry supply chain networks of cyber-governance, lean processes, big data supply chain analytics and agile performance management require integrated technological capability [12]. Digital supply chain transformation has reflected an interplay between consistently strong technological innovation dynamics, serious socioeconomic restructuring, and substantial changes in the patterns of music consumption [80]. The IFPI [4] reported that, in 2014, streaming in the United Kingdom accounted for 12.6% of the global user market, while streaming service Spotify reached a global user community of 60 million, 15 million of whom pay for Spotify's services. There is a lack of empirical research on how streaming platforms might be influencing the structure of the industry, especially the balance of power between major and independent ('indie') record labels. Moreover, few studies have been conducted on how changes in consumption habits precipitated by streaming – such as the much-discussed shift from albums to playlists – may be influencing this balance [70].

Factor 5: Digital Value Adding Innovations account for 5.023% of the total variance, namely, value-adding innovations and digital distribution value. They are thus interpreted as "Digital value-adding innovations". Platform economics is a term used in industrial economics to analyse the activities of enterprises that distribute products online, such as streamed music. A platform coordinates distinct groups of participants in two or more markets by offering a virtual 'marketplace' where they can trade [52]. Physical retailers in South Africa need to capitalise on technology to engage their customers and achieve a competitive advantage [81]. Roux, Mahlangu, and Manetje [82] posit that "a stimulus in the retail environment (S) influences customers' organismic emotional state (O), which, in turn, leads to certain behavioural responses (R)". The digital atmospheric stimulus cues resonate with socio-digital networking that involves audience stimulus, leading to interactions and networking with other fans and musicians in the creative industry. The organism is the mediating process between the stimulus and fans' response to the virtual cues underpinned by perceptions of high enjoyment of digital hedonic value [82] for broader South African fans and artists.

Factor 6: Echelon Disintermediation accounts for 4.873% of the total variance namely, retail music stores. The Uses and Gratification (U&G) theory embodies concepts such as interactivity, demassification, hypertextuality, and asynchronicity [83]. Digital interactive music distribution rests on the notion of active fans and artists. It has been defined as "the degree to which participants (fans, artists and companies such as publishers and 3rd party) in the communication process have control over and can exchange roles as co-creators of music production, distribution and consumption cycles in their mutual discourse and value experience" [84]. Internet technology has superseded the role of record labels in espousing the modus operandi of musicians, and further extruded the number of retailing brick-and-mortar stores such as Musica and Look and Listen music stores.

Reliability and Validity

Cronbach's Alpha was used to test the reliability of the instrument for the internal consistency of the study. Its value (0.826 on 22 items) indicates the level of internal consistency by showing construct validity in terms of the interrelatedness among the items in the study without unidimensionality and homogeneity. Furthermore, the questionnaire had a high level of inter-item consistency (Cronbach's Alpha = 0.826), implying a high level of reliability. Item statistics indicate that item reliabilities ranging from 0.7 to 0.95 have acceptable Alpha values. Therefore, the researchers infer that the instrument is reliable about the dimensions of digital music distribution, namely, music distribution (0.656 on seven items), supply and demand (0.671 on nine items) and competence and capability (0.634 on six items). The dimensions of digital music distribution have strong to very high levels of reliability. The reliability statistics range from 0.634 to 0.671, indicating that the items used to measure the dimensions of the study have internal consistency and are hence reliable.

The Internet and value-adding innovations led to a transition in the distribution in the South African music industry. In response to the dichotomous questions, the overwhelming majority of the respondents (83%) stated that online retail music stores facilitate improved access to music. The revenue-driven decision looks at the mass consumption of online music (77%), although centralisation using an online distribution system through online retailers such as Spotify and iTunes have also driven accessibility. Bielas [85]; Look & Listen [86]; McIntyre [87]; Shevel [88] and Stensrud [89] opined on the displacement paradigm shift where the Internet technology diffusion augmented the massification and omnipresence in online music consumption and streaming platforms. This resulted in decreased album sales and hence less need for physical retail stores [81]. Contrarily, illegal online music massification presents another side of the coin because of plummeting physical album sales. Fuzzy

prospects of operable business seem to debilitate with supply exceeding demand of stock CDs in retail music stores. The propensity of record labels to conceal the royalties rightfully deserved by musicians while the digital distribution of music underpinned by omnichannel through Internet technology led to the disintermediation and displacement effects in the industry, namely the role of record labels. To the extent that African music sectors resemble one another, it is largely because they share a set of challenges that negatively affect music creators' ability to generate revenue from their creations [90]. These include weak networks of recorded music distribution, due to a combination of the slow adoption of digital distribution methods and the disruptive effects of digital innovations – effects that are exacerbated by the agility of unauthorised distributors or 'pirates' [90,91] – and a lack of effectiveness and transparency among collective management organisations (CMOs), which has meant that airplay (often secured through payola) does not necessarily result in royalties payments or album sales [92].

The frequency distribution and descriptive statistics produced factors relating to technological value-adding innovations and their relation to digital music distribution for music streaming, downloaded and distributed through the Internet. Platforms can estimate an individual's willingness to pay based on data acquired from users' previous sales or their profile (gender, age, and interests, among other factors) obtained from their own or other data sources [93]. Perfect (first-degree) price discrimination, which elicits the maximum revenue from consumers, is possible as well as dynamic pricing that is sensitive to the interaction between supply and demand with AI settings now widely adopted by platforms [94]. They benefit from both direct and indirect network effects as well as from scalability synergies and economies of scope [50,93]. Roux [83] notes that the focus is on "what people do with media," which involves an assortment of reactions and explanations. Gratification sought refers to the gratification that people seek and potentially receive from media use, while gratification attained refers to the satisfaction obtained by active media users [95]. Digital music distribution has added value to the growth of the South African recording industry underpinned by seventy-eight per cent from deductive statistics. The mean value of 4.05 and standard deviation of 0.9 further indicate that the respondents were in significant agreement that digital distribution has added value to the recording industry. Technologically driven demand infuses knowledgeability to expedite the flow of information for optimisation of business improvement and competitiveness.

Impact

The study analyses the extent of distribution operations processes being in sync with digital diffusion supply chain innovations and whether they impact digital music distribution and consumption in the recording industry. This digital music transformation has created an exciting impactful environment for music fans, who are benefitting from new and evolving digital services and accessing more music globally. In the multiplier impact, artists have more ways to connect with their fans, more opportunities to share their work in diverse and creative ways and can increase their global market share and earn more revenue. The impact of the phenomenon of digital music distribution evinced the epitome of scalability to digital, screaming and online music massification, consumption, platformisation, displacement and resilient economic value. The creation and promotion of innovative music entrepreneurs indicate a multiplier effect on digital transformation as it brought a scintillating trajectory with reformed daily operable business activities, including the creation of access to and consumption of music. The success of self-released albums by bands Radiohead and Nine Inch Nails, and South African musicians such as Nasty C, Zakes Batwini (bestowed with Grammy Award in 2023), and Professor (Kwaito Artist) depicts the testament for operable and predicate the perspicacity of innovative digital technologies to create independent shrewd music entrepreneurs. Furthermore, the amplitude of music downloads is proffered by modular technological developments, such as the buttress of smartphones. The impact of music m-commerce has opened a space for new forms of intermediation that have been taken up by an array of new and previously existing firms. According to De Beukelaer and Eisenberg [96], these digital content firms fall into two types, namely, digital content intermediaries and third-party m-commerce platforms. The former license music content and aggregate it for mobile service providers. In many cases, a digital content intermediary also – perhaps even primarily – operates in other areas outside of music, offering digital solutions to large corporations (including, but not limited to, mobile service providers). In this regard, the music distribution impact is entrenched by the magnitude of agility, modularity, and portability of media sharing such as Shareit, Deezer, Spotify, iTunes and so on, operable on smartphones, laptops, tablets and other devices. Digital technology-compatible devices create a cohort of innovations to achieve technological integration and competitiveness. Although the greatest impact of music distribution innovation has expanded to streaming platforms, streaming revenue depends on both sides of the market: subscriptions and fees from advertisers [49]. As markets are international, revenue is also influenced by other factors such as variations in currency rates in

the consumer's domicile and national copyright law. How much is passed on to songwriters and recording artists depends on the contract and the royalty rate negotiated with the publisher and/or the record label [50]. Arguably, economies of scale and scope can internalise benefits from network effects, spillovers and synergies that can be captured within the corporate enterprise. The music industry could therefore be swallowed up in a multi-product corporation, losing its identity and perhaps any vestigial claim to creativity [49], with the economics of streaming suggesting less rosy prospects for this industry. The crucial assessment of the potential impact of digital music distribution is the displacement paradigm of the superfluity of physical music distribution (where analogy music stores closed) and the stymieing intermediation (where innovation artists/entrepreneurs are earning revenues and royalties) from their original work.

Conclusions

New Internet technologies may compel labels that still exist to significantly alter their sales methods to consumers, as well as how they provide intermediary service to musicians. Record labels' main source of bargaining power with musicians has traditionally been their ability to offer large-scale distribution of CDs and digital technologies threaten this source of strength. A paradox about digital Internet technologies is that they simultaneously threaten to terminate record labels' distribution while having the ability to charge positive prices for a single music file that has been replicated and repeatedly sold. The Internet brings new players and business models to the South African recording industry and is becoming a vehicle that provides strength and focus on digital distribution. Technological advancements have undoubtedly changed the way organisations conduct business and the development of centralised digital distribution channels is being fast-tracked to accommodate consumption habits. In conclusion, the digital music transformation has created an exciting environment for music fans who are benefitting from new and evolving digital services and accessing more music globally. In turn, artists have more ways to connect with their fans, more opportunities to share their work in diverse and creative ways and can increase their global market share and earn more revenue. The study shows that the digital music distribution channel has added significant economic value and offers an exciting environment to music fans who benefit from streaming services that enable them to access digital music and entertainment platforms. The interconnectivity between artists and fans creates opportunities to grow the industry. If the digital market continues to grow, so too will the overall level of remuneration of artists, as well as the levels of overall investment required to create new music whilst driving digital innovation. The study covered a single region although the sample was sufficiently broad and the mobility of disc jockeys (DJs) in South Africa facilitated access to music experts. The use of snowball sampling assisted in delimiting the return rate and the administration of the questionnaire. Future research could examine the growth of music in South Africa and on the African continent. Much work is also required to advance and transform old music on records/vinyl, cassettes, and other forms into online formats for legal accessibility. Illegal remixes sparked this concern rather than a legally orchestrated plan to derive royalties for the legendary musicians of yesteryear. In South Africa, Gallo, EMI, Universal and Sony Music publishers should utilise their access to the country's largest back catalogue of music as custodians of rich heritage-based music.

Conflict of Interest

There are no conflicts to declare.

Acknowledgement

This research has not been supported by any external funding.

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