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**TRUST WITHOUT VERIFICATION: USERS'
PERCEPTION OF ENVIRONMENTAL AND ETHICAL
RESPONSIBILITY IN MUSIC STREAMING
PLATFORMS**

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ABSTRACT:

Music streaming has become the dominant mode of recorded music consumption worldwide, displacing ownership-based formats within little more than a decade. The shift is often taken to be environmentally beneficial, since digital distribution does away with plastic, packaging and physical transport, yet it brings two externalities of its own. The infrastructure that keeps streaming running is energy-intensive, and the overall emissions of recorded music have climbed rather than declined. Alongside this, the pro-rata royalty model used by the dominant platforms concentrates revenue among the most-streamed artists and leaves the majority only marginally compensated. Direct observation of both externalities is challenging, if not impossible, for users. This study investigates whether users' perceptions of the ethical and environmental aspects of music streaming influence their choice of platform and level of trust. Stakeholder theory and Carroll's pyramid of corporate social responsibility are combined with three explanatory lenses in the theoretical framework: an established model of trustworthiness, the attitude-behaviour gap, and a three-stage model of internalisation. Throughout, the idea of credence attributes, qualities that remain unverifiable even after extended consumption, is crucial. Seven hypotheses were tested on 93 responses to a cross-sectional online questionnaire, which combined self-report items with objective knowledge items so that stated and actual understanding could be measured as distinct constructs. Analysis was conducted in IBM SPSS Statistics using descriptive and non-parametric procedures. Awareness of streaming's environmental impact turns out to be minimal, and understanding of how royalties are distributed is limited. Perceived fairness bears no relation to any objective grasp of the distribution mechanism, yet it is significantly tied to self-assessed familiarity: fairness judgements follow the sense of being informed rather than the fact of it. Even so, perceptions of fairness and environmental responsibility shape platform trust to a substantial degree, while having no discernible effect on which platform users choose. Trust in streaming platforms is therefore formed on unverifiable ground, and the stakeholder group best positioned to hold platforms accountable is structurally unequipped to do so. These perceptions take shape not in some placeless digital space but inside the heterogeneous institutional contexts across which the dominant platforms, as multinational firms, deliver one standardised service. Disclosure requirements and measures reducing switching costs are proposed as remedies.

KEYWORDS: Music streaming, platform responsibility, consumer perceptions, information asymmetry, attitude-behaviour gap, corporate social responsibility, credence attributes

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1 Introduction

1.1 Background

In little more than a decade, on-demand music streaming has reshaped the global music industry, pushing ownership-based formats aside to become the dominant way people consume music. By 2025 it made up 69.6% of global recorded music revenues, with paid subscription streaming alone accounting for 52.4% and reaching 837 million subscription accounts worldwide (IFPI, 2026). Moving away from physical formats lowered costs for listeners and opened up global visibility to a wider and more diverse range of artists.

Despite these benefits, the music streaming economy has increasingly raised concerns about its environmental costs and ethical challenges. People tend to assume that digital music is better for the environment than CDs or LPs. This is not necessarily true. Streaming relies on data transmission and cloud infrastructure, both of which require a lot of energy, and this cost is often overlooked. As Brennan and Devine (2020) put it, “the price consumers have been willing to pay for listening to recorded music has never been lower, while the environmental impact has never been higher” (p. 56). The consumption of digital content, not only music, but also video and social media, now constitutes a significant and growing proportion of the global carbon footprint (Istrate et al., 2024). Since vinyl was at its peak, emissions from recorded music have increased, not decreased. First, server and data-centre electricity cancelled out the savings from making fewer physical objects, and then surpassed them (Brennan & Devine, 2020).

Ethical questions about revenue distribution have gained equal prominence. The pro-rata royalty model adopted by major platforms such as Spotify, Apple Music, Amazon Music, and YouTube Music has drawn sustained criticism for rewarding the most-streamed artists disproportionately while leaving independent musicians marginally compensated (Marshall, 2015). Several platforms have answered with alternative distribution schemes or environmental commitments, initiatives taken up in Sections 2.3.3 and 2.4.3.

1.2 Research gap

The environmental and distributive externalities of streaming have each drawn a body of research, yet the two literatures share an orientation that leaves one question unanswered.

The first gap concerns the level of analysis. Studies measuring the sector's environmental footprint (Brennan & Devine, 2020; Freitag et al., 2021; Istrate et al., 2024) and work tracing the distributive consequences of royalty models (Marshall, 2015; Moreau et al., 2024) both operate on the supply side, establishing what platforms do and what follows from it. The consumer-facing CSR literature, meanwhile, shows that corporate responsibility shapes attitudes and behaviour only where consumers are aware of it (Pomeroy & Dolnicar, 2009). Set side by side, these literatures generate a problem neither confronts. The supply-side account tacitly assumes an audience able to register platform conduct; the demand-side account indicates that no such audience can be taken for granted. Whether users register these externalities in the first place is therefore a precondition for the very accountability mechanism the stakeholder literature relies on, and for this sector, that precondition has never been established empirically.

The second gap has to do with construct rather than coverage. Studies of ethical consumption tend to measure stated awareness and expressed concern. Where the attribute being evaluated can be verified through use, that approach works well enough, because what people say they know and what they actually know converge over time. The environmental and distributive attributes of a streaming platform are not of this kind. These are credence attributes, qualities that resist verification even after prolonged consumption (Pomeroy & Dolnicar, 2009). Under this condition, what a user believes they know and what they in fact know may diverge without limit. No existing study of the sector measures the two constructs separated from each other. The gap is thus methodological before it is empirical, the instruments in common use simply cannot draw the distinction the research question demands.

A third gap lies at the edges of existing theory. Akerlof's (1970) analysis of quality uncertainty presupposes a buyer who eventually learns the quality of the good. Carrington et al. (2010) developed an attitude-behaviour framework to explain discrete point-of-

purchase decisions. Gefen et al.'s (2003) model of online trust assumes that repeated dealing will dispel the opacity that trust is initially placed under. Music streaming brings together the precise conditions under which each presupposition fails: an ongoing subscription rather than a one-off purchase, an attribute that use never reveals, and permanent rather than temporary opacity. These frameworks have never before been used together in such severe conditions, so it remains to be seen whether they will retain their explanatory power.

A fourth consideration cuts across the three gaps above and places the study within its disciplinary field. Music streaming is a clear example of international business. The dominant platforms are multinational firms running one service across national markets that differ sharply from each other, and the two externalities examined here are themselves shaped by that cross-national variation. The environmental footprint of a stream is not fixed. It depends on the national electricity grid powering the data centre that serves it, varying by more than a factor of two between a hydroelectric grid and a fossil-reliant one (Istrate et al., 2024). The distributive question, too, is increasingly settled above the national level, as the European Parliament's (2024) resolution on the European music streaming market shows. User perceptions therefore form inside a specific institutional context, and against it, not in some placeless digital space. The study treats this international dimension as the institutional context that conditions demand-side perception, not as a variable to be compared across national sub-samples, a scoping choice justified in Section 3.2.

This thesis takes up these gaps by examining users' awareness, understanding and perceptions of the environmental and ethical dimensions of streaming, measuring stated and objective knowledge as distinct constructs, and testing whether the frameworks above hold in a domain that stretches their original assumptions.

1.3 Research question

The study investigates how users perceive the environmental and ethical issues bound up with music streaming platforms. The problem is therefore not whether those platforms generate environmental and distributive costs, since the supply-side literature

settles that they do, but whether the users on whom the accountability mechanism depends are positioned to register those costs at all. Because the relevant attributes are credence attributes, unverifiable through use, this must be established empirically, not assumed.

It addresses the following three research questions:

1. To what extent do users internalise the environmental externalities of music streaming?
2. How do users perceive the fairness of the royalty-distribution models used by music streaming platforms?
3. To what extent do sustainability and fairness concerns shape users' trust in, and choice of, music streaming platforms?

These questions belong to an international business setting, the relevance of which is contextual rather than comparative. The multinational platforms examined in this study provide a single, uniform service across different national regimes that vary in terms of energy supply and cultural sector regulations. The respondents come from eighteen countries. This study examines how demand-side perception forms under the information asymmetry produced by this transnational and institutionally varied environment. It does not test for systematic differences in perception between national groups. Both the research design (Section 3.2) and the limitations of the sample (Section 6.4) address this issue.

As the first research question hinges on the concept of internalisation, it is necessary to clarify this term. Here, internalisation refers to the cognitive and behavioural process by which a structurally invisible environmental cost is recognised as real and relevant by the user. This process is examined across three progressive stages: awareness (are users aware that streaming has an environmental impact?), understanding (do they correctly gauge the magnitude of this impact relative to alternatives?), and behaviour (does recognition translate into consumption choices?).

The first research question asks not only whether users are aware, but at which stage internalisation actually breaks down.

The research design is quantitative. The primary data are gathered through an online survey of streaming users. The secondary sources describe platform practices. The focus stays firmly on the demand side: what the study captures is how users perceive platform conduct, not that conduct itself. No independent audit of emissions or royalty flows is carried out. Platform practices are reconstructed from published disclosures and the secondary literature. The scope narrows further to individual listeners, rather than artists, labels, or advertisers, and the empirical component examines a single point in time.

1.4 Intended contribution

There are four primary ways in which this study contributes to the existing literature. First, by closely examining the streaming industry, it expands upon the growing body of work on sustainable digital media and platform responsibility. By applying stakeholder theory and corporate social responsibility frameworks to digital music platforms from the demand side, it raises the question of whether the stakeholder group most suited to hold platforms accountable is truly capable of doing so.

Second, it distinguishes between users' beliefs and their true understanding, thus expanding the scope of user knowledge beyond mere attitudes. Primary survey data allow it to highlight the information asymmetry that prevents users from making well-informed platform choices, and to document the discrepancy between the concerns users express and the way they actually behave.

Third, it asks whether frameworks developed under milder opacity retain their explanatory force when evaluating credence attributes in an ongoing subscription relationship rather than a one-off purchase.

Fourth, the findings yield practical considerations for platform operators, industry stakeholders, and policymakers, informing efforts to encourage more responsible practice across the industry.

The thesis is organised into six chapters. Following this introduction, Chapter 2 reviews the literature on streaming platforms, environmental sustainability in digital media, and the ethics of the streaming economy, and derives a set of hypotheses. Chapter 3 sets out the methodology and survey design. Chapter 4 reports the empirical findings. Chapter 5

discusses these findings in relation to the theoretical framework. Chapter 6 draws conclusions and considers their implications for future research and industry practice.

2 Literature review

2.1 Music streaming platforms as digital platforms

The transformation of recorded music from a physical possession to a pure access right has unfolded over several decades of technological change. It started outside the established industry and consolidated with the subscription model in the mid-2010s. By this time, digital platforms had taken control of distribution, curation, and value creation from the major labels (Dolata, 2020). Nevertheless, the traditional balance of power in the sector proved to be more resilient than expected during the subsequent stages of this transformation (Geurts & Cepa, 2023).

2.1.1 Growth and centrality of music streaming

The traditional ownership-based model has been overtaken by a streaming-based one. In particular, the figures show that in 2025, 69.6% of global recorded-music revenue came from streaming, with subscription streaming representing 52.4% and the number of subscription accounts climbing to 837 million. Downloads and similar digital formats instead fell to a marginal 2.5% (IFPI, 2026).

The significance of this transition is as much qualitative as quantitative. Instead of merely taking over from physical retailers and operating as an alternative way for music to reach consumers, streaming platforms have established themselves at the heart of the industry. They have become the infrastructure on which its operations now depend. Prey (2020) argues that platforms such as Spotify exhibit a form of “curatorial power”. It is defined as the ability to influence markets by organising and programming content. Playlists are where this power is most evident. Platforms control how users discover artists, how music is presented, and how it is monetised. This control has shifted from artists to platforms, but it is a conditional power, not an absolute one. Streaming services are still dependent on the major labels for their catalogues.

The key feature that explains why streaming has been adopted so rapidly is accessibility. Paying a fixed monthly fee, users can easily access a limitless catalogue of music that they would otherwise never have bought individually (Aguilar & Waldfogel, 2018). Acting

as a strategic lever, accessibility at the same time displaces rights holders' paid sales. This therefore represents an advantage for listeners and a disadvantage for rights holders. When platforms adjust the features of their free and premium tiers, the way they implement these changes affects user behaviour and revenue (Aguiar & Waldfogel, 2018). Prey's (2020) view, according to which listening is actively shaped by design choices, supports this.

Market organisers, gatekeepers, and arbiters of taste are the roles played by streaming platforms, beyond that of distributors (Prey, 2020). This configuration is not a direct consequence of digitisation. Geurts and Cepa (2023) show that the first digital entrants (Napster and other peer-to-peer services, iTunes and download stores) continued to create value as they did before, but only redefined the way it was captured. Streaming platforms broke with this pattern by restructuring both aspects, a business choice rather than a technological necessity. In doing so, they placed themselves at the centre of a newly built ecosystem and relegated labels to the margins as complementors, although, as noted above, the major labels retain considerable leverage through their catalogues.

2.1.2 Digital platforms and multi-sided markets

In the music sector, the main stakeholders involved form three groups. Listeners want access and discovery; artists and record labels seek distribution and a wider audience; and advertisers want to reach the user base on the ad-supported tiers. To generate profits, the streaming platform is at the centre of this system, acting as both a market maker and an audience maker, and connecting listeners with catalogues and advertisers with audiences (Evans, 2003). This reflects how digital platforms operate as intermediaries. They govern interactions among multiple groups and provide the underlying infrastructure (Eisenmann et al., 2006). Instead of following the traditional linear value chain, from cost to revenue, such intermediaries treat one side of the market as a profit centre and the other as a loss leader, so profit comes from both sides of the market at once (Rochet & Tirole, 2003).

Within this model, platforms benefit from increasing returns to scale: their profit margins increase as their user base grows (Eisenmann et al., 2006). This is due to the so-

called network effect. It means that the value of the platform to users grows along with the number of users on the other side of the market. This dynamic raises the chicken-and-egg problem (Rochet & Tirole, 2003). Users on both sides of the market need to join simultaneously in order for a platform to be adopted.

These same forces produce a pronounced tendency towards a winner-takes-all outcome, meaning that mature two-sided industries are typically dominated by just a few platforms, or even a single one (Eisenmann et al., 2006). The current streaming landscape, led by Spotify, Apple Music and YouTube Music, is a prime example of this.

Winner-takes-all is not an absolute law, but a tendency. Its gravitational pull is strong enough to produce two direct outcomes. The first is the dominance of the largest platforms. The second is that newcomers with an ethical focus face severe barriers. Resonate and Bandcamp are cases in point. Their competition is based on fairness rather than on catalogue or price, but fairness is not the main reason listeners choose a music streaming service.

An entrant without a distinctive core product will not be able to overcome the chicken-and-egg problem or achieve the critical mass on which network effects depend.

The market mechanism itself consistently undercuts their superior ethical claim. If listeners do not typically base their choices on fairness, then the market structure that shapes those choices will determine whether concerns about sustainability and fairness influence the trust consumers place in a platform and the service they choose.

2.1.3 Intermediation and value creation

Streaming platforms reduce transaction costs by forming a more direct relationship between artist, label, distributor, and retailer on one side and the consumer on the other. On this conventional reading, intermediation appears positive, and the platform a neutral party. What this view does not consider is the active role the platforms play in the music sector. They select which content is visible and shape how economic value is shared across the ecosystem. Understanding this role requires an examination of the redefinition of recorded music. Negus (2019) notes that music is no longer perceived as a material product linked to a known artist. Instead, it has become “a generic type of

information that simply appears for the benefit of ‘users’” (p. 370). When choice is abundant, “the curator becomes more significant than the creator” (p. 371). Once selection is the key factor, value moves towards whoever controls it.

Geurts and Cepa (2023) describe this shift through the concept of “platformization”, a process that “only occurs when digital platforms reconfigure both value creation and capture mechanisms” (p. 14). Services such as iTunes took a share of value generated elsewhere. Streaming platforms, by contrast, have rebuilt the structure of the whole sector, reducing traditional industry actors to “complementors” (p. 9). For this reason, the concentration of value at the centre is not accidental, but a structural consequence of the platform’s pivotal position.

Aguar and Waldfogel (2021) show how this position translates into concrete power. Their study of Spotify produces two main findings. First, curation is highly concentrated: playlists owned by the platform account for more than 75% of followers among the top 1,000 playlists. Second, curation does not simply reflect success, but can also create it. Using discontinuity designs and instrumental variables, the authors find that being added to the popular “Today's Top Hits” playlist increases a track's total plays by around 20 million, roughly a quarter of the average streams of tracks included in the playlist (p. 657). What people listen to depends significantly on the platform’s placement decisions, and not only on their own preferences.

The theory of algorithmic attention rents (O'Reilly et al., 2024) helps to explain the nature of this power. The platform controls how listeners' limited attention is divided among artists, and in this setting “attention allocations drive value allocations” (p. 4). The resulting profit takes on the distinctive characteristics of an economic rent: it does not reflect any real productive contribution, but rather a position of control and the ability to compel participants to “pay for visibility” that they might once have earned through quality alone (p. 3). The platform is therefore not a neutral intermediary paid on commission, but a dominant actor able to shape the market in its own interest.

This perspective also changes the meaning of the “superstar effect” described by Rosen (1981), whereby “relatively small numbers of people earn enormous amounts of money” (p. 845). In the classical framework, concentration derived from talent expressed on a

large scale. In the streaming context, by contrast, concentration is driven by the platform itself, which determines the scale. Aguiar and Waldfogel (2021) demonstrate that the benefits generated by global playlists are concentrated primarily on tracks released by major US labels. This confirms a form of curation that favours established artists. Consequently, the "superstar effect" is increasingly an algorithmic rent rather than a reward for individual talent.

This mechanism reinforces itself over time. According to O'Reilly et al. (2024), rent-seeking becomes more stable as the platform's dominant position grows stronger. This creates a feedback loop in which recommendation algorithms favour well-established artists, who then gain greater exposure and a larger share of the pro-rata fund, providing them with more resources to invest in promotion. Spotify's own transparency reporting supports this reading, even though it is meant to prove the opposite. The "Loud & Clear" report (Spotify, 2025a) was designed to show that the model is sustainable, yet its figures reveal a strong polarisation. In 2025, 80 artists earned over \$10 million, while the artist ranked 100,000th earned just over \$7,300.

These arguments together point to a structural tension between the interests of the platform and those of artists and users, built into the pro-rata model and into the platform's role as gatekeeper of attention. The financial stakes are clear: inclusion in a single major playlist is worth approximately \$77,016 in Spotify payments alone (Aguiar & Waldfogel, 2021, p. 669). The platform's allocation decisions therefore directly determine who earns and who does not.

The present study addresses the issue from the demand side. The second research question examines how users perceive the fairness of these models and how the perception relates to their understanding of them. The third question explores how concerns about fairness influence users' trust in the platform and their choice of platform.

2.1.4 Relevance of the platform model

The common origin of every phenomenon examined in this study is the design of the platform, and this is the strength of the approach. Through this design, platforms direct listeners' attention and draw value towards themselves. The type of governance each

platform adopts is important because it influences environmental impact and fairness. It also determines which artists are discovered and how revenues are distributed. As a result, access, monetisation, sustainability and distributive fairness represent parallel consequences of one structure, not distinct issues that merely overlap.

If these outcomes are the result of architecture, then platforms built differently should produce systematically different outcomes. This study puts that expectation to work using a typology of three kinds of platform as an analytical lens rather than for empirical comparison. Mainstream corporate platforms such as Spotify, Apple Music, Amazon Music and YouTube Music embody the access-based model in its purest form. They are run by proprietary algorithms and, due to their scale, are able to extract the aforementioned value. Hybrid-reformist platforms such as Deezer, Tidal and SoundCloud operate within the same model, but attempt to reform it from within, typically at the level of revenue distribution rather than governance. Alternative-cooperative platforms such as Resonate and Bandcamp attempt to break free from mainstream logic rather than reform it, restructuring the flow of value and, in some cases, the ownership of the platform itself. Instead of being a list of characteristics, the typology is a spectrum that shows how different decisions about governance and business models gradually reallocate advantages and disadvantages among the same stakeholder groups.

To interpret these outcomes as more than just descriptive facts, the thesis introduces two complementary perspectives, introduced in Section 2.2 and applied in Section 2.4.4. Carroll's (1991) CSR pyramid states that a company has responsibilities at the economic, legal, ethical, and philanthropic levels. Stakeholder theory determines who the company is accountable to. The CSR framework sets out the levels at which this accountability is assessed. The two frameworks complement each other well. Carroll's observation that the stakeholder concept provides "names and faces" for a company's abstract social responsibilities (Carroll, 1991, p. 43) is reflected in this pairing. The environmental footprint and the royalty models are the two consequences of this structure. Finally, the chapter brings these elements together through the concept of trust.

2.1.5 International dimension: platforms across institutional contexts

The platform model outlined above does not operate identically across all markets. It runs across nationally distinct institutional environments, and this is what locates the study within international business. The dominant streaming platforms are multinational enterprises delivering one largely standardised service across markets that differ systematically in their regulatory, normative and cultural-cognitive arrangements (Scott, 2014). Both externalities this thesis examines are conditioned by that variation. The environmental burden of a stream is institutionally contingent: because it depends on the carbon intensity of the grid powering the serving data centre, the same listening behaviour carries a footprint that differs by more than a factor of two between a hydroelectric national grid and a fossil-reliant one (Istrate et al., 2024). The distributive externality is embedded in divergent regulatory regimes too. This is most visible in the European Union's move toward supranational scrutiny of royalty distribution (European Parliament, 2024), which has no counterpart in other major markets.

Comparative capitalism gives us the frame for reading these differences. Hall and Soskice's (2001) varieties-of-capitalism perspective holds that firms' practices are shaped by the national institutional configurations they are embedded in, so that a uniform corporate policy meets divergent expectations across coordinated and liberal market economies. Matten and Moon (2008) take this further for corporate social responsibility in particular, drawing a line between the “explicit” CSR typical of liberal market economies and the “implicit” CSR built into the institutional frameworks of coordinated ones, and arguing that what counts as responsible conduct is itself institutionally defined. For a platform running a single policy across many such regimes, responsibility toward artists and the environment cannot come down to one fixed standard. It is judged against regulatory baselines and normative expectations that vary from country to country. This casts the credence-attribute problem at the heart of the thesis in institutional terms: not only can the user not verify a platform's conduct, but the very standard by which that conduct would be judged shifts from one nation to the next.

The present study takes up this international dimension as context rather than comparison. Its respondents span eighteen countries, and the institutional heterogeneity just described is the environment in which their perceptions take shape.

It does not test for cross-national differences in awareness, fairness perception or trust. The reasons are methodological, and Section 3.2 sets them out: the non-probability sampling design confounds nationality with recruitment network, and the national sub-samples are too small to support inference. The contribution here is to situate demand-side perception within its institutional context rather than map its variation across borders, a task the concluding chapter identifies as an avenue for future research (Section 6.5).

2.2 Platform governance and business model differences in music streaming

It is tempting to picture music streaming as a simple exchange: the listener pays a fee, gains access to a catalogue, and the platform serves as nothing more than a conduit. The reality is different. A platform governs the exchange it hosts. Through the design of its interface, the rules it lays down, and the algorithms that decide what listeners see and hear, it determines which music becomes visible and, with that, which music captures value. Such choices are deliberate and extend to the design of the business model itself. Several decisions are involved. One is to offer access instead of ownership. Another is to sustain the service through a combination of subscriptions and advertising. A third is to distribute revenue based on one model rather than another. These arrangements all distribute value unevenly. Governance and business model cannot, on this account, be treated as merely technical matters. They are the ground on which the environmental and ethical tensions examined in this chapter arise.

2.2.1 Platform governance: definition and role

Platforms are not passive meeting points. They structure, and continually adjust, the conditions under which value is created and distributed, what the literature terms platform governance. Gorwa (2019) provides the most systematic articulation, defining it as the layers of governance relationships structuring interactions between the key parties

of the platform society: platform companies, users, advertisers, governments, and others. Though developed to analyse content moderation on services such as Facebook and YouTube, the same layered structure organises the relationship between the streaming platform and the listeners, artists, and rights holders that depend on it. Drawing on Lessig's observation that "code is law" (2006, as cited in Gorwa, 2019), Gorwa argues that platforms govern their users through design, architectures, and assemblages of algorithms: the design decisions embedded in a service amount to a form of regulation. On this account, platforms turn out to be political actors that make consequential decisions while presenting themselves as nothing more than infrastructure.

Gillespie (2010) trains his scrutiny on exactly this self-presentation. The word "platform" itself does discursive work, conjuring a level, open, neutral surface that hides the choices the provider actually makes and lets the intermediary appeal at once to users, advertisers, and content producers while glossing over the tensions among them. Yet these "platforms" do have edges: the interventions a platform makes are deliberate choices about what may appear, how it is organised, and how it is monetised.

In the context of music streaming, this appearance of neutrality conceals the fact that platforms unilaterally and actively decide which artists are visible and on what terms. While Gorwa describes the structure of platform governance and Gillespie exposes its rhetoric, O'Reilly et al. (2024) explain how this governance is turned into profit. Their concept of "algorithmic attention rents" describes how a platform can direct users towards content they would not have chosen themselves, meaning that visibility does not simply reflect user preferences. The authors take an analytical rather than a moral approach. This approach distinguishes the legitimate returns of innovation from rent-seeking. Rent-seeking refers to value extracted purely through controlling what users see. Through design, algorithmic curation, and control over attention, the platform determines how visibility and value are distributed. Two consequences follow. Because the allocation mechanism is algorithmic and opaque, its workings stay largely invisible to the very users whose attention is being steered; and because these choices determine which artists get compensated, they raise the question of towards whom the platform bears responsibility.

2.2.2 Business models of music streaming platforms

The business model provides the economic rationale on which the market structure rests, while governance describes how platforms give that structure shape. Its defining feature is a shift from ownership to access: the streaming model allows customers to access a comprehensive library during a subscription period rather than purchase individual products such as CDs or downloads (Wlömert & Papies, 2016; Trefzger et al., 2015). Bardhi and Eckhardt (2012) theorise this as access-based consumption: market-mediated transactions in which ownership never changes hands and the consumer buys consumption time with the item instead. The distinction matters. Access sets up a different object–self relationship than ownership does, owned goods can become part of the consumer's extended self, whereas accessed goods are kept at a more transient, instrumental distance, and that shift carries consequences for how the costs of music are perceived. Revenue is generated through a two-tiered, or "freemium", structure: a free, advertising-supported version alongside a paid subscription that removes advertising (Wlömert & Papies, 2016; Trefzger et al., 2015). Advertising-funded streams are paid to labels on a per-stream basis, while for paid subscriptions the platform passes a share of the fee, around fifty per cent, to the labels (Wlömert & Papies, 2016). One structural feature deserves emphasis, because it recurs throughout the chapter: under an access-based model the act of accessing a song and the act of paying for it are separated, producing the impression that the music is effectively free (Trefzger et al., 2015). This decoupling cuts in two directions. It loosens the tie between what a listener pays and what any given artist receives, and it feeds a sense of the service as weightless and costless, an impression that chimes with Bardhi and Eckhardt's (2012) warning that access-based consumption is often taken to be more virtuous or sustainable than it actually is.

The model also repositions artists within the revenue structure. Both sources consider this to be significant: artists should expect their established revenue sources to become less important and have every reason to negotiate contracts that reflect streaming income (Wlömert & Papies, 2016). However, many artists are bound by contracts signed before the rise of streaming that were based on the conditions of physical distribution (Trefzger et al., 2015). This shows that the business model does not distribute its

consequences evenly. Section 2.4 examines exactly how it disadvantages artists and whether this is perceived as unfair.

2.2.3 Types of platforms

The discussion that follows is based on the typology introduced in Section 2.1.4. This typology provides a framework for exploring how choices regarding governance and business models result in configurations that differ in specific and systematic ways. Instead of listing features, the aim is to emphasise how each platform generates value and who benefits from it. Spotify, Apple Music, YouTube Music, and Amazon Music are the reference case. In their services, the access-based model is realised most fully. A broad catalogue is available through subscription and advertising, and proprietary algorithms determine how it is displayed and explored.

These dynamics are most evident here: the scale of these platforms enables the algorithmic attention rents O'Reilly et al. (2024) describe. Their dominance in a winner-takes-all market also gives them a position from which value extraction becomes possible. Hybrid-reformist platforms such as Deezer, Tidal and SoundCloud operate within the same corporate and access-based model, but attempt to reform it from within, typically at the level of revenue distribution rather than governance. For instance, Deezer has publicly experimented with alternatives to the standard payout model in partnership with a major label. These reforms leave the underlying corporate structure intact, adjusting how the revenue pool is divided rather than who controls the platform (see Section 2.4.3 for more details). Alternative cooperative platforms represent the sharpest contrast, attempting to escape mainstream logic rather than reform it. Bandcamp does not operate as a streaming service, but rather as a direct-to-fan marketplace. Listeners purchase music, and the artist receives the majority of each sale. Data released by the platform indicates an average return of around 82% (Bandcamp, n.d.), representing a return to the ownership model repackaged for digital distribution. Building on this concept, Resonate gives its members ownership of the platform. As a multi-stakeholder cooperative, Resonate is democratically run by its members. Instead of using the standard subscription model, Resonate employs a “stream-to-own” approach. With each play the listener pays

a little more, until, after a set number of plays, the track becomes theirs to keep (Resonate, n.d.). While corporate platforms keep paying and listening separate, Resonate aims to reunite the two.

Despite their differences, these alternatives are united by a common goal. They aim to eliminate the flaws inherent in the mainstream model. The flaws that have been identified include value pooling at the top, extraction of attention through algorithmic control and a disconnection between listener payments and artist earnings. The marginal standing of these alternatives is a direct result of the winner-takes-all dynamics discussed above. A paradox emerges from the typology. The more equitably a platform distributes value, the less market power it tends to have. The result is an asymmetry of power.

The platform occupies the position from which value is allocated, while those dependent on it, most notably artists, have limited influence over the terms of that allocation. This asymmetry renders the streaming platform a meaningful object of ethical rather than merely economic analysis, and it is examined here through two frameworks: stakeholder theory (Freeman, 1984, as cited in Freeman & McVea, 2001) and Carroll's (1991) CSR pyramid.

2.3 Environmental sustainability in digital music consumption

The choice of streaming over physical formats is not an environmentally friendly one, even if this shift avoids the plastic, packaging, and physical distribution. From this point of view, digital consumption appears almost immaterial. However, as the evidence below suggests, the reality is quite different, since the environmental impact caused by the streaming sector can, under certain conditions, exceed that of physical formats. Streaming does not eliminate material infrastructure but relies on a vast, energy-intensive system of data centres and connected devices. This footprint is real yet largely hidden because the costs are borne by distant infrastructure rather than being visible at the moment of listening.

2.3.1 Environmental impact of digital consumption

Since the cost of streaming is a particular instance of a more general phenomenon, it is necessary to establish the material foundation on which all digital consumption rests. The environmental footprint of digital technologies began to attract sustained attention recently (Istrate et al., 2024), yet its scale is far from marginal. In 2020, the ICT sector was responsible for an estimated 1.0 to 1.7 Gt CO₂-equivalent, accounting for approximately 1.8% to 2.8% of global anthropogenic greenhouse gas emissions. This surpasses the total emissions of countries such as Australia or France (Freitag et al., 2021). Nor is this burden static. Andrae and Edler (2015) project that the electricity demand of communication technology could rise substantially through 2030, with growth concentrated not in the devices users hold but in the networks and data centres behind them.

This footprint arises from three layers: data centres, transmission networks, and end-user devices. Together, data centres and networks account for an estimated 2% to 3% of global electricity consumption (Istrate et al., 2024), while Andrae and Edler (2015) estimate that data centres on their own used roughly 1% of global electricity in 2010, and project a climb to somewhere between 3% and 13% by 2030 as the growth in data traffic outruns gains in efficiency. The device layer carries a burden of a different kind: through a life-cycle assessment, Alejandre et al. (2022) find that a single smartphone is responsible for approximately 49.28 kg CO₂-equivalent across its life cycle, of which around 88% is generated during manufacturing rather than use. A substantial part of a device's impact is located upstream, then, before the user plays a single track.

Two features of this footprint are decisive, and both point the same way. The true cost of digital consumption is systematically larger, and systematically less visible, than headline figures suggest. The first has to do with magnitude. Every study captures only a slice of the total. Andrae and Edler (2015) confine their scope to electricity, conceding that this rules out "an overall sustainability evaluation". Alejandre et al. (2022) leave data centres out of their device-level analysis. Istrate et al. (2024), the most comprehensive of the three, report "lower bounds on the 'true' impacts." Each, for good reasons, omits something. No single estimate takes in the full material weight of digital consumption.

The second feature concerns visibility. Istrate et al. (2024) confirm that the environmental implications of internet consumption "remain poorly understood". However, they present this as an observation rather than a cause. This poor understanding has a structural explanation in the separation between the moment of consumption and the site of its cost. No consumption is visible at the point of listening, as the energy is consumed remotely in infrastructure that is geographically distant and physically abstracted from experience. This has been documented by Istrate et al. (2024). They demonstrate that the environmental impacts of digital consumption usually occur in locations that are different from where consumption takes place. Data centres are concentrated in a small number of regions, particularly North America and the Asia-Pacific, which account for the majority of the electricity consumed worldwide. The separation between the device, which seems to be the whole of the technology, and the extractive infrastructure that sustains it produces the sense of immateriality. Since the cost is neither seen nor felt at the moment of use, digital consumption intuitively feels weightless.

The gap that results, between a substantial, growing, systematically understated footprint and its intuitive perception as weightless, frames the question of user internalisation at the heart of this thesis, and opens up a first distinction the empirical component will test. Recognising that digital consumption carries some cost is not the same as grasping how large that cost really is. If the cost is remote by construction, users' failure to register it accurately cannot be attributed to inattention alone.

2.3.2 Environmental impact of music streaming

Brennan and Devine (2020) state that "music digitalised is certainly not music dematerialised". Dematerialisation is real only in part: while digital distribution drastically reduced the material weight of recorded music, it did not reduce its emissions. The use of plastic tells a story of apparent progress. At the LP's peak in 1977, the US recording industry used around 58 million kilograms of plastic. By 2016, this figure had fallen to just 8 million, seemingly confirming the environmental benefits of switching to digital formats. However, a different metric tells a different story. When the energy required to store and transmit digital music files is converted into greenhouse gas equivalents, it

turns out that the emissions associated with recorded music have risen from around 140 million kilograms in the era of physical media to between 200 and 350 million today. Material waste alone is not a sound basis on which to compare streaming with physical formats. The apparent advantage of streaming disappears when energy consumption is factored in.

The reason for the continuous increase in aggregate cost becomes clear once the nature of digital consumption is considered. While a single stream uses a negligible amount of energy, the cumulative effect of millions of people streaming without pause is substantial (Brennan & Devine, 2020). Streaming has not only reshaped the format but also the practice itself. Beuscart et al. (2022) demonstrate that online listening is now dominated by “soundtracking”, whereby music plays continuously in the background while other activities are carried out, and nearly all users engage in this practice daily. On-demand access, endless playlists and autoplay strip away any natural ceiling on how much is consumed. Much of this consumption is inefficient, since a large proportion of it happens on YouTube, where music accessed via video files demands far more data and energy than audio-only streaming for an otherwise identical experience.

This dynamic, efficiency per stream alongside relentless growth in total volume, is exactly what undermines the claim that streaming is more environmentally friendly. Freitag et al. (2021) explain this phenomenon as the rebound effect, also known as Jevons' paradox. An increase in efficiency leads to a more than proportionate increase in overall demand, resulting in total resource use rising rather than falling. In the context of music, for instance, streaming reduces the cost of listening and increases accessibility. Total consumption and emissions increase, even as each individual stream becomes cleaner over time.

While acknowledging that the rebound effect has not been formally demonstrated in the ICT sector, Freitag et al. (2021) argue that it would be risky to assume it does not apply, since ICT emissions have historically continued to rise despite improvements in efficiency. At the platform level, Lóvei et al. (2022) report that Spotify emitted 353,054 tonnes of CO₂-equivalent in 2021, concluding that streaming is "certainly not immaterial when it comes to its GHG emissions."

What makes this cost significant is not only its magnitude but its invisibility, which is structurally maintained. No mandatory emissions reporting exists for digital platforms, so the absence of consistent carbon-accounting standards allows the footprint to remain underestimated and undisclosed (Freitag et al., 2021). The physical distance between users and infrastructure reinforces a perception of immateriality, so that even users aware of streaming's footprint do not translate that awareness into changed practices (Beuscart et al., 2022). Industry communication, for its part, tends to emphasise per-stream efficiency while remaining silent on the aggregate growth that offsets it (Freitag et al., 2021). The invisibility of streaming's environmental cost is therefore partly a product of how the sector is governed and represents itself.

2.3.3 Platform responsibility and sustainability initiatives

Music streaming platforms increasingly present themselves as environmentally responsible, publishing commitments and disclosures that position them as part of the solution. Back in 2021, Spotify announced a goal of net-zero emissions by 2030 and now reports its emissions each year under the GHG Protocol (Spotify, 2025b). The substance of that commitment deserves a closer look. In its most recent report, Spotify discloses total emissions of 202,666 tCO₂e for 2025, a 3.9% rise in absolute terms, while noting that its 2030 net-zero goal is currently under re-evaluation as regards "target scope, timing, and underlying methodologies" (Spotify, 2025b). Users can see the platform's pledge. What they cannot see is that emissions grew in the latest reporting year and that the targets are being relaxed. There is a significant gap between what platforms publicly claim to do and how they actually perform. To explain why it persists, it is necessary to analyse the infrastructure on which the environmental burden falls. Its carbon intensity depends on the electricity grids that power it. The annual carbon footprint associated with the average user's digital consumption varies from 146 kg CO₂-eq on the Norwegian grid to 327 kg CO₂-eq on the Indian grid (Istrate et al., 2024). The first relies predominantly on hydropower, while the second is highly fossil-fuel-intensive. The location of the data centres used for streaming can more than double the carbon emissions produced by the same volume of content. That location matters in practice, not just in theory: data

centres cluster in regions that rely heavily on fossil fuels, such as North America and the Asia-Pacific, which magnifies the effect (Istrate et al., 2024).

These location-dependent, fossil-linked emissions bring a more fundamental technical flaw to light. It concerns the way platforms substantiate their sustainability claims. Spotify is a good example of this. Its claim to use renewable energy is based on market-based accounting of Scope 2 emissions, which relies on energy attribute certificates rather than the electricity that actually powers its servers (Spotify, 2025b). Whether or not those servers draw renewable power is a separate matter. Brander et al. (2018) observe that contractual instruments such as renewable energy certificates (RECs) "do not entail any changes to how electricity from a renewable facility is physically delivered or consumed". A buyer only acquires a right to the emission factor associated with a specific amount of renewable energy generation. Therefore, buying emission certificates allows a firm to report lower emissions, even though the amount of electricity consumed by its infrastructure remains unchanged. This has two implications. The first concerns supply: the practice adds nothing to renewable output, since the voluntary certificate market is "highly unlikely to cause additional renewable capacity investments"; the attributes on sale come from generation that would have taken place anyway (Brander et al., 2018). The second issue that emerges is transparency. A company can look more responsible in terms of its environmental impact than another that has effectively reduced its energy demand (Brander et al., 2018). This is possible because it can buy energy certificates to offset its consumption and claim a reduction in its carbon footprint. In reality, its actual power usage and environmental impact are not affected. In this case, the practice can amount to greenwashing, that is, the distance between appearance and reality. More precisely, this is defined by Delmas and Burbano (2011) as the combination of inflated environmental claims and weak actual performance. This applies when a platform reports progress through certificate purchases and at the same time its emissions continue to rise. The lack of transparency is therefore not due to any fault or inattention on the users' side. Although consumers and policymakers often overlook the limitations of market-based accounting, the problem concerns how companies present their claims. The marketing around these instruments never clearly states whether they actually finance

the generation of new renewable energy (Brander et al., 2018). Even if these claims were accurate, however, only part of the problem would be addressed by them. The extraction and processing of raw materials for devices account for a significant proportion of the sector's environmental impact. This cannot be cancelled out by renewable energy or carbon offsetting (Istrate et al., 2024).

According to the definition of legal responsibility in Carroll's (1991) pyramid model, this concept consists of adherence to codified requirements. In contrast, ethical responsibility involves behaviour that is expected, but not required. In the digital sector, environmental disclosure almost entirely falls into the latter category. As Freitag et al. (2021) point out, digital platforms face no obligation to report their emissions. Therefore, a platform that discloses its Scope 2 emissions using unbundled certificates is not breaking any rules, as it meets the legal threshold even when addressing its audience in ethical terms. The gap this chapter documents is not between practice and law, but rather between practice and the level of responsibility that would be assigned by a stakeholder analysis, an issue that is pursued further in Section 2.4.4.

If the cost of streaming is invisible due to being buried in infrastructure and tied to grids that users never see, and reported through methods that mask actual consumption, then the failure to internalise costs cannot be attributed simply to user inattention. Users who are aware that streaming has a cost may still struggle to assess its scale or to distinguish a genuine commitment from a certificate-based claim.

2.4 Ethical issues in music streaming: fairness and royalty distribution

Fairness, alongside streaming's environmental footprint, lies at the heart of its ethical dimension. The central issue concerns who is included and who is excluded from the value that streaming generates. Although artists' creative output is the primary driver of the value, their financial return does not flow back to them evenly. For most creators, fair pay never arrives. The platform becomes a tool for gaining visibility rather than a source of income, since a large share of uploaded tracks goes unheard and earns nothing. Under stakeholder theory (Freeman, 1984, as cited in Freeman & McVea, 2001), artists, independent musicians, and songwriters are the central stakeholders of the music

industry. Their economic and professional interests therefore are directly shaped by platform decisions. A monetisation model that systematically penalises these groups is not just a minor flaw but a major ethical issue.

2.4.1 Pro-rata royalty model

In the world of streaming, an artist's earnings do not depend on how their listeners act, but on their overall contribution to the platform's total streams (Marshall, 2015). Almost every platform adopts the pro-rata, or market-share, model. According to this model, all advertising and subscription revenue collected over a given period is pooled and then redistributed to rights holders in proportion to their share of total streams (Moreau et al., 2024). This structure leaves no direct link between the money paid by a single user and who actually receives it. The result can be counterintuitive. For instance, if a subscriber streams only one small independent artist for a whole month, the money they pay does not go to that artist. As Marshall (2015) notes, the pooled revenue mostly flows to the small group of artists who dominate global streaming volumes. This results in an important consequence. In effect, listener money and preferences are decoupled.

Two clarifications are needed. First, the link between platforms and artists is more mediated than is typically assumed: an additional layer of opacity arises from the fact that Spotify pays labels and distributors rather than the artists themselves, with each artist's share set by their individual contract (Marshall, 2015). Second, the model uses threshold and micro-payment mechanisms. Only streams lasting at least thirty seconds are eligible, and the effective payment per stream is very small (Moreau et al., 2024). According to Marshall (2015), this means that the sums quoted per stream are “embarrassingly small” relative to the number of plays. However, the platform argues that the per-stream figure is not meaningful, as no service pays per stream in the streaming era (Spotify, 2025a). For a decade, the industry has been urging artists to shift from “unit-based” to “consumption-based” thinking (Marshall, 2015). The fairness arguments of artists rest on the per-stream comparison, the very comparison that this logic sidesteps.

2.4.2 Criticism and fairness issues

The main criticism of the pro-rata model is how revenues are distributed. Earnings are concentrated at the top, while the majority of artists earn negligible returns. According to Spotify's Loud & Clear figures, of around twelve million artists, only about 1,450 generated one million dollars or more in royalties in 2024, and only around 274,000 generated more than one thousand dollars. This implies that well over eleven million uploaders earned less than that across the entire year (Spotify, 2025a). These figures are from the platform itself and are offered as evidence that its ecosystem is thriving. The criticism becomes even sharper when one considers that official figures confirm that the majority of artists cannot make a living from streaming alone. This concentration is no coincidence but structural. As Marshall (2015) argues, because payment is based on the proportion of total streams, artists with extensive catalogues and high play counts receive the majority of the pooled revenue, regardless of how many unique listeners actually played their music.

The recording industry's old oligopoly has not so much been overturned by streaming as entrenched by it. That concentration is made stronger by the major labels' ownership stakes in the platforms themselves, and amplified by the algorithmic feedback loop described in Section 2.1.3. The European Parliament (2024) explicitly acknowledges as much: platform software can promote, select or adjust the visibility of particular tracks, and in doing so influence what authors earn. What emerges is a self-reinforcing inequality: not a flaw in the system, but a direct product of how it is built.

The artists who generate the most engagement are precisely those whose promotion sustains the advertising revenue and user retention that the platform depends on.

This critique gives rise to the notion of perceived unfairness, which sits at the centre of this study. Artists' dissatisfaction is not just economic. It also reflects a deeper unease about the changing value of music itself (Marshall, 2015). Users often have a vague perception that artists are not fairly compensated, without understanding how this outcome is produced. The empirical part addresses the question of whether this perception ends up shaping which platform users choose. The distance between perceiving unfairness and acting on it is a central concern of this study.

2.4.3 Alternative models

The problems of pro-rata have prompted alternatives, of which the two most discussed are the user-centric and artist-centric models (Moreau et al., 2024). Under the user-centric model (UCPS), a subscriber's fee is distributed only among the artists that subscriber actually listened to, in proportion to each artist's share of that user's streams, a return to the pre-streaming principle in which payment follows the individual listener's consumption (Moreau et al., 2024). The real-world effect can be substantial: when SoundCloud became the first platform to implement such a model in 2021, some independent releases earned considerably more than under pro-rata (Moreau et al., 2024). The artist-centric model, which Deezer has explored together with Universal Music Group, works on a different principle and should not be conflated with it. Instead of following each subscriber's own listening, it re-weights streams by threshold, favouring "professional" artists, defined through minimum stream and unique-listener requirements, by double-weighting both their streams and those not triggered by algorithmic recommendation, while capping how much influence the most intensive users can exert (Moreau et al., 2024). The benefits and limitations are far from settled. Moreau et al. (2024) find that, contrary to its stated objective, the artist-centric model does not significantly improve the remuneration of professional artists. In contrast, the user-centric model produces larger reallocations, albeit largely at the expense of rap and hip-hop, superstars and new releases. Therefore, any straightforward equation of "alternative" with "fairer" is complicated. The user-centric model redistributes revenue towards niche genres, such as classical and jazz, and towards older catalogue. However, it reduces the revenue of genres associated with young, independent artists. For this reason, some stakeholders describe threshold-based recalculation as a "reverse Robin Hood" mechanism (Moreau et al., 2024). None of these alternatives has been adopted on a large scale, since each merely shifts the underlying tensions rather than resolving them. The very concept of fairness is contested, as every model produces winners and losers. The debate has now moved beyond industry and academia. In its resolution of 17 January 2024 concerning the challenges faced by authors in the European music streaming market, the European Parliament acknowledged that most authors generate minimal revenue

and frequently struggle to earn a living from their work (European Parliament, 2024). It called on the Commission to review the existing model and explore fairer alternatives, while criticising the persistent lack of transparency surrounding the platforms' algorithms and reporting. The fact that distributional fairness has reached the level of supranational legislative scrutiny shows that the issue is more than just academic. Significantly, like the empirical literature, the legislator does not prescribe a single “correct” model, but rather calls for the exploration of several. If neither scholars nor regulators can identify an unambiguously fair distribution, the subjective perception of fairness among users, the focus of the second research question in this study, becomes all the more important.

2.4.4 Ethical implications for platforms

A useful framework for comprehending these distributional issues is Carroll's (1991) CSR pyramid, which makes an important distinction between four types of obligation (economic, legal, ethical, and philanthropic). Dominant platforms generate profit and comply with the minimum legal requirements for royalty payments, operating securely at both the economic and legal levels. But legal compliance reflects only the bare minimum, what Carroll (1991) calls “codified ethics”. There is no legal foundation for the ethical responsibility to treat artists fairly. At this level the practices of these platforms are especially vulnerable to criticism, because most of the stakeholders who generate their value earn too little from streaming to live on it (European Parliament, 2024; Spotify, 2025a).

Rather than aggressive misconduct, this deficit is best understood as amoral management, as articulated by Carroll (1991). Amoral managers are neither moral nor immoral, because they do not consider the ethical consequences of their decisions. They follow the letter of the law and make profitable decisions within its limits. This closely matches the position of the platforms. By using the pro-rata model, they maximise revenue while staying within the law, without ever asking whether the resulting distribution of income is fair. Describing the platforms as amoral rather than immoral is more useful for the

analysis. It locates the problem in a structural absence of ethical reflection rather than in deliberate exploitation.

Stakeholder theory supports this view. Managers rank conflicting stakeholder claims according to legitimacy and power. From a CSR standpoint, legitimacy should be the most important factor. Yet, unless they can organise themselves, dispersed, unorganised stakeholders hold little power. Independent artists find themselves in exactly this position, and their legitimacy is high. The European Parliament (2024) has confirmed that they are at the very root of the value chain. Their power, however, is low and fragmented across millions, in contrast to the concentrated power of the major labels, which also hold a stake in the platforms (Marshall, 2015). This framework explains why, in practice, stakeholders with strong legitimate claims remain structurally underserved: power prevails over legitimacy, the inversion identified above as the core ethical concern.

This ethical argument is also strategic in that it relates to the perception gap that motivates the empirical study. A platform seen as unfair slowly loses legitimacy, for a system that fails to sustain artists' careers will, in time, deliver less content.

This undermines the value proposition on which platforms depend. The European Parliament (2024) warns that this imbalance "needs to be addressed". However, the persistence of an arguably unfair model also depends on information asymmetry. Users who are unaware of how royalties are distributed cannot make informed choices between platforms. If users cannot see how value is distributed, they cannot exert pressure as stakeholders, and the conditions under which the model persists are maintained.

2.5 User awareness, perceptions, trust and platform responsibility

The previous sections explained what platforms do. This one, instead, examines whether, and on what basis, users register it. The rationale for this section lies in the fact that a platform's environmental footprint or its treatment of artists acts through the evaluations of those who use the service, not on the market directly. However significant it may be in reality, users cannot reward responsible practice or penalise irresponsible practice if they cannot perceive an impact, or perceive it inaccurately. This highlights the tension running through the section: both dimensions are difficult, and sometimes impossible,

for users to observe directly. Outside the industry, the carbon footprint produced in distant data centres and the mechanics of royalty distribution remain unclear to anyone. Therefore, perceptions of sustainability and fairness are shaped by a structural information asymmetry.

2.5.1 Importance of user perceptions

From the perspective of stakeholder theory (Freeman, 1984, as cited in Freeman & McVea, 2001), the role of the user extends beyond that of a mere customer. The user is a key stakeholder whose evaluations directly impact the platform's legitimacy and long-term sustainability. In subscription-based business models, this concept is most evident in customer retention strategies rather than acquisition strategies, as revenue stability depends on retaining the existing user base rather than attracting new subscribers (Bhattacharjee, 2001). Theories on user retention processes formally link retention to satisfaction in the post-adoption phase. However, this implies that users possess the ability and necessary information to accurately evaluate the service they choose to continue using. While this applies to functional attributes such as catalogue size or sound quality, which are experienced directly, it breaks down for the attributes that concern this study. Environmental and ethical dimensions are not observable during use and may therefore fail to be included in evaluations. This is the analytical starting point of the third research question. If user evaluations shape outcomes, what do those evaluations rest upon? Consumer research indicates that consumers partly assess companies on their perceived social and environmental responsibility, which influences attitudes, purchase intentions and loyalty (Pomering & Dolnicar, 2009). This influence is strictly conditional, and the condition does the decisive work. CSR initiatives only shape attitudes and purchase intentions where consumers are aware of them (Pomering & Dolnicar, 2009). For consumers to recognise and reward responsible behaviour, awareness is a prerequisite. Where awareness is low, responsible practices only matter in theory. The same conditional logic applies here. Platform sustainability and fairness can influence behaviour only if users are aware of them. However, this condition is difficult to satisfy due to an underlying structural barrier that runs through the chapter: information asymmetry. Akerlof's (1970)

analysis of markets under quality uncertainty shows that, when one party knows more than another and the price does not reflect product quality, the average quality and size of the market tend to decline. The analogy must be drawn carefully. In his model, the quality of a product is hidden from the buyer at the point of sale and only becomes apparent through use. For instance, a car owner might find out that their vehicle is a “lemon”. The environmental and ethical attributes of a platform do not fall into this category. They are credence attributes, the truth of which cannot be verified even after prolonged use (Pomering & Dolnicar, 2009). It is important to clarify that it is not the distribution mechanism that cannot be verified. The pro-rata rule is described in this thesis. What cannot be verified are the individual outcomes produced by the mechanism. For instance, it is impossible to ascertain how much a particular artist receives from a specific listener's subscription, or how much a given platform actually emits. In practice, the mechanism is opaque because most users never encounter its description (Section 2.4.1). The outcomes are opaque in principle and cannot be verified, even by a user with a perfect understanding of the rule. It is this second, stronger form of opacity that causes the environmental and distributive dimensions to be credence rather than experience attributes. The asymmetry is therefore more severe here than in Akerlof's example. While the buyer eventually learns, the streaming user may never learn at all. This asymmetry, which is perpetuated by limited platform transparency, influences all subsequent user perceptions.

2.5.2 Environmental awareness

Analysing the evidence through the three stages of awareness, understanding, and behaviour makes it possible to identify where the first research question breaks down, rather than simply making this assertion. The first breakdown appears at the level of awareness. Users generally know little about the environmental impact of streaming. This is consistent with a broader finding. Consumers are often not aware of the social and environmental initiatives of the companies they buy from (Pomering & Dolnicar, 2009).

A second breakdown manifests at the understanding level. The problem is not only a lack of knowledge, but an active misperception. Most users believe that streaming is better for the environment than physical formats, although the evidence discussed in Section 2.3 suggests that this belief is incorrect. The two breakdowns do not necessarily occur together. A user may be aware that streaming has an environmental impact and still underestimate its scale. The research question aims to capture this specific point of failure. Even when awareness is present, the internalisation process can still break down at the stage of understanding.

The third and most significant breakdown happens between understanding and behaviour. At the centre of this issue is the attitude–behaviour gap, also known as the intention–behaviour or word–deed gap. This concept describes how stated ethical intentions do not necessarily translate into actual behaviour (Carrington, Neville & Whitwell, 2010). In one study, 30% of consumers said they would buy ethically, but only 3% actually did (Futerra, 2005, as cited in Carrington et al., 2010). However, the framework proposed by Carrington et al. (2010) is useful here only if it is adapted rather than applied as it stands. It was originally designed for decisions made at the point of purchase, which are influenced by temporary factors such as distraction or competing price promotions. Streaming choices work differently. They are not one-off purchases, but ongoing decisions about whether to switch services or stay with the current one. Rather than weakening the framework, this difference reinforces it. Carrington et al. argue that the gap does not reflect hypocrisy. Instead, people who are genuinely committed to acting responsibly face obstacles that prevent them from turning that commitment into action. In the context of streaming, these obstacles are structural rather than fleeting. Digital emissions are physically invisible: there is no perceivable link between streaming and any harm. Furthermore, platforms do not provide transparent, independently verified emissions data, leaving users unable to act even when they intend to. Additionally, a cognitive distance exists between the act and its consequences, as the causal chain is too long and abstract to internalise. Therefore, the gap in this domain is not a failure of sincerity, but rather the predictable outcome of a structurally invisible externality. Its location at the

understanding-to-behaviour transition is precisely what the first research question sets out to establish.

2.5.3 Perceived fairness

The second research question shifts the focus from the environmental to the ethical domain. It examines perception and understanding together because information asymmetry operates most directly in this relationship. Akerlof's (1970) analysis is particularly relevant here, as most users have little or no understanding of how pro-rata distribution works. This means they are not only uninformed, but also unable to make an informed choice. Without grasping the mechanism, a user cannot judge whether a platform treats artists fairly or choose between platforms on that basis. At the heart of the research question lies the finding that a perception of fairness formed without understanding cannot be interpreted as an evaluation of actual distribution practices. It is better understood as a judgement formed under conditions of structural ignorance. The question is not simply whether users perceive platforms as fair. Rather, the question is whether such judgements are based on an accurate understanding of the distribution model. The same gap arises here, albeit with a different obstacle. As Carrington et al. (2010) point out, users may express concerns about how artists are paid while continuing to use platforms that they themselves consider to be unfair. This is not a case of hypocrisy, but rather the predictable result of an intervening constraint. While the environmental case hinged on invisibility, the fairness case hinges on switching cost. Switching between platforms is costly: users would have to give up curated playlists, recommendations based on years of listening history and potentially exclusive content too. All of these factors are reinforced by the network advantages enjoyed by the dominant platform. The two research questions are therefore connected by a shared mechanism operating through different obstacles: the environmental gap is maintained by invisibility and the fairness gap by lock-in. Consequently, perceived fairness continues to shape platform trust even while remaining disconnected from behaviour, which the third research question examines.

2.5.4 Trust and platform responsibility

This final section addresses the third research question by examining the construct through which user evaluations influence platform outcomes. Trust converts perception into consequence, and the most influential formulation of trust exposes, rather than resolves, the difficulty that this study addresses. Mayer, Davis and Schoorman (1995) define trust as a party's willingness to make itself vulnerable to the actions of another party, based on the expectation that the latter will perform an important action, "irrespective of the ability to monitor or control that party" (p. 712). The final clause is the important part. Where verification is impossible, trust is all that is left. Their model breaks trust down into three separable dimensions. The first, ability, refers to skills and competencies within a domain (p. 717) and corresponds to a platform's technical competence in terms of its catalogue, reliability and sound quality. The second dimension is benevolence, which is defined as the extent to which a trustee is believed to want to do good "aside from an egocentric profit motive" (p. 718). Whether or not a platform is perceived as being concerned with artists' livelihoods and its environmental impact beyond what is dictated by profit is key. Integrity, adherence to principles that the trustor regards as acceptable, is evident in indicators such as the consistency of past actions and the correspondence between words and deeds (p. 719). In the present case, this amounts to the accuracy and transparency of a platform's sustainability reporting and royalty disclosures. These three factors can be considered individually, which is why "a perceived lack of any of the three factors" is capable of undermining trust (pp. 720–721). Even if a platform is highly capable, a lack of integrity is sufficient to erode trust.

The transfer of this construct to the platform–user relationship is supported by Gefen, Karahanna, and Straub (2003), who adopt the same three beliefs to model consumer trust in online vendors, observing that "the behavior of an e-vendor cannot be guaranteed or monitored" (p. 54). What Mayer et al. stated as a definitional clause, Gefen et al. document as the empirical reality of digital exchange. The inaccessible characteristics in Gefen et al.'s model, whether the vendor will honour the transaction and protect the data, are experience attributes, revealed through repeated dealing. The sustainability and fairness attributes here are not: as established in 2.5.1, they are credence attributes,

unverifiable through use however prolonged. The user's inability to monitor is therefore more severe than Gefen et al.'s: not a temporary opacity experience will dispel, but a permanent one.

The severity of the situation renders the standard trust model insufficient. Mayer et al.'s model presupposes that the trustor forms perceptions from observable data. The very cues they list as indicators of integrity are cues that the trustor is assumed to be able to see. However, when it comes to sustainability and fairness, users have no access to such data. The environmental impact of a platform is invisible. There are also no independently verified communications. The most important thing that users cannot verify is whether a green claim reflects genuine reductions in emissions or merely unbundled certificates. According to the literature on information science, judging factual accuracy requires a level of expertise that most users do not have. Lucassen and Schraagen (2011) demonstrate that only users with domain expertise can evaluate information in terms of accuracy and other such dimensions. Those without it “mainly have to rely on the assessment of surface characteristics” (p. 1235). On topics such as renewable-energy certificates or pro-rata payout mechanisms, the ordinary streaming user is a layperson. Consequently, they rely on superficial features such as how the claim sounds, how the report looks and how reputable the brand seems.

As the inputs required by the trust model for integrity are unavailable, trust in the dimensions of sustainability and fairness is not based on an evaluation of actual practices, but on manipulable proxies such as marketing claims and strategically curated assurances. Gefen et al. allude to precisely this vulnerability. They list “conveying inaccurate information” as one of the opportunistic behaviours that the trust model is supposed to protect against (p. 55). Where the user cannot verify the information, misleading and truthful claims are indistinguishable at the point of judgment. A platform publishing certificate-based claims of doubtful additionality thus scores low on integrity in fact, while potentially scoring high on integrity in perception, and it is perception that governs trust. The fact that the authors themselves recognised information asymmetry as reshaping trust formation (Schoorman, Mayer & Davis, 2007) indicates that this is not an idiosyncratic extension, but rather a frontier that they identified within their framework. The

present study occupies this frontier by asking how trust forms when the trustor is permanently disadvantaged by the asymmetry. This diagnosis has strategic implications because trust has a tangible effect once it has been established. Gefen et al. (2003, p. 61) find that trusted vendors command a premium, with customers proving willing to pay higher prices where a vendor is trusted. Schoorman et al. (2007) also argue that sustained trust provides firms with a significant competitive advantage. From this perspective, trust is a key factor in retaining customers and maintaining a competitive position. A platform can therefore hold user trust on the very dimensions where it performs least well, because trust there rests not on the practices but on their representation.

2.6 Conceptual framework and hypotheses

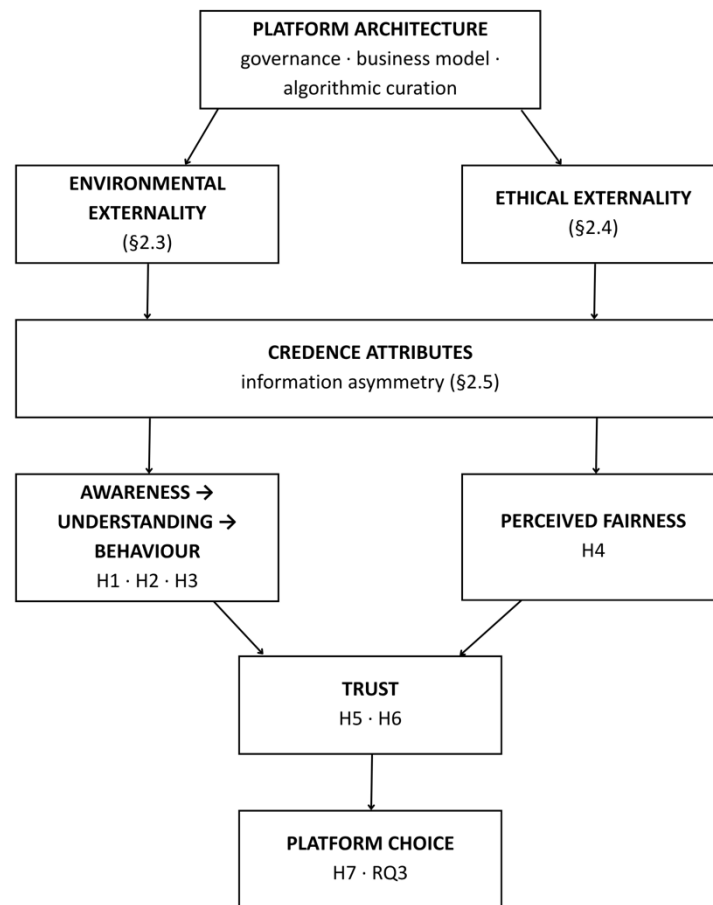
2.6.1 Conceptual framework

The preceding sections developed a single cumulative argument: that platform architecture is the common source of both externalities this study investigates, and that users register those externalities, if at all, under conditions of structural information asymmetry.

The framework organising the empirical component follows directly, and can be stated as a sequence: platform architecture produces real environmental and ethical consequences; these can influence outcomes only if users perceive them; but the attributes in question are credence attributes, unverifiable through use, so perception is systematically decoupled from the underlying reality. This decoupling is theorised through three lenses developed across the chapter: the three-stage model of internalisation, awareness, understanding, behaviour (2.5.2), which specifies where the environmental signal breaks down; the attitude–behaviour gap (Carrington et al., 2010), which explains why concern may fail to reach action; and the trustworthiness model of Mayer et al. (1995), which locates how perception converts into trust and choice (2.5.4). The normative frame is supplied by stakeholder theory (Freeman, 1984, as cited in Freeman & McVea, 2001) and Carroll's (1991) CSR pyramid, which identify to whom the platform is responsible and at what level this responsibility is assessed.

The three research questions follow from this framework, and each yields a set of testable hypotheses, grouped into three clusters that track the chapter's analytical progression: awareness and understanding; the relationship between understanding and perception; and the way perception translates into trust and behaviour. Each hypothesis is a prediction the theory reviewed above generates, to be tested against the survey data in Chapter 4. Figure 1 summarises the framework.

The hypotheses are distributed across the two externalities rather than concentrated on one. The environmental dimension is handled by H1 and H2 (awareness and understanding) and by H6 (perceived environmental responsibility and trust). The ethical dimension is handled by H3 (understanding of royalty distribution), H4 (the perception–understanding relationship) and H5 (perceived fairness and trust). H7 straddles both, testing the attitude–behaviour gap for sustainability and fairness at once. The internalisation hypotheses (H1–H3) do tilt toward the environmental side, and the reason lies in the three-stage model itself: it is worked out most fully for the environmental externality, since that is where the distinction between awareness and understanding is sharpest. In the fairness domain, awareness and a diffuse sense of (un)fairness tend to turn up together, so what matters there is not the stages but the decoupling of perception from understanding, exactly what H4 alone tests.

Figure 1. Conceptual framework

2.6.2 Hypotheses development

Group 1 — Awareness and understanding (RQ1)

The internalisation model holds that recognition of a structurally invisible cost may break down at the first stage, awareness. As environmental costs are generated by remote infrastructure and reported via opaque accounting methods (2.3.1, 2.3.3), and consumers often find it difficult to recall even the most basic environmental characteristics of the products they use (Pomeroy & Dolnicar, 2009), it is expected that users' self-assessed knowledge will be low.

H1. Users report low awareness of the environmental impact of music streaming.

Internalisation may also break down at the second stage, understanding, even where awareness is present. Section 2.3.2 established that the belief that streaming is more environmentally friendly than physical formats is often incorrect when total energy usage is considered.

H2. Users systematically underestimate the environmental impact of streaming relative to physical formats.

The same asymmetry operates in the fairness domain. Section 2.4.1 showed the pro-rata model is opaque even to those it most affects, and Akerlof's (1970) analysis implies users cannot evaluate a mechanism they cannot see.

H3. Users have limited understanding of how streaming royalty distribution works.

Group 2 — Perception and understanding (RQ2)

The second research question turns on whether users' fairness perceptions are based on an accurate understanding of the distribution model (2.5.3). If they are shaped by something else, there should be no systematic difference in fairness judgements between users who correctly understand the royalty mechanism and those who do not. The theory predicts no association between the two. Such a finding supports the idea that fairness perceptions are independent of knowledge.

H4. Users' perceptions of royalty fairness are not systematically related to their understanding of how royalties are distributed.

H4 predicts the absence of an association, whereas the other hypotheses predict its presence. This calls for methodological caution. A non-significant result does not confirm the null hypothesis. While it may suggest that no relationship exists, it could equally indicate that the study lacked the power to detect one. For H4 to serve as substantive evidence of decoupling, that is, that fairness perceptions form independently of any accurate understanding of the distribution model, a non-significant association has to be read against the study's power to detect an effect of meaningful size, and weighed together with effect size rather than significance testing alone. This interpretive constraint is spelled out in the analysis of H4 in Chapter 4.

Group 3 — Perception, trust, and behaviour (RQ3)

Section 2.5.4, following Mayer et al. (1995), located fairness within the integrity dimension of trustworthiness and argued that perceived integrity drives trust.

H5. Perceived fairness of a platform is positively associated with user trust in that platform.

The same logic applies to the environmental dimension of perceived responsibility, which the trust model treats as a further integrity cue.

H6. Perceived environmental responsibility of a platform is positively associated with user trust in that platform.

The attitude–behaviour gap (Carrington et al., 2010) predicts that expressed concern will not straightforwardly translate into action. In streaming, this gap is reinforced by the prospect of curated playlists, recommendation history, and network advantages (2.5.3). Users are therefore expected to report a greater hypothetical willingness to switch than their actual behaviour reflects.

H7. Users express greater hypothetical willingness to switch platforms for sustainability or fairness reasons than is reflected in their actual behaviour.

3 Research methodology

3.1 Research philosophy and method

Saunders et al. (2019) refer to a set of beliefs and assumptions about the way knowledge develops as the research “philosophy”. This forms the foundation of all research and influences how a study is conducted and how its findings are interpreted.

This study is based on a positivist philosophy. The positivist philosophy assumes that social phenomena can be observed and measured objectively, and that knowledge is advanced by testing theoretical propositions against empirical data (Saunders et al., 2019). Rather than trying to reconstruct the subjective meanings of individuals, it is consistent with research questions that analyse patterns of perception across a population. Questions stated in these terms would not be addressed by an interpretivist strategy. The study adopts a deductive approach in accordance with this philosophy, moving from established theory to verifiable predictions. The framework developed in Chapter 2 generates hypotheses H1–H7, which are further investigated using primary data (Saunders et al., 2019). Accordingly, a mono-method quantitative design is adopted. It uses numerical data generated by a structured questionnaire and analysed through statistical procedures.

3.2 Research design and data collection

In order to capture a snapshot of awareness, knowledge, perceptions, trust, and self-reported behaviour, the study employs a cross-sectional survey design, collecting data at a single point in time from a sample of music-streaming users (Saunders et al., 2019). Although a longitudinal design is better at capturing behavioural change over time, it was not feasible for a Master's thesis. This limitation is discussed again in Section 6.4.

A self-administered online survey distributed via Google Forms was used to gather primary data. It was selected for its affordability and accessibility, while self-administration lessens interviewer bias on questions where social desirability would otherwise interfere (Saunders et al., 2019). The questionnaire was conducted solely in English, considering

the target population's global distribution as well as the fact that English is the main working language in these networks. Except in cases where the technical term was the subject of measurement, items were purposefully written in plain language. The trade-off this involves is addressed in Section 3.5. The questionnaire consisted of 32 items broken down into six thematic blocks, which followed the analytical structure of Chapter 2: respondent background (Q1–Q5), streaming habits (Q6–Q12), streaming and the environment (Q13–Q18), artists and fair compensation (Q19–Q24), trust and responsibility (Q25–Q28), and choices and behaviour (Q29–Q32). In order to produce structured data for statistical analysis, the majority of items used closed formats such as single-choice questions, multiple-choice questions, and five-point Likert-type scales (Saunders et al., 2019). The final open-ended question (Q32) gave participants the opportunity to contribute qualitatively to the research. The research design combined self-reported items, designed to measure users' perceived level of knowledge (e.g. Q13 and Q19), with objective knowledge items that have a factually correct answer (Q20 and Q21). This approach makes it possible to distinguish between self-reported understanding and actual understanding, which constitutes the central added value of this study.

Respondents were recruited using non-probability convenience and snowball sampling. The questionnaire link was circulated via the academic and Erasmus networks at the universities of Vaasa and Pavia, and through the researcher's social media channels and personal contacts in Italy. Recipients were invited to forward it. This explains the geographical composition reported in Section 4.1, in which Italy, Portugal, Finland and Germany are the most represented countries. Therefore, the sampling frame was defined by access rather than probability, which is an appropriate approach for an exploratory study of this scope. However, the consequences for generalisability are acknowledged in Section 6.4 (Saunders et al., 2019).

The questionnaire was open from 6 May to 19 July 2026. To be eligible to respond, individuals had to be aged 18 or over and currently using at least one streaming service (Q6). No respondents were excluded on either of these grounds. All submitted responses were complete, as each item was mandatory. Google Forms was configured to allow only one submission per account.

A total of 93 valid responses were collected and analysed on this full dataset. As described in Section 4.1, the resulting sample skews young, highly educated and predominantly European. This is a direct consequence of the sampling strategy and has a strong impact on the hypotheses. A sample composed in this way would, on reasonable grounds, be expected to show stronger-than-average environmental awareness and digital fluency. As the sample is more likely to overstate than understate awareness among the wider streaming population, the hypotheses predicting low awareness and limited understanding (H1, H2 and H3) are tested under conservative conditions. If these hypotheses are confirmed, the estimates should be interpreted as an upper bound rather than a central estimate.

The adequacy of the sample was judged at the design stage against the effects the framework predicts, rather than in the abstract. For the hypotheses about the distribution of awareness and knowledge (H1, H2, H3), tested descriptively against population-level tendencies, $N = 93$ gives 95% confidence intervals of roughly ± 10 percentage points around a proportion, enough to separate the levels of awareness the theory predicts from the alternatives. For the association hypotheses, the design is well powered against the magnitudes the literature leads one to expect: at $\alpha = .05$, $N = 93$ delivers roughly 92% (one-tailed) power to detect a correlation of $\rho = .30$ and above 99% power for $\rho = .40$, the range in which the trust literature places the relationship between perceived responsibility and trust (Gefen et al., 2003). For H7, which compares paired proportions, the design picks up the gap the attitude–behaviour literature predicts with near-certainty. One hypothesis is differently placed. H4 uniquely predicts the absence of an association, and here sample size bears asymmetrically. With the group sizes that the coding of objective royalty knowledge produces (31 correct, 62 incorrect), the design has 80% power at $\alpha = .05$ to detect a standardised effect of $d = 0.62$, 61% power for $d = 0.50$, and 27% power for $d = 0.30$. A non-significant result cannot therefore establish independence by itself. H4 is accordingly formulated and interpreted throughout as the absence of a strong relationship, effect sizes are reported alongside significance values, and the result is additionally subjected to a formal equivalence test, using two one-sided tests (TOST), presented in Section 4.4.1.

One asymmetry in this reasoning has to be made explicit. The sample's homogeneity was invoked above as a conservative condition strengthening H1–H3: a young, educated, environmentally literate sample should, if anything, overstate the awareness of the wider population, so low observed awareness is unlikely to be an artefact. That same homogeneity does nothing for H4, and may well work against it. A self-selected, homogeneous sample can squeeze the variance in both fairness perception and objective understanding, and restricted variance can produce a null association whether or not one is present in the population. The conservative-condition argument, then, does not carry over from H1–H3 to H4, and the null result for H4 cannot claim the same protection. This is one reason H4 does not stand on non-significance alone. It is subjected to a formal equivalence test (Section 4.4.1) and read alongside the observed variance in both variables. Even then, the possibility that restricted range contributes to the observed equivalence is acknowledged as a limitation in Section 6.4.

3.3 Operationalisation of hypotheses

Each hypothesis was operationalised in advance of analysis, mapping construct to items and to the corresponding test. Two coding decisions were fixed prior to inspecting the data. First, for H2, a response to Q15 was coded as accurate only where the respondent judged the impact of repeated streaming to be "somewhat higher" or "much higher" than a physical CD. The remaining responses were split into two categories: a directional underestimate, where streaming's impact was judged lower than or similar to a CD's, and a non-judgement, where the respondent chose "I do not know". This three-way coding was adopted because the hypothesis predicts a directional error, and the absence of a judgement is not evidence of one. The threshold is directly derived from the information presented in Section 2.3, which shows that streaming has a larger aggregate footprint than CDs or vinyl when listened to repeatedly. Second, for H3, Q20 was coded correct only for the pro-rata (shared-pool) option. Q21 was handled differently. Since the share of a subscription fee that reaches an artist depends on the contract between the artist and their label or distributor (Marshall, 2015), no single band can be singled out as objectively correct. Q21 was therefore coded as directionally informed: the "less than

10%" band was classified as consistent with the structure described in Section 2.4.1, and bands of 26% or above as inconsistent with it. Q21 accordingly supports H3 as a descriptive indicator, while the correct/incorrect determination rests on Q20. Two constructs central to the analysis, perceived environmental responsibility (Q17) and perceived royalty fairness (Q24), are measured by single items. Single-item measures are appropriate where the construct is concrete, unidimensional and readily understood by respondents, as is the case for a global judgement about a platform the respondent uses daily. Both are additionally accompanied by multi-item batteries (Q16, Q22) that permit robustness checks, and the H4 result is confirmed on both measures (Section 4.4).

Table 1. Operationalisation of hypotheses

H	Variable(s) measured	Survey item(s)	Statistical test
H1	Self-assessed environmental awareness (ordinal)	Q13, Q14, Q16 (item 1)	Descriptive statistics (frequencies, mean, median)
H2	Perceived relative impact of streaming vs physical (ordinal)	Q15	Descriptive statistics; one-sample / binomial comparison against the accurate response
H3	Objective knowledge of royalty distribution (Q20, correct/incorrect); directional understanding of artist share (Q21)	Q19, Q20, Q21	Descriptive statistics on proportion correct
H4	Understanding (Q20 correct / incorrect) x perceived fairness (ordinal)	Q20 (or Q19) x Q24 (or Q22)	Mann-Whitney U test; effect size (r) reported; equivalence test (TOST)
H5	Perceived fairness (ordinal) x trust (ordinal)	Q24 (or Q22) x Q26 (or Q25)	Spearman correlation; regression
H6	Perceived environmental responsibility (ordinal) x trust (ordinal)	Q17 x Q26 (or Q25)	Spearman correlation; regression
H7	Hypothetical willingness to switch (ordinal) vs actual behaviour (categorical)	Q29 vs Q23/Q30	Comparison of proportions (willing vs acted); descriptive gap analysis

3.4 Data analysis methods

The data were analysed using IBM SPSS Statistics. Analysis proceeded in two stages. First, descriptive statistics were used to summarise responses and to test the hypotheses concerned with the overall distribution of awareness and knowledge (H1, H2, H3), which predict population-level tendencies rather than relationships between variables (Field, 2018).

Second, inferential statistics were used to test the hypothesised relationships. Since the key variables are measured on ordinal (Likert-type) scales and cannot be assumed to meet the distributional assumptions that parametric tests require, non-parametric procedures were preferred wherever appropriate (Field, 2018). For H4, which compares fairness perceptions between respondents who did and did not correctly understand the royalty mechanism, a Mann–Whitney U test was used to compare the two independent groups. Spearman’s rank-order correlation was employed for H5 and H6, which predict relationships between perceived fairness or environmental responsibility and trust. Next, regression was used to determine the direction and strength of the relationship. In order to choose between parametric and non-parametric alternatives, normality was evaluated such that the test selection was supported by the data rather than assumptions (Field, 2018). The interpretive constraints on H4 are those set out in Section 3.2, and the result is additionally subjected to a formal equivalence test (Section 4.4.1). For H7, the attitude–behaviour gap is examined by comparing the proportion of respondents expressing hypothetical willingness to switch (Q29) with the proportion reporting that they have actually switched or acted (Q23, Q30), following the logic used in the gap literature reviewed in Section 2.5.

3.5 Reliability and validity

The questionnaire used standardised, closed items with fixed response options, so that the measurement was consistent across respondents (Saunders et al., 2019). Where a construct was measured by a multi-item Likert battery (Q16, Q22, Q25, Q29), internal consistency was assessed using Cronbach’s alpha, with values interpreted against conventional thresholds (Field, 2018). Exploratory factor analysis was not conducted: with 15 Likert items and $N = 93$, the case-to-item ratio falls below the threshold recommended for a stable factor solution, so the batteries were assessed through internal consistency and item-level analysis instead. With values above the .70 threshold, the trust battery (Q25, $\alpha = .874$) and the willingness battery (Q29, $\alpha = .851$) reached an acceptable level of internal consistency. The fairness battery (Q22, $\alpha = .506$) and the environmental awareness battery (Q16, $\alpha = .348$) did not reach this threshold. For this reason, their

items were not aggregated. The implications are discussed in Section 4.2. Data collection started without a formal pilot study. This was due to the time constraints of the thesis and to the fact that the items were taken directly from established scales reviewed in Chapter 2. This is a limitation: a pilot study might have revealed the low internal consistency of these two batteries in advance, allowing the items to be revised. As Section 4.2 argues, the low coherence of the Q16 battery is itself substantively meaningful rather than a plain measurement failure, the knowledge and belief items fail to cohere because they capture empirically distinct constructs, which is precisely the decoupling the study set out to identify. For the fairness battery (Q22) the low alpha is a genuine limitation, and the analysis therefore relies on the single-item fairness measure (Q24), with Q22 used only as a robustness check. Future replications should pretest these batteries. The recommendation is repeated in Section 6.4.

Content validity was pursued by deriving each item directly from the constructs identified in the Chapter 2 framework, covering the awareness, understanding, perception, trust and behaviour dimensions the hypotheses concern. Construct validity was supported by the deliberate separation of self-report and objective-knowledge items, which lets perceived and actual understanding be measured as distinct constructs instead of being conflated. Running the questionnaire in English only introduces a potential threat to measurement validity, since most respondents completed it in a second language. This risk weighs most heavily on the objective-knowledge items (Q20, Q21), where a wrong answer could in principle reflect misreading rather than a genuine lack of knowledge. The sample's educational profile, 88.2% hold or are working toward a degree at bachelor's level or above, softens the risk, but does not remove it, and a bilingual instrument would have reduced it further.

Common-method variance (CMV) is a potential concern, because each variable was collected using a single self-administered instrument at a particular point in time. It weighs most heavily on the study's central relational claims, the fairness/trust and environmental-responsibility/trust associations (H5, H6), because a shared method could inflate these correlations. The threat is controlled by a number of design elements. The significance of any implicit theory connecting the predictor and criterion items is diminished

because they were separated inside the questionnaire and derived from distinct response formats. The consistency motive that propels CMV does not apply to the objective-knowledge items, since they have a factually accurate response. The null association of H4, which CMV would work against rather than produce, is the most notable outcome of the study. It is precisely these items that produce it.

3.6 Ethical considerations

The study complied with established ethical principles for research involving human subjects (Saunders et al., 2019). The introduction of the questionnaire provided an explanation of the study's purpose, its academic affiliation with the University of Vaasa and the University of Pavia, and the time needed to complete it. Participation was voluntary. The data were only used for academic purposes. Responses were anonymous. No personally identifiable information, such as names or contact details, was requested. The study was designed to protect confidentiality and meet data-protection expectations.

4 Data analysis and findings

4.1 Sample description and streaming habits

A total of 93 valid responses form the basis of the analysis. The sample is young and highly educated. Of the respondents, 63.4% are aged 18–24 and 31.2% are aged 25–34. This means that 94.6% of the sample is under 35. Only three respondents (3.2%) are aged 35–44 and two (2.2%) are 55 or older. Women constitute 72.0% of the sample ($n = 67$) and men 28.0% ($n = 26$). In terms of education, 49.5% hold or are pursuing a bachelor's degree and 34.4% a master's degree, with a further 4.3% at doctoral level; only 9.7% report secondary education as their highest level. Respondents are distributed across 18 countries, with Italy (29.0%), Portugal (14.0%), Finland (12.9%) and Germany (11.8%) most represented, reflecting the researcher's academic and personal networks in Italy and Finland and the international composition of the environment in which the questionnaire circulated.

This demographic profile is a direct consequence of the non-probability convenience and snowball sampling described in Section 3.2, and its implications for generalisability are addressed in Section 6.4. It should be noted at the outset, however, that the skew works against the study's own hypotheses rather than in their favour: a young, university-educated, environmentally literate sample would, on any reasonable prior, be expected to display higher-than-average awareness of sustainability issues. The low levels of awareness and understanding documented below are therefore unlikely to be artefacts of an uninformed sample.

Table 2. Sample characteristics (N = 93)

Characteristic	Category	n	%
Age	18-24	59	63.4
	25-34	29	31.2
	35-44	3	3.2
	55 or older	2	2.2
Gender	Female	67	72.0
	Male	26	28.0
Education	Bachelor's degree	46	49.5
	Master's degree	32	34.4
	Secondary school	9	9.7
	Doctoral degree	4	4.3
	Other	2	2.2
Country	Italy	27	29.0
	Portugal	13	14.0
	Finland	12	12.9
	Germany	11	11.8
	Other (14 countries)	30	32.3

Streaming habits confirm that the sample consists of experienced and high-intensity users. A large majority (79.6%) have used streaming services for more than five years, and only 8.6% for less than three years. Weekly listening is substantial: 45.2% report 6–10 hours, 18.3% report 11–20 hours and 7.5% more than 20 hours, so 71.0% listen for at least six hours per week. Most respondents access streaming services via a paid subscription, with family or group subscriptions being the most popular option (57.0%), followed by individual (15.1%) and student (10.8%) subscriptions. The free, ad-supported tier is used by a further 14.0% of respondents. The remaining 3.2% report having no active subscription. These respondents are not marginal or casual users, but make up the population whose consumption results in the aggregate footprint described in Section 2.3.2.

4.1.1 Platform distribution and absence of alternative platforms

The first important finding of the study is the distribution of primary platforms. For 75.3% of respondents, Spotify is the main platform. Aggregating the four mainstream corporate platforms, 97.8% of the sample names one or more of them as their primary service (Spotify, Apple Music, YouTube Music or Amazon Music). Only two respondents (2.2%) name a hybrid-reformist platform as primary, in both cases Deezer. Seven respondents (7.5%) report using a hybrid platform among their secondary services, predominantly SoundCloud.

Most consequentially, not a single respondent reported using an alternative-cooperative platform. Neither Bandcamp nor Resonate appears anywhere in the data, either as a primary or as a secondary service. A sample of 93 experienced, educated, internationally distributed streaming users contains zero users of the platforms whose business models are explicitly designed to remedy the distributive problems this thesis examines.

Read through Section 2.1.2, this is consistent with the winner-takes-all dynamic and, within the limits of a non-probability sample, constitutes an empirical trace of it. Meaningful difference is only possible on pricing and features, which is precisely where incumbents with scale have an advantage, since the main offering is a fairly homogeneous catalogue licensed by the same major labels to all major providers. Platforms like Resonate and Bandcamp compete instead on how fair their models are; nevertheless, as the following sections show, these listeners do not choose services based on fairness. The market structure systematically undermines their ethical claim, and their exclusion from the sample is consistent with that structure. The interpretation of the third research question is limited by this result. This question concerns whether users' choice of platform is influenced by the platforms' sustainability and fairness. Part of the explanation lies in the fact that platforms with these ideals are not taken into consideration by this population to any measurable extent.

4.1.2 Criteria of platform choice

On a five-point scale, respondents rated the importance of seven factors in choosing a streaming platform (Q11). The resulting hierarchy is clear. It is also directly relevant to RQ3. Catalogue size ($M = 4.25$) and price ($M = 4.24$) were found to be the most important factors, followed by sound quality ($M = 3.95$) and user interface ($M = 3.86$).

Social influence occupies a middle position ($M = 3.06$). The two ethically loaded factors rank last: environmental sustainability of the platform ($M = 2.60$) and artist compensation practices ($M = 2.46$).

The single-choice item on the most influential factor (Q12) reinforces this. Catalogue size was named by 35.5% of respondents and price by 26.9%, together accounting for 62.4% of the sample; user interface, social recommendation and sound quality account for most of the remainder. Neither environmental sustainability nor artist compensation was selected by a single respondent as the most influential factor.

Table 3. Importance of platform selection criteria (Q11, N = 93)

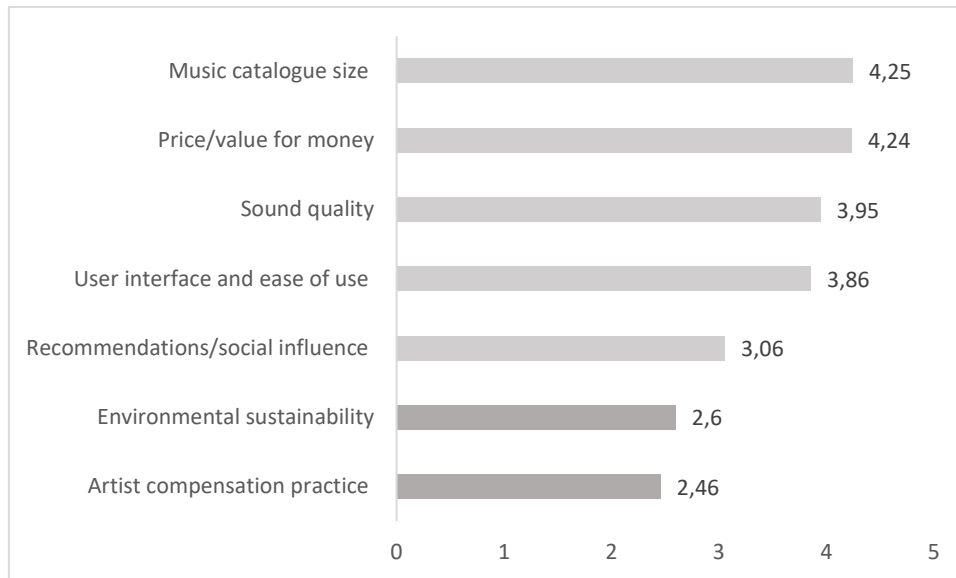
Factor	M	SD	Rank
Music catalogue size	4.25	1.02	1
Price/value for money	4.24	0.88	2
Sound quality	3.95	0.97	3
User interface and ease of use	3.86	0.89	4
Recommendations/social influence	3.06	1.28	5
Environmental sustainability of the platform	2.60	1.18	6
Artist compensation practices	2.46	1.11	7

Note. Five-point scale (1 = not important at all, 5 = extremely important).

This hierarchy is the empirical backdrop against which the remaining findings must be read. Before any question of awareness or fairness perception arises, these users are selecting platforms on catalogue, price and convenience. The structural conditions

described in Section 2.1.2 are thus reproduced at the level of individual preference. Figure 2 displays the resulting hierarchy.

Figure 2. Mean importance of platform selection criteria (Q11, N = 93)



Note. Five-point scale (1 = not important at all, 5 = extremely important).

4.2 Reliability and distributional assumptions

Internal consistency was assessed using Cronbach's alpha for the four multi-item Likert batteries. The results are mixed, and they call for a methodological response rather than a passing note.

Table 4. Internal consistency of multi-item scales

Scale	Items	α	Treatment in analysis
Q25 Trust in platform	4	0.874	Composite scale used
Q29 Willingness to switch	5	0.851	Composite scale used
Q22 Fairness perception	3	0.506	Items analysed separately
Q16 Environmental awareness	3	0.348	Items analysed separately

The trust battery (Q25, $\alpha = .874$) and the willingness battery (Q29, $\alpha = .851$) both exceed the conventional threshold of .70 comfortably and were therefore aggregated into composite scales for analysis. The fairness battery (Q22, $\alpha = .506$) and the environmental

awareness battery (Q16, $\alpha = .348$) fall well below that threshold and were not aggregated; their items are reported and analysed individually throughout this chapter.

The low alpha values are not merely a limitation to be noted and set aside: they are themselves interpretable. The Q16 battery brings together one item measuring self-assessed knowledge of a platform's environmental practices and two items measuring belief in the environmental merits of streaming. A respondent can hold a confident belief that streaming is green while admitting complete ignorance of what their platform actually does, and the data show exactly this pattern: the knowledge item averages 1.81, while the two belief items average 2.78 and 2.97. The items fail to cohere. This is because, in this domain, knowledge and belief are empirically distinct. It is the very decoupling the study set out to identify. Reporting these items separately is not a fallback, but the analytically correct approach.

Distributional assumptions were checked with the Shapiro–Wilk test before inferential procedures were selected. The single-item ordinal measures departed significantly from normality: perceived fairness (Q24, $W = .838$, $p < .001$), overall trust (Q26, $W = .868$, $p < .001$) and perceived environmental responsibility (Q17, $W = .797$, $p < .001$). The composite trust scale ($W = .976$, $p = .081$) and willingness scale ($W = .976$, $p = .086$) did not depart significantly from normality. Because the key hypotheses involve single-item ordinal variables, non-parametric procedures were used for hypothesis testing, consistent with the approach specified in Section 3.4; ordinary least squares regression is reported in Section 4.5 as a supplementary analysis on the composite scale, where the normality assumption is satisfied.

4.3 Awareness and understanding (RQ1)

4.3.1 H1: Environmental awareness

Self-assessed environmental knowledge (Q13) is low and tightly clustered at the bottom of the scale ($M = 1.77$, $Mdn = 2$, $SD = 0.86$). Forty-one respondents (44.1%) selected the lowest category and a further 37 (39.8%) the second, so 83.9% rate their knowledge at 2 or below on a five-point scale. Only four respondents (4.3%) rate themselves at 4 or above, and a single respondent selected the highest category.

The awareness item (Q14) confirms this. Asked whether they were aware that streaming generates carbon emissions through energy consumption in data centres and networks, 43.0% of respondents reported no prior awareness at all. A further 26.9% had heard about it occasionally without thinking about it and 26.9% had a general idea but had never investigated it. Only three respondents (3.2%) regarded themselves as fully aware. Put differently, seven in ten respondents had either never come across the issue or had met it only in passing.

The item measuring awareness of one's own platform's environmental practices (Q16, item 1) is among the lowest-scoring items in the whole questionnaire ($M = 1.81$, $SD = 0.90$): 79.6% of respondents disagree or strongly disagree that they are aware of those practices.

H1 is supported. This is consistent with Pomering and Dolnicar's (2009) finding that consumers struggle to recall even basic environmental characteristics of the products they use, and with the structural account developed in Section 2.3.1: the cost of digital consumption is generated in remote infrastructure, geographically and experientially separated from the point of use. The finding is reinforced by the composition of the sample. Respondents rated on a scale of 1 to 5 the personal importance of environmental sustainability in their daily lives at an average of 3.57, above the midpoint. A total of 73.1% agreed that platforms are responsible for their environmental impact. While these respondents care about sustainability in general, they do not know much about it in this specific domain. This is a breakdown of information, not attitude.

4.3.2 H2: Understanding of relative impact

Respondents were asked to compare the environmental impact of repeatedly streaming an album over one year with that of buying and listening to a physical CD (Q15). Following the coding fixed in Section 3.3, responses of "somewhat higher" or "much higher" were classified as accurate. Thirty-nine respondents (41.9%) answered accurately: 30.1% selected "somewhat higher" and 11.8% "much higher". A binomial test against an even split was not significant ($p = .146$, 95% CI [.318, .526]), so the proportion answering accurately does not differ reliably from chance.

The distribution of the remaining 58.1%, however, is where the substantive finding lies, and it is not the one the hypothesis predicted. Only 20.4% of respondents actively underestimated streaming's impact by judging it lower than a CD (15 respondents selecting "somewhat lower", 4 selecting "much lower"), and a further 4.3% judged the two roughly similar, 24.7% in all. The largest single category, selected by 33.3% of the sample, was "I do not know".

Table 5. Perceived environmental impact of streaming relative to physical CDs (Q15)

Response category	n	%	Accuracy
I do not know	31	33.3	No judgement formed
Somewhat higher – streaming has a greater impact	28	30.1	Accurate
Somewhat lower – streaming is slightly greener	15	16.1	Directional underestimate
Much higher – streaming is significantly worse	11	11.8	Accurate
Similar – roughly the same impact	4	4.3	Non-accurate (parity)
Much lower – streaming is significantly greener	4	4.3	Directional underestimate

H2 is not supported in its predicted form. The hypothesis anticipated a systematic directional error, the widespread belief, documented in Section 2.3, that digital consumption is the greener option. That belief is present but confined to a minority: 24.7% of respondents judged streaming's impact to be lower than or similar to that of a physical CD, and the proportion answering accurately does not differ reliably from chance. The prediction of systematic underestimation is therefore rejected.

What the data reveal instead is theoretically more consequential than the prediction it displaces. The largest single category of non-accurate response is not misdirected confidence but the absence of any judgement, with 33.3% selecting "I do not know".

This distinction matters for the internalisation model. A directional misperception would locate the breakdown at the stage of understanding, in the sense of a belief held incorrectly. What the data show is a population that has not formed a belief on the question. This is the stronger version of the structural argument advanced in Section 2.3.1. If users held the wrong belief, correction would be a matter of counter-information. If users hold

no belief, the issue has not entered their cognitive frame at all, and the remoteness of the cost from the moment of consumption has succeeded not in producing an error but in preventing the question from arising. It should be noted that respondents in the "I do not know" category may nonetheless carry an implicit assumption of immateriality; the item cannot distinguish an articulated absence of knowledge from a tacit assumption, and this ambiguity is a limitation of the instrument rather than of the finding.

A further result sharpens the picture. Self-assessed environmental knowledge (Q13) is unrelated to accuracy on Q15 ($p = -.018$, $p = .867$). Respondents who consider themselves better informed are no more likely to answer correctly than those who do not. Perceived knowledge and actual knowledge are, on this dimension, entirely independent, a first instance of the decoupling that H4 tests directly in the fairness domain.

4.3.3 H3: Understanding of royalty distribution

Objective knowledge of royalty distribution was assessed using a question with four options, of which only the pro-rata description was correct (Q20). Thirty-one respondents (33.3%) answered correctly. Of the rest, 46 (49.5%) selected "I do not know how royalties are distributed", 14 (15.1%) selected the fixed-per-stream distractor, and two (2.2%) the user-centric one. A binomial test against the 25% expected from random guessing was not significant (exact two-tailed $p = .072$). It cannot be said with any certainty that performance on this question exceeds the level expected by chance.

The second knowledge item asked respondents what proportion of a monthly subscription fee they thought was received directly by artists (Q21). Classifying the "less than 10%" option as consistent with the structure described in Section 2.4.1, this option was selected by 41.9% of respondents. Meanwhile, 27 respondents (29.0%) selected the 10–25% option, 21 respondents (22.6%) said they did not know, and six respondents (6.5%) selected a figure of 26% or more.

Self-assessed familiarity (Q19) is consistent with this. While 51.6% of respondents said they had a general idea of the topic but did not know the specifics, 25.8% said they were not at all familiar with it. A further 21.5% had heard of it but did not understand it. Just one respondent (1.1%) claimed to understand the mechanism in detail.

H3 is supported. Two-thirds of respondents cannot identify the mechanism by which their chosen platform distributes revenue, with half admitting that they simply do not know. This confirms the opacity described in Section 2.4.1. It provides the empirical basis for the information-asymmetry argument developed in Section 2.5.1. The mechanism is, for practical purposes, invisible to the users whose subscription payments constitute the revenue pool being distributed. The relationship between self-assessed and objective knowledge is significant but modest (Yates-corrected $\chi^2(1) = 5.18$, $p = .023$, $\phi = .259$). Of the 49 respondents who claimed to have at least a general idea, 22 (44.9%) answered Q20 correctly. Of the 44 who claimed no familiarity, 9 (20.5%) answered correctly. While self-assessment carries some signal, most of those who think they have a general understanding of royalty distribution cannot actually identify it.

4.4 Perception and understanding (RQ2)

The perceived fairness of the royalty model (Q24) is concentrated at the midpoint of the scale ($M = 2.70$, $Mdn = 3$, $SD = 0.76$). Fifty-two respondents (55.9%) selected the midpoint as a neutral position. A total of 34.4% judged the model to be unfair or very unfair, and only nine respondents (9.7%) judged it to be fair or very fair. The modal position does not constitute either approval or condemnation. It is a suspended judgement. A Mann–Whitney U test was used to compare the perceived fairness of respondents who correctly identified the pro-rata mechanism ($n = 31$) with that of respondents who did not ($n = 62$). The two groups are indistinguishable. Respondents answering correctly reported a mean fairness rating of 2.71 ($SD = 0.82$, $Mdn = 3$, mean rank = 47.21); those answering incorrectly reported 2.69 ($SD = 0.74$, $Mdn = 3$, mean rank = 46.90). The test was not significant, $U = 954.5$, $z = -0.059$, $p = .953$, with an effect size of $r = .006$ and Cliff's delta of .007.

Table 6. Perceived royalty fairness by objective knowledge of the distribution model (H4)

Group	n	M	SD	Mdn	Mean rank
Correct (pro-rata identified)	31	2.71	0.82	3	47.21
Incorrect / do not know	62	2.69	0.74	3	46.90

Note. Mann–Whitney $U = 954.5$, $z = -0.059$, $p = .953$, $r = .006$, Cliff's $\delta = .007$.

A robustness check using the alternative fairness item (Q22, "I believe the platform I use most compensates artists fairly") produced the same conclusion, $U = 835.0$, $p = .273$, $r = .114$.

4.4.1 Interpreting a null result

As anticipated in Section 2.6.2 and Section 3.2, a non-significant result does not by itself establish the absence of a relationship, and H4 must be interpreted against the study's power to detect one. With group sizes of 31 and 62 at $\alpha = .05$, the design has 80% power to detect a standardised effect of $d = 0.62$ and only 61% power to detect a medium effect of $d = 0.50$. A small effect ($d = 0.30$) would be picked up with a probability of just 27%. The design cannot, then, rule out a small association between understanding and fairness perception, and the hypothesis has to be read as the absence of a strong relationship rather than as proof of independence.

Within that limit, though, the result comes about as close to a true null as data of this kind allow. The observed effect is not just non-significant but numerically negligible: the group means differ by 0.02 scale points, the medians are identical, the mean ranks differ by 0.31, and Cliff's delta of .007 means that a randomly chosen respondent who understands the mechanism has a 50.3% chance of rating it as fairer than a randomly chosen respondent who does not, no better than a coin flip. The corresponding Cohen's d is 0.02. This is not an underpowered test failing to reach a threshold; it is a test in which the point estimate itself is essentially zero. To test the absence of an effect formally, rather than infer it from a non-significant result, two one-sided tests (TOST) were run against an equivalence margin of $d = \pm 0.50$, a medium effect, and the smallest difference that would carry any substantive meaning for the hypothesis. Both one-sided tests were significant ($t_1 = 2.37$, $t_2 = -2.18$, $df = 91$, $p < .05$ for both), so the null hypothesis of a difference at least medium in size is rejected in both directions. The observed difference is therefore statistically equivalent to zero within a medium-effect margin, which turns H4 from an unrejected null into a positively supported claim of equivalence. H4 is supported.

The finding acquires additional force when set against a contrasting result. While objective understanding (Q20) is unrelated to fairness perception, self-assessed familiarity (Q19) is significantly related to it ($U = 745.5$, $p = .004$). Respondents who claim at least a general idea of the model rate it as less fair than those who do not (mean rank 40.2 vs 54.6). Fairness judgements covary with self-assessed familiarity while showing no detectable association with objective understanding. It should be noted that these are separate tests on differently constituted groups, and the difference between the two associations was not itself tested for significance; the contrast is therefore descriptive rather than inferential. Within that constraint, the pattern indicates that fairness perception tracks the sense of being informed more closely than the state of being informed.

As argued in Section 2.5.3, a fairness judgement formed in the absence of understanding is not a judgement about actual practices but a judgement made under structural ignorance. The data support that characterisation directly. The modal respondent occupies the midpoint of the fairness scale, neither endorsing nor condemning, and their position on that scale is unmoved by whether they can identify the mechanism being evaluated. Akerlof's (1970) analysis applies with the severity anticipated in Section 2.5.1: where his buyer eventually learns the quality of the good through use, the streaming user evaluating a credence attribute may never learn at all, and the fairness perceptions measured here are formed accordingly.

4.5 Perception, trust and platform responsibility (RQ3)

4.5.1 H5: Perceived fairness and trust

Spearman's rank-order correlation was used to test the association between perceived fairness and trust. Perceived fairness of the royalty model (Q24) correlates positively and significantly with overall trust in the platform (Q26), $p = .434$, $p < .001$, and with the composite trust scale, $p = .423$, $p < .001$. H5 is supported.

4.5.2 H6: Perceived environmental responsibility and trust

Perceived environmental responsibility of the primary platform (Q17) correlates positively with overall trust, $p = .283$, $p = .006$, and with the composite trust scale, $p = .316$,

$p = .002$. H6 is supported, though the association is weaker than that observed for fairness.

Table 7. Spearman correlations with platform trust (N = 93)

Predictor	Trust (Q26)	Trust (composite)
Perceived royalty fairness (Q24)	.434***	.423***
Perceived environmental responsibility (Q17)	.283**	.316**

Note. ** $p \leq .01$, *** $p \leq .001$ (two-tailed).

A supplementary multiple regression was conducted on the composite trust scale, which satisfies the normality assumption. The model is significant, $F(2, 90) = 19.53$, $p < .001$, and explains 30.3% of the variance in trust ($R^2 = .303$, adjusted $R^2 = .287$). Both predictors contribute significantly: perceived fairness ($B = 0.431$, $\beta = .410$, $t = 4.35$, $p < .001$) and perceived environmental responsibility ($B = 0.288$, $\beta = .248$, $t = 2.63$, $p = .010$). Perceived fairness is thus the stronger of the two predictors.

Table 8. Regression predicting platform trust

Predictor	B	SE	β	Sig.
Perceived royalty fairness (Q24)	0.431	0.099	.410	***
Perceived environmental responsibility (Q17)	0.288	0.110	.248	*
(Constant)	0.687	0.347	-	ns

Note. Dependent variable: composite trust scale. $R^2 = .303$, adjusted $R^2 = .287$; $F(2, 90) = 19.53$, $p < .001$. *** $p \leq .001$, * $p \leq .05$.

H5 and H6 must be read jointly with the finding of Section 4.4. Perceptions of fairness and environmental responsibility are demonstrably consequential: they account for nearly a third of the variance in trust, and trust, following Gefen et al. (2003) and Schoorman et al. (2007), is a determinant of retention and competitive position. Yet Section 4.4 established that fairness perception is unrelated to any accurate understanding of the mechanism being judged, and Section 4.3 established that only 41.9% of respondents

can locate streaming's environmental impact correctly relative to physical formats while 79.6% acknowledge no knowledge of their platform's environmental practices.

The construct these perceptions feed behaves exactly as Section 2.5.4 anticipated. In Mayer et al.'s (1995) terms, the integrity dimension of trustworthiness is assessed through cues such as the consistency of past actions and the congruence of words and deeds, cues the ordinary streaming user does not command. Lacking them, and lacking the domain expertise that Lucassen and Schraagen (2011) show is required to assess accuracy, users would be expected to fall back on the surface characteristics of a claim's presentation. The present design does not measure what perceptions are formed from, only that they are not formed from objective understanding; the substitution mechanism is therefore an interpretation consistent with the data rather than a result established by them. What the correlations do establish is that trust responds robustly to perceived responsibility while perceived responsibility is demonstrably unrelated to the knowledge that would justify it, and perceived responsibility responds to something other than the platform's actual conduct. A platform publishing certificate-based environmental claims of the kind analysed in Section 2.3.3 may therefore score low on integrity in fact while scoring adequately on integrity in perception, and it is the perception that governs trust.

The absolute levels are worth reading alongside the associations. Perceived environmental responsibility sits almost exactly at the scale midpoint ($M = 2.98$, $Mdn = 3$), and overall trust just above it ($M = 3.13$, $Mdn = 3$), with 52.7% of respondents choosing the neutral category on trust. Users are not enthusiastic about their platforms' responsibility, but they are not hostile either: they settle into a default position of mild, uninformed acceptance. This is the disposition of a party who, in Mayer et al.'s formulation, is willing to be vulnerable “irrespective of the ability” to monitor.

4.6 Attitude-behaviour gap (H7)

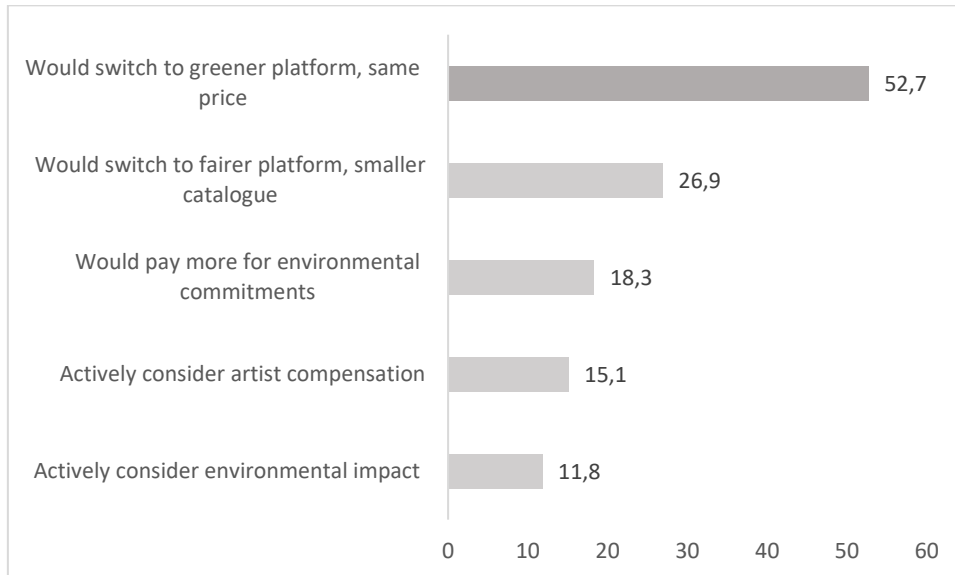
Hypothetical willingness was measured through the Q29 battery. The item-level results reveal a pattern of their own. Willingness to switch to a more environmentally responsible platform at a similar price attracts the highest agreement ($M = 3.44$, with 52.7%

agreeing or strongly agreeing). Once a cost is attached, agreement collapses: willingness to pay a higher subscription fee for stronger environmental commitments falls to $M = 2.52$ (18.3% agreeing), and willingness to switch to a fairer platform with a smaller catalogue to $M = 2.59$ (26.9%). The two items measuring current practice rather than hypothetical intention score lowest of all: actively considering environmental impact when choosing a service ($M = 2.10$, 11.8% agreeing) and actively considering artist compensation ($M = 2.14$, 15.1%). Figure 3 displays the item-level pattern.

Table 9. Willingness to switch and reported consideration (Q29, N = 93)

Item	M	SD	%agree(≥ 4)
Would switch to a greener platform at similar price	3.44	1.17	52.7
Would switch to a fairer platform with smaller catalogue	2.59	1.13	26.9
Would pay more for stronger environmental commitments	2.52	1.03	18.3
Actively consider artist compensation when choosing	2.14	1.11	15.1
Actively consider environmental impact when choosing	2.10	1.04	11.8

Figure 3. Agreement with willingness-to-switch and consideration items (Q29, N = 93)



Note. Percentage of respondents agreeing or strongly agreeing (score ≥ 4 on a five-point scale).

Taken together, 58.1% of respondents ($n = 54$, 95% CI [.479, .676]) agree or strongly agree with at least one of the two switching items. Actual behaviour is of a wholly different order. Asked whether they had ever changed or considered changing platform over artist compensation (Q23), not one respondent reported having switched; 10.8% had considered it without acting, 49.5% had not but would consider it if better informed, and 39.8% reported that artist compensation does not influence their platform choice at all. In the behavioural item (Q30), a single respondent (1.1%, 95% CI [.002, .058]) reported having switched streaming platforms as a result of learning about these issues.

A McNemar test comparing hypothetical willingness with actual switching is highly significant, $p < .001$, with 53 respondents expressing willingness without acting and none acting without expressing willingness. The gap is 57.0 percentage points. This gap requires qualification before it is interpreted. Section 4.1.1 established that no respondent uses an alternative-cooperative platform and only two use a hybrid-reformist one. A respondent who resolved to act on a stated preference for a fairer platform would therefore be acting within a consideration set that contains no such destination. Part of the measured gap is consequently attributable to the unavailability of the object of the intention rather than to a failure of the intention itself, a structural constraint rather than an individual one. H7 is supported, but as evidence of a gap produced jointly by switching costs and by the absence of an available alternative, not as evidence of attitudinal inconsistency on its own.

The wider behavioural item allows for a more nuanced reading. In all, 33.3% of respondents ($n = 31$, 95% CI [.246, .434]) report at least one behavioural response to learning about these issues. Because respondents could select more than one action, the individual counts sum to more than 31: 22 shared information about the topic with others, six researched which platforms are more ethical or sustainable, six started buying music directly from artists, three reduced their streaming time, and one switched platforms.

A McNemar test comparing willingness with any behavioural response remains significant ($p < .001$). The data describe a displacement of responses away from the one action that would affect platform revenue and towards actions that do not, such as talking,

researching, and supplementing streaming with direct purchases. This is consistent with the adapted framework of Section 2.5.3.

Following Carrington et al. (2010), the gap is not hypocrisy: people who sincerely intend to act responsibly run into constraints that intervene before the intention can be realised. In this domain those constraints are structural rather than momentary, and the item-level pattern pinpoints them with unusual precision. Willingness is highest where switching costs nothing (52.7% for a greener platform at a similar price) and drops by half to two-thirds the moment a price premium (18.3%) or a catalogue sacrifice (26.9%) enters the picture. The obstacle is not indifference but switching cost, the loss of curated playlists, accumulated recommendation history and network advantages identified in Section 2.5.3, here quantified as the point at which stated intention ceases to survive contact with a trade-off.

The environmental and fairness domains are, in this respect, differently constrained. Willingness to act on environmental grounds is supported by a broader base of general environmental concern, personal importance of sustainability correlates with the willingness scale, $\rho = .321$, $p = .002$, but is undermined by the invisibility documented in Section 4.3. Willingness to act on fairness grounds attracts less support in the first place, consistent with the ranking of artist compensation last among platform selection criteria. Both converge on the same outcome. Section 4.1.1 supplies the final element: even a user who resolved to act on these preferences would find no alternative-cooperative platform within their consideration set, since no respondent uses one. The behavioural gap is thus sustained not only by invisibility and lock-in but by the structural absence of an available destination.

4.7 Summary of hypothesis testing

Table 10. Summary of hypothesis testing

H	Prediction	Test and result	Outcome
H1	Low environmental awareness	Descriptives: $M = 1.77$, $83.9\% \leq 2$; 43.0% unaware of emissions	Supported
H2	Systematic underestimation vs physical	41.9% accurate; binomial $p = .146$; underestimate 24.7%; no judgement (33.3%)	Not supported as formulated; alternative pattern identified
H3	Limited royalty understanding	33.3% correct on Q20 (binomial vs chance $p = .072$); 49.5% "do not know"	Supported
H4	No association knowledge x fairness	Mann–Whitney $U = 954.5$, $p = .953$, $r = .006$, $\delta = .007$; TOST equivalence $p < .05$	Supported
H5	Fairness -> trust	Spearman $\rho = .434$, $p < .001$ (composite $\rho = .423$)	Supported
H6	Environmental -> trust	Spearman $\rho = .283$, $p = .006$ (composite $\rho = .316$)	Supported
H7	Willingness exceeds behaviour	58.1% willing vs 1.1% switched; McNemar $p < .001$; gap 57.0 pp	Supported; gap jointly attributable to switching costs and absence of available alternatives

5 Discussion

5.1 Locating the breakdown in internalisation

The first research question asked at which stage, awareness, understanding, or behaviour, the internalisation of streaming's environmental externality breaks down. The answer the data give is that it breaks down at all three, but in a specific sequence that the three-stage model makes visible.

At the stage of awareness, the failure is close to total: 83.9% rate their knowledge at the bottom two points of the scale, 43.0% had never encountered the issue, and 79.6% disagree that they know anything about their own platform's environmental practices. At the stage of understanding, the failure takes a form the hypothesis did not anticipate. Rather than the confident misperception predicted by H2, the dominant response is the absence of any judgement: "I do not know" is the modal answer at 33.3%, while only 20.4% actively believe streaming to be greener than physical formats. Crucially, self-assessed knowledge is entirely unrelated to accuracy ($p = -.018$), so those who feel informed are no better calibrated than those who do not. At the stage of behaviour, 58.1% express willingness to switch and 1.1% have done so.

The sequential reading matters. Section 2.5.2 argued that awareness and understanding do not fail together and that internalisation can break down at the second stage even where it succeeded at the first. The data support the disaggregation while adding a qualification: for this population, the second stage is not reached in a form that would permit misunderstanding, because the question has not entered the cognitive frame at all. Isstrate et al.'s (2024) observation that the environmental implications of internet consumption remain poorly understood is confirmed, and the explanation offered in Section 2.3.1, that the structural separation between the moment of consumption and the site of its cost prevents the cost from registering, is the mechanism the data are consistent with.

5.2 Fairness perception without understanding

The second research question asked how users perceive the fairness of royalty distribution and how that perception relates to their understanding of how those models actually work. The answer is that the two have nothing to do with each other. Perceived fairness sits right at the midpoint ($M = 2.70$, with 55.9% choosing the neutral category), objective understanding is poor (33.3% correct, not reliably above chance), and the association between the two is numerically indistinguishable from zero (Cliff's $\delta = .007$).

There is a significant association between fairness judgements and self-assessed familiarity ($p = .004$). However, the same is not true of objective understanding, with which fairness judgements show no measurable relationship. This suggests that perceptions of fairness are not based on knowledge of the pro-rata mechanism itself, but on a subjective sense of being well informed, a sense that, as Section 4.3.3 showed, is only weakly linked to actual knowledge ($\phi = .259$). Users have a vague impression of how fairly artists are paid, and this impression remains unaffected by their ability to identify the distribution model.

These findings only reveal their full significance when considered in the context of stakeholder theory (Freeman, 1984, as cited in Freeman & McVea, 2001) and Carroll's (1991) CSR pyramid, as their scope extends beyond the individual respondent. Section 2.4.4 anticipated this mechanism. Information asymmetry maintains an arguably unfair model. As long as users are unaware of how royalties are shared, they cannot make an informed decision about which platform to use or influence the situation as stakeholders. The data collected here support this reasoning. The paradox hinges on the issue of leverage. The paying subscribers should have control over it, since their fees fill the revenue pool. They are therefore in a position to hold the market to account on behalf of the artists. However, this potential is undermined by a lack of knowledge: their judgements of fairness are based on such limited evidence that the corrective they might provide never materialises. In Carroll's terms, two failures converge here. On one side is the platform, whose conduct is an example of amoral management. On the other side, the constituency that might have kept the platform under control is now silenced by its own structural

ignorance. Carroll's category of amoral management describes the platform. Structural ignorance describes the constituency that might otherwise hold it to account.

Taking the international setting into account adds a further layer to this structural ignorance. As Section 2.1.5 argued, the very standard by which a platform's treatment of artists would be judged is institutionally variable. What counts as fair compensation is defined against regulatory baselines and normative expectations that differ across the coordinated and liberal market economies in which the platforms operate (Hall & Soskice, 2001; Matten & Moon, 2008).

The subscriber is thus doubly disadvantaged: unable to verify the platform's conduct, and judging it against a benchmark that has no single cross-national form. The fairness judgements measured here are formed under exactly this compounded opacity.

5.3 Trust built on unverifiable ground

The third research question asked to what extent sustainability and fairness concerns shape users' trust in, and choice of, platform. The findings separate these two outcomes sharply.

Trust is substantially shaped by these perceptions: fairness and environmental responsibility jointly explain 30.3% of its variance, with fairness the stronger predictor ($\beta = .410$). Choice is not. Artist compensation and environmental sustainability rank last and second-to-last among seven platform selection criteria, neither was named by any respondent as the single most influential factor, and 97.8% of the sample uses a mainstream corporate platform.

The two results follow the argument of Section 2.5.4 to its conclusion. Trust responds to perceptions that are themselves formed without access to the underlying facts, credence attributes, unverifiable through use however prolonged. What Gefen et al. (2003) treat as a temporary opacity that repeated dealing will dispel is, in this domain, permanent. This permanence has an institutional source as well as an experiential one. The environmental footprint the user is implicitly trusting the platform to manage is not fixed at all, but depends on the carbon intensity of the national grids powering the serving infrastructure (Istrate et al., 2024), so the very object of trust shifts along with the

institutional context in which each stream happens to be served. Trust placed in a multinational platform is thus extended across a set of conditions the user cannot see, and that do not stay constant from one market to another. The result is a trust relationship in which the platform's actual environmental and distributive conduct is not an input. A platform can therefore hold user trust on precisely the dimensions where it performs least well, because trust there rests not on the practices but on their representation, and because, as Section 4.6 established, even users who would prefer to act on better information face switching costs and, in this sample, an empty set of alternatives.

Two findings qualify any pessimistic reading. First, the normative expectation is clearly present: 73.1% agree that platforms bear responsibility for their environmental impact and 73.1% that they bear responsibility for fair artist compensation. Second, a third of respondents report some behavioural response to learning about these issues. The constraint is not an absence of concern but the absence of information capable of directing it, and the absence of a market structure in which directing it would make a difference.

6 Conclusions

6.1 Answers to research questions

The first research question asked at which of the stages of awareness, understanding, or behaviour, internalisation of streaming's environmental externalities breaks down. Internalisation does not occur at all, and the breakdown begins at the first stage. Awareness is minimal: a large majority rate their knowledge at the bottom of the scale and report knowing nothing about their own platform's practices. Understanding fails in a way the study had not foreseen. Instead of the confident belief in streaming's environmental superiority that H2 predicted, the dominant response was the absence of any judgement at all. The breakdown sits before understanding rather than within it: the remoteness of the cost has not generated a widespread error that needs correcting, but has kept the question from ever coming up. Respondents' perceived knowledge of the subject was not reflected in the accuracy of their answers, suggesting that they have no reliable way of recognising their own lack of knowledge.

The second question takes this point further. It asked how consumers perceive the fairness of royalty distribution and how this perception relates to their understanding of it. Overall, views were slightly negative but mostly undecided: ratings clustered around the middle of the scale, "neutral" was the most common answer, and fewer than one in ten respondents considered the model fair. These perceptions were unrelated to understanding, as respondents who correctly identified the pro-rata mechanism did not rate its fairness any differently to those who did not. What made the difference was how familiar respondents felt with the topic. Perceived fairness seems to reflect a sense of being informed rather than actual knowledge. What the survey captures under this heading is therefore a disposition formed under structural ignorance, not a judgement about platform practices. The third question asked how sustainability and fairness concerns shape trust and choice. The findings reveal a clear distinction between the two. Concerns substantially shape trust. Perceived fairness and perceived environmental responsibility together account for a considerable proportion of the variance in platform trust, with fairness being the stronger predictor. They leave choice untouched. The two

ethically loaded criteria rank last among seven selection factors, neither was named by any respondent as the most influential. The sample consists almost entirely of mainstream corporate platform users, not one of whom uses an alternative-cooperative platform.

Two structural factors can account for this discrepancy. First, the trust relationship gives no indication of the platform's true behaviour, because the perceptions that foster trust are formed without access to verifiable information. Second, because switching is expensive and the alternatives are effectively out of reach, users' preferences cannot be expressed in the market. Both conditions are sharpened by the international character of the market: perceptions take shape against institutional standards that vary from one border to the next (Matten & Moon, 2008), while the alternatives that could give voice to a preference for fairer or greener practice are, as multinational scale entrenches the incumbents, missing from this population's consideration set altogether.

6.2 Theoretical contribution

The study makes four contributions to the literature.

First, it extends the work on sustainable digital media and platform responsibility by applying stakeholder theory (Freeman, 1984, as cited in Freeman & McVea, 2001) and Carroll's (1991) CSR pyramid to music streaming from the demand side. Where that literature has largely examined what platforms do, this study asks whether the stakeholder group best positioned to hold them accountable is equipped to do so. It is not: users cannot observe the attributes on which accountability would rest.

Second, the study offers an empirical illustration of winner-takes-all dynamics in ethically differentiated markets, and it does so in a setting that is international business in the strict sense of the term: multinational platforms delivering one standardised service across national markets that differ institutionally from each other. Across an internationally distributed sample of 93 experienced streaming users, not one used an alternative-cooperative platform and only two used a hybrid-reformist one. This is not a sampling deficiency but an observation about market structure, and it converts the theoretical claim of Section 2.1.2 into an empirical one: ethical differentiation, lacking a catalogue

or price advantage, does not reach the critical mass network effects require. The answer to the third research question is shaped by the absence of these platforms from users' consideration sets. For this population, a preference for fairer platforms has no available object. This is a common characteristic of digital markets. This is also relevant to the literature on international business. While established companies consolidate their position by operating on a multinational scale, newcomers operating on an ethical basis remain marginal within national markets.

Third, the study distinguishes between what users believe and what they actually know. It combines self-report items with objective knowledge items for which there is one correct answer. Although belief and knowledge are empirically distinct, conventional survey designs tend to treat them as the same thing. Studies that only measure stated awareness or concern may be measuring something other than what they intend to. The rejection of H2 in its predicted form is itself telling, since the breakdown is not a correctable misbelief but a question that has never entered the frame in the first place, a distinction that bears directly on how any corrective intervention should be designed.

Fourth, it takes the attitude–behaviour gap (Carrington et al., 2010) out of the point-of-purchase setting it was built for and into the setting of an ongoing subscription, and finds that the shift sharpens the framework rather than weakening it. The item-level data pin down the constraint precisely: willingness holds up where switching costs nothing and collapses the moment a price premium or a catalogue sacrifice enters the picture. The gap, then, is a product of structural constraints, invisibility, switching cost, and the lack of any available alternative, rather than of insincerity.

6.3 Practical implications

Perceived fairness and perceived environmental responsibility jointly explain 30.3% of the variance in platform trust while bearing no relation to any objective understanding of the practices being judged (Cliff's $\delta = .007$). In the terms of Mayer et al. (1995), users assess the integrity dimension of trustworthiness without access to integrity cues. This carries an implication platforms rarely confront directly. Because the signal that a well-performing platform would need to send is identical to the signal that a poorly

performing one may send for free, there is no way for it to be identified. As a result, verified disclosure is more a competitive measure than an accountability one. Only through such disclosure can superior performance be converted into the trust premium documented by Gefen et al. (2003) and the retention on which a subscription business depends (Bhattacharjee, 2001). However, this condition also poses a risk. As users cannot verify the claims on which their perceptions are based, the short-term incentive rewards communication over actual performance. This configuration is labelled greenwashing by Delmas and Burbano (2011). Here, a specific recommendation emerges: independently verified disclosure that distinguishes between market-based and location-based accounting of emissions. Instead of depending exclusively on intensity metrics, reporting should track absolute emissions trajectories.

For industry stakeholders, awareness campaigns on how artists are paid pose a particular challenge. Although most users (73.1%) agree that platforms should ensure fair pay, many are unable to act on this belief. Almost half of respondents (49.5%) say they would consider switching if they had better information. What limits users, in other words, is not a lack of motivation but a lack of information. The item-level results then show where interventions could realistically be implemented. A slim majority (52.7%) said they would switch to a more environmentally sustainable platform if the cost was comparable. This suggests that people are only willing to switch if it involves no additional cost or sacrifice. However, this figure drops sharply to 18.3% when a price premium is introduced and to 26.9% when the catalogue is smaller. Based on this evidence, campaigns that encourage consumers to pay more for sustainability are unlikely to be successful. A more effective approach would be to focus on cost-neutral measures, such as disclosure and defaults, reduced switching barriers, and providing clearer information on how current listening habits impact income distribution. This would show users how their subscription generates income for the artists they listen to.

The European Parliament (2024) raised concerns in its resolution on the conditions for authors in the music streaming market, and these findings support them. The resolution criticised the ongoing lack of transparency around algorithms and reporting. This study reveals the effect of this lack of transparency on users. Two-thirds of paying subscribers

do not know how the revenue they generate is distributed, and their perceptions of fairness bear no relation to how the system actually works.

Informed consumer choice can only work as a corrective mechanism if disclosure is mandatory rather than voluntary. When claims cannot be verified, platforms have little reason to report accurately. Two measures follow from this. First, platforms should be required to disclose how royalties are distributed, explaining the process in clear, accessible language. Second, digital platforms should be required to report on their environmental impact. This would help to address the underestimation of that impact, which Freitag et al. (2021) attribute to the current absence of such reporting.

6.4 Limitations

These conclusions are subject to four limitations.

The first limitation concerns external validity, although the effect is different to what is usually expected. The sample was recruited through convenience and snowball sampling. Recruitment took place within the researcher's own academic networks. As a result, the sample is not representative. Most respondents are young (94.6% are under 35), female (72.0%), and highly educated (88.2% hold or are studying for at least a bachelor's degree). Most also come from European countries that are within the reach of these networks. The results therefore cannot be generalised to streaming users as a whole. However, this skew works against the hypotheses rather than for them. Based on reasonable prior assumptions, a more representative sample would show lower awareness, not higher.

Second, measurement restricts two results. The power available for H4 (80% for $d = 0.62$ with group sizes of 31 and 62) means that a small association between understanding and fairness perception cannot be ruled out. However, the negligible magnitude of the observed effect ($\delta = .007$) makes any substantial hidden association unlikely. Two of the four multi-item scales also fell short of the required level of internal consistency (Q16, $\alpha = .348$; Q22, $\alpha = .506$) and were therefore disaggregated. Section 4.2 argues that this low coherence is informative, since the knowledge and belief items measure distinct constructs. Nevertheless, future instruments should separate these dimensions from the outset.

Two further caveats belong here. Firstly, the sample is homogeneous and self-selected. Therefore, restricted variance in fairness perception and objective understanding cannot be ruled out as a partial contributor to the H4 equivalence result, as noted in Section 3.2. Secondly, no pilot study was conducted. A pretest might have identified the weak Q16 and Q22 batteries in advance, and future replications should include one.

Third, the study relies on self-reported rather than observed behaviour, which is particularly problematic for H7. People's stated intentions and their actual behaviour can diverge, and the behavioural items themselves are retrospective self-reports open to the same objection. The cross-sectional design likewise precludes any causal claims; the link between perceived responsibility and trust aligns with the hypothesised direction, but cannot prove it. For the same reason, relying on a single self-administered instrument raises the prospect of common-method variance in the perception–trust associations (H5, H6). As Section 3.5 argues, the study's central null finding (H4) is not subject to this inflationary bias; however, the positive correlations should be interpreted with this in mind.

Fourthly, the framework treats trust as the mechanism through which perception influences choice. However, this path cannot be tested here. With nearly the entire sample on a mainstream corporate platform and none on an alternative-cooperative one, the choice variable essentially has no variance left to explain. This is a consequence of the market structure documented by the study rather than a flaw in the design. Accordingly, the finding that choice remains unmoved by these concerns rests instead on the ranking of selection criteria (Q11, Q12) and on the platform distribution itself.

6.5 Avenues for future research

In addition to the limitations above, the findings suggest three possible directions for future research.

The most obvious extension is of an experimental nature. Since the study establishes that fairness perception is unrelated to understanding, the question that follows is whether supplying the understanding shifts the perception, and whether a shifted perception changes behaviour. An information-provision experiment, randomly assigning

subscribers to receive either an accurate explanation of pro-rata distribution or a personalised statement of what their own subscription generates for the artists they listen to, would test the causal chain this study can only describe. That 49.5% of respondents said they would consider changing platform if they knew more makes this a testable claim rather than a speculative one.

Second, the finding that internalisation fails before the stage of understanding rather than within it calls for instruments able to distinguish an articulated absence of knowledge from a tacit assumption of immateriality. The "I do not know" response used here cannot separate the two, and the difference matters for intervention design: the first calls for information, the second for the disruption of an assumption already in place. Third, the complete absence of alternative-cooperative platform users points toward a supply-side agenda this demand-side study can only motivate. Work on platforms such as Resonate and Bandcamp, on why ethically differentiated entrants fail to reach critical mass, and under what conditions they might, would engage the structural constraint the present findings identify as decisive. Such an extension could also carry the study's methodological contribution forward, since applying paired self-report and objective-knowledge items to other domains of ethical consumption would test whether the decoupling observed here is specific to digital credence goods or a more general property of consumer ethical judgement.

7 Declaration of the use of artificial intelligence

In this study, the author used AI-based tools, such as Anthropic's Claude, to assist in the drafting process, specifically for language polishing, grammatical review, and stylistic editing. These tools also helped the author interpret statistical procedures and their outputs, while all analyses were carried out by the author using IBM SPSS Statistics.

References

- Aguiar, L., & Waldfogel, J. (2018). As streaming reaches flood stage, does it stimulate or depress music sales? *International Journal of Industrial Organization*, 57, 278–307. <https://doi.org/10.1016/j.ijindorg.2017.06.004>
- Aguiar, L., & Waldfogel, J. (2021). Platforms, power, and promotion: Evidence from Spotify playlists. *The Journal of Industrial Economics*, 69(3), 653–691. <https://doi.org/10.1111/joie.12263>
- Akerlof, G. A. (1970). The market for "lemons": Quality uncertainty and the market mechanism. *The Quarterly Journal of Economics*, 84(3), 488–500. <https://doi.org/10.2307/1879431>
- Alejandre, C., Akizu-Gardoki, O., & Lizundia, E. (2022). Optimum operational lifespan of household appliances considering manufacturing and use stage improvements via life cycle assessment. *Sustainable Production and Consumption*, 32, 52–65. <https://doi.org/10.1016/j.spc.2022.04.007>
- Andrae, A. S. G., & Edler, T. (2015). On global electricity usage of communication technology: Trends to 2030. *Challenges*, 6(1), 117–157. <https://doi.org/10.3390/challe6010117>
- Bandcamp. (n.d.). *Bandcamp for artists*. Retrieved 20 July 2026, from <https://bandcamp.com/artists>
- Bardhi, F., & Eckhardt, G. M. (2012). Access-based consumption: The case of car sharing. *Journal of Consumer Research*, 39(4), 881–898. <https://doi.org/10.1086/666376>
- Beuscart, J.-S., Coavoux, S., & Garroq, J.-B. (2022). Listening to music videos on YouTube: Digital consumption practices and the environmental impact of streaming. *Journal of Consumer Culture*, 23(3), 654–671. <https://doi.org/10.1177/14695405221133266>
- Bhattacharjee, A. (2001). Understanding information systems continuance: An expectation-confirmation model. *MIS Quarterly*, 25(3), 351–370. <https://doi.org/10.2307/3250921>

- Brander, M., Gillenwater, M., & Ascui, F. (2018). Creative accounting: A critical perspective on the market-based method for reporting purchased electricity (scope 2) emissions. *Energy Policy*, 112, 29–33. <https://doi.org/10.1016/j.enpol.2017.09.051>
- Brennan, M., & Devine, K. (2020). The cost of music. *Popular Music*, 39(1), 43–65. <https://doi.org/10.1017/S0261143019000552>
- Carrington, M. J., Neville, B. A., & Whitwell, G. J. (2010). Why ethical consumers don't walk their talk: Towards a framework for understanding the gap between the ethical purchase intentions and actual buying behaviour of ethically minded consumers. *Journal of Business Ethics*, 97 (1), 139–158. <https://doi.org/10.1007/s10551-010-0501-6>
- Carroll, A. B. (1991). The pyramid of corporate social responsibility: Toward the moral management of organizational stakeholders. *Business Horizons*, 34(4), 39–48. [https://doi.org/10.1016/0007-6813\(91\)90005-G](https://doi.org/10.1016/0007-6813(91)90005-G)
- Delmas, M. A., & Burbano, V. C. (2011). The drivers of greenwashing. *California Management Review*, 54(1), 64–87. <https://doi.org/10.1525/cmr.2011.54.1.64>
- Dolata, U. (2020). *The digital transformation of the music industry: The second decade — From Napster to Spotify* (SOI Discussion Paper No. 2020-04). University of Stuttgart, Institute for Social Sciences. <http://hdl.handle.net/10419/224336>
- Eisenmann, T., Parker, G., & Van Alstyne, M. W. (2006). Strategies for two-sided markets. *Harvard Business Review*, 84(10), 92–101.
- European Parliament. (2024). *European Parliament resolution of 17 January 2024 on cultural diversity and the conditions for authors in the European music streaming market* (2023/2054(INI)). Retrieved 20 July 2026, from https://www.europarl.europa.eu/doceo/document/TA-9-2024-0024_EN.html
- Evans, D. S. (2003). Some empirical aspects of multi-sided platform industries. *Review of Network Economics*, 2(3), 191–209. <https://doi.org/10.2202/1446-9022.1026>

- Field, A. (2018). *Discovering statistics using IBM SPSS Statistics* (5th ed.). SAGE Publications.
- Freeman, R. E. (1984). *Strategic management: A stakeholder approach*. Pitman.
- Freeman, R. E., & McVea, J. (2001). A stakeholder approach to strategic management. In M. A. Hitt, R. E. Freeman, & J. S. Harrison (Eds.), *The Blackwell handbook of strategic management* (pp. 189–207). Blackwell.
- Freitag, C., Berners-Lee, M., Widdicks, K., Knowles, B., Blair, G. S., & Friday, A. (2021). The real climate and transformative impact of ICT: A critique of estimates, trends, and regulations. *Patterns*, 2 (9), 100340. <https://doi.org/10.1016/j.patter.2021.100340>
- Gefen, D., Karahanna, E., & Straub, D. W. (2003). Trust and TAM in online shopping: An integrated model. *MIS Quarterly*, 27 (1), 51–90. <https://doi.org/10.2307/30036519>
- Geurts, A., & Cepa, K. (2023). Transforming the music industry: How platformization drives business ecosystem envelopment. *Long Range Planning*, 56(4), 102327. <https://doi.org/10.1016/j.lrp.2023.102327>
- Gillespie, T. (2010). The politics of "platforms". *New Media & Society*, 12(3), 347–364. <https://doi.org/10.1177/1461444809342738>
- Gorwa, R. (2019). What is platform governance? *Information, Communication & Society*, 22(6), 854–871. <https://doi.org/10.1080/1369118X.2019.1573914>
- Hall, P. A., & Soskice, D. (2001). An introduction to varieties of capitalism. In P. A. Hall & D. Soskice (Eds.), *Varieties of capitalism: The institutional foundations of comparative advantage* (pp. 1–68). Oxford University Press. <https://doi.org/10.1093/0199247757.003.0001>
- IFPI. (2026). *Global music report 2026*. International Federation of the Phonographic Industry. https://www.ifpi.org/wp-content/uploads/2026/03/GMR2026_SOTI.pdf

- Istrate, R., Tulus, V., Grass, R. N., Vanbever, L., Stark, W. J., & Guillén-Gosálbez, G. (2024). The environmental sustainability of digital content consumption. *Nature Communications*, 15, 3724. <https://doi.org/10.1038/s41467-024-47621-w>
- Lővei, V., Matta, S., Ji, W., & Zhang, A. (2022). *Assessing the life-cycle impacts of an album: Climate + music*. Planet Reimagined. Retrieved 20 July 2026, from <https://www.planetreimagined.com/climate-and-music-paper>
- Lucassen, T., & Schraagen, J. M. (2011). Factual accuracy and trust in information: The role of expertise. *Journal of the American Society for Information Science and Technology*, 62(7), 1232–1242. <https://doi.org/10.1002/asi.21545>
- Marshall, L. (2015). "Let's keep music special. F—Spotify": On-demand streaming and the controversy over artist royalties. *Creative Industries Journal*, 8(2), 177–189. <https://doi.org/10.1080/17510694.2015.1096618>
- Matten, D., & Moon, J. (2008). "Implicit" and "explicit" CSR: A conceptual framework for a comparative understanding of corporate social responsibility. *Academy of Management Review*, 33(2), 404–424. <https://doi.org/10.5465/amr.2008.31193458>
- Mayer, R. C., Davis, J. H., & Schoorman, F. D. (1995). An integrative model of organizational trust. *The Academy of Management Review*, 20(3), 709–734. <https://doi.org/10.2307/258792>
- Moreau, F., Wikström, P., Haampland, O., & Johannessen, R. (2024). Alternative payment models in the music streaming market: A comparative approach based on stream-level data. *Information Economics and Policy*, 68, 101103. <https://doi.org/10.1016/j.infoeco-pol.2024.101103>
- Negus, K. (2019). From creator to data: The post-record music industry and the digital conglomerates. *Media, Culture & Society*, 41(3), 367–384. <https://doi.org/10.1177/0163443718799395>

- O'Reilly, T., Strauss, I., & Mazzucato, M. (2024). Algorithmic attention rents: A theory of digital platform market power. *Data & Policy*, 6, e6. <https://doi.org/10.1017/dap.2024.1>
- Pomering, A., & Dolnicar, S. (2009). Assessing the prerequisite of successful CSR implementation: Are consumers aware of CSR initiatives? *Journal of Business Ethics*, 85(S2), 285–301. <https://doi.org/10.1007/s10551-008-9729-9>
- Prey, R. (2020). Locating power in platformization: Music streaming playlists and curatorial power. *Social Media + Society*, 6(2). <https://doi.org/10.1177/2056305120933291>
- Resonate. (n.d.). *Resonate: A community-owned music streaming service*. Retrieved 20 July 2026, from <https://resonate.coop/>
- Rochet, J.-C., & Tirole, J. (2003). Platform competition in two-sided markets. *Journal of the European Economic Association*, 1(4), 990–1029. <https://doi.org/10.1162/154247603322493212>
- Rosen, S. (1981). The economics of superstars. *The American Economic Review*, 71(5), 845–858.
- Saunders, M., Lewis, P., & Thornhill, A. (2019). *Research methods for business students* (8th ed.). Pearson Education.
- Schoorman, F. D., Mayer, R. C., & Davis, J. H. (2007). An integrative model of organizational trust: Past, present, and future. *The Academy of Management Review*, 32(2), 344–354. <https://doi.org/10.5465/amr.2007.24348410>
- Scott, W. R. (2014). *Institutions and organizations: Ideas, interests, and identities* (4th ed.). SAGE Publications.
- Spotify. (2025a). *Loud & clear*. Retrieved 20 July 2026, from <https://loudandclear.spotify.com/>
- Spotify. (2025b). *Equity & impact report 2025*. <https://www.lifeatspotify.com/reports/Spotify-Equity-Impact-Report-2025.pdf>

Trefzger, T., Rose, M., Baccarella, C., & Voigt, K.-I. (2015). Streaming killed the download star! How the business model of streaming services revolutionizes music distribution. *Journal of Organizational Advancement, Strategic and Institutional Studies*, 7(1), 29–39.

Wlömert, N., & Papies, D. (2016). On-demand streaming services and music industry revenues — Insights from Spotify's market entry. *International Journal of Research in Marketing*, 33(2), 314–327. <https://doi.org/10.1016/j.ijresmar.2015.11.002>

Appendices

Appendix 1. Structure of the survey

NUMBER	SURVEY QUESTIONS
ABOUT YOU	
1.	What is your age? • Under 18 • 18-24 • 25-34 • 35-44 • 45-54 • 55 or older
2.	What is your gender? • Female • Male • Prefer not to say
3.	What is your country of residence? • Italy • France • Germany • Spain • Portugal • UK • Sweden • Finland • Other
4.	What is your highest level of education completed or currently pursuing? • Secondary school/High school

	• Bachelor's degree • Master's degree • Doctoral degree • Other
5.	What is your current occupation? • Student • Employed full-time • Employed part-time • Self-employed • Unemployed • Other
YOUR STREAMING HABITS	
6.	Which of the following music streaming platforms do you currently use? • Spotify • Apple Music • YouTube Music • Amazon Music • Tidal • SoundCloud • Deezer • Bandcamp • Resonate • Other
7.	Which of these platforms do you use most frequently? • Spotify • Apple Music • YouTube Music • Amazon Music

	• Tidal • SoundCloud • Deezer • Bandcamp • Resonate • Other
8.	How long have you been using music streaming services? • Less than 1 year • 1-3 years • 3-5 years • More than 5 years
9.	How many hours per week do you typically spend listening to music via streaming? • Less than 1 hour • 1-5 hours • 6-10 hours • 11-20 hours • More than 20 hours
10.	What type of subscription do you currently use on your primary streaming platform? • Free tier with advertisements • Individual paid subscription • Family or group paid subscription • Student paid subscription • I do not currently have an active subscription
11.	How important are the following factors when choosing a streaming platform? (Likert scale from 1- Not important at all to 5- Extremely important) • Music catalogue size

	• Price/value for money • Sound quality • User interface and ease of use • Artist compensation practices • Environmental sustainability of the platform • Recommendations from friends or family/Social influence
12.	Overall, which factor most strongly influences your choice of streaming platforms? • Music catalogue size • Price/value for money • Sound quality • User interface and ease of use • Artist compensation practices • Environmental sustainability of the platform • Recommendations from friends or family/Social influence • Other
STREAMING AND THE ENVIRONMENT	
13.	How informed do you consider yourself about the environmental impact of streaming? (Likert scale from 1 – Not informed at all to 5 – Extremely informed)
14.	Were you aware that music streaming generates carbon emissions through energy consumption in data centers and networks? • Yes, I was fully aware • Yes, I had a general idea but never looked into it in depth • Yes, I had heard about it occasionally but did not really think about it • No, I was not aware of this
15.	Compared to buying and listening to a physical CD, the environmental impact of streaming the same album repeatedly over one year is

	• Much lower – streaming is significantly greener • Somewhat lower – streaming is slightly greener • Similar – roughly the same environmental impact • Somewhat higher – streaming has a greater impact • Much higher – streaming is significantly worse • I do not know
16.	Please indicate your level of agreement with the following statements (Likert scale from 1 – Strongly disagree to 5 – Strongly agree) • I am aware of the environmental practices of the streaming platform I use most • I believe that streaming music is an environmentally responsible choice • Digital services like music streaming are generally more sustainable than physical alternatives
17.	How environmentally responsible do you consider the streaming platform you use most? (Likert scale from 1 – Not responsible at all to 5 – Extremely responsible)
18.	How important is environmental sustainability to you personally in your daily life? (Likert scale from 1 – Not important at all to 5 - Extremely important)
ARTIST AND FAIR COMPENSATION	
19.	Are you familiar with how streaming platforms distribute royalty payments to artists? • Yes, I understand how it works in detail • I have general idea but not the specifics • I have heard about it but do not understand it • No, I am not familiar with this at all
20.	On major streaming platforms like Spotify royalties are distributed based on

	• Each user's subscription fee going directly to the artists they personally listened to • A shared pool of all subscription revenues divided according to each artist's share of total streams on the platform • A fixed payment per stream that is the same for all artists regardless of popularity • I do not know how royalties are distributed
21.	What percentage of your monthly streaming subscription fee do you think goes directly to artists? • Less than 10% • 10-25% • 26-50% • 51-75% • More than 75% • I have no idea
22.	Please indicate your level of agreement with the following statements (Likert scale from 1 – Strongly disagree to 5 – Strongly agree) • I am aware of how the streaming platform I use most compensates artists • I believe the streaming platform I use most compensates artists fairly • Independent and emerging artists are treated fairly by major streaming platforms
23.	Have you ever changed or considered changing your streaming platform because of concerns about how it compensates artists? • Yes, I have already switched platforms for this reason • Yes, I have considered it but have not switched • No, but I would consider it if I knew more • No, artist compensation does not influence my platform choice

24.	How fair do you consider the royalty distribution model used by the streaming platform you use most? (Likert scale from 1 – Very unfair to 5 – Very fair)
TRUST AND RESPONSIBILITY	
25.	Please indicate your level of agreement with the following statements about the streaming platforms you use most: • I trust the platform to act responsibly toward artists • I trust this platform to act responsibly toward the environment • This platform is transparent about its business practices • This platform genuinely cares about its environmental impact
26.	Overall, how much do you trust the streaming platform you use most? (Likert scale from 1 – Not trust at all to 5 – Trust completely)
27.	Do you believe streaming platforms have a responsibility to address their environmental impact? (Likert scale from 1 – Strongly disagree to 5 – Strongly agree)
28.	Do you believe streaming platforms have a responsibility to ensure fair compensation for artists? (Likert scale from 1 – Strongly disagree to 5 – Strongly agree)
YOUR CHOICES AND BEHAVIOUR	
29.	Please indicate your level of agreement with the following statements (Likert scale from 1 – Strongly disagree to 5 – Strongly agree): • I would switch to a more environmentally responsible streaming platform if one were available at a similar price • I would be willing to pay a higher subscription fee for a platform with stronger environmental commitments • I would switch to a platform that compensates artists more fairly even if it had a smaller music catalogue • I actively consider a platform's environmental impact when deciding which service to use

	• I actively consider a platform's artist compensation practices when deciding which service to use
30.	Has learning about environmental or ethical issues related to music streaming ever influenced your behaviour? • I switched streaming platforms • I reduced my streaming time • I started buying more music directly from artists • I shared information about this topic with others • I researched which platforms are more ethical or sustainable • None of the above – it has not influenced my behaviour
31.	Overall, how much do sustainability and ethical concerns influence your choice of streaming platforms? (Likert scale from 1 – Not at all to 5 - Very much)
ANY OTHER THOUGHTS	
32.	Is there anything else you would like to share about the topic?