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Spotify as a technology for integrating health, exercise and wellness practices into financialised capitalism

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Abstract

Spotify dominates the audio streaming industry and offers an almost limitless library of music and other 'sounds'. They have recently made various interventions into health, exercise and wellness with the development of curated and personalised playlists focused on activities such as running, weightlifting and meditation and guided workouts interspersed with algorithmically generated playlists. This article suggests that the company are developing new means of datafying health, exercise and wellness practices such as monitoring activities, heart rate, mood and broadly the rhythms and tempos of their lives. While this is presented as beneficial to users to provide a more personalised experience, analysis of patent applications, financial statements and promotional materials targeting advertisers and investors suggest other objectives. Audio consumption is combined with the newly datafied activities to 'bundle' users into 'audience commodities' to be sold to advertisers. Furthermore, such innovations, and the potential to attract advertisers, form the materials through which Spotify construct stories to potential investors about the future profitability, or at least growth in market value, of the company essential for firms integrated into 'financialised capitalism'. This represents a further opening up of aspects of everyday lives to commercial exploitation through datafication and contributes to an attempt to reposition health-related practices as assets which can be packaged for investment portfolios. The publications analysed in this article demonstrate some of the ways in which Spotify seek to both monitor and shape practices of users to make them more amenable to financialisation.

Keywords

Spotify, financialisation, health, exercise, wellness, streaming, deep mediatisation, audience commodities, marketing

Introduction

Spotify is the biggest audio streaming platform in the world with 489 million monthly active users in the final quarter of 2022, and growing, with more than half of these 'ad supported users' (Götting, 2023a, 2023b). It has had a transformative effect on how people listen to music, podcasts and other recorded 'sounds' (e.g. guided meditation, audiobooks, and soundscapes; Johansson and Werner, 2018). The almost limitless and instantly accessible library on offer to users means that for many people there is barely a moment of the day which is not accompanied by a personalised listening experience with sounds from the platform potentially accompanying all daily activities including eating, washing, dressing, drinking, partying, relaxing, working and exercising. Despite the near ubiquity of the platform, like many big tech companies outside of the big five (Microsoft, Alphabet, Meta, Apple and Amazon), Spotify has generated huge revenues while profits have remained scarce. This has led them to rely on investment (initially venture capital and more recently stock-market) to fund growth and service debts (Eriksson et al., 2019; Ingham, 2019a; Johnston, 2021; Monaghan, 2018). In this article, it will be argued that in response to this financial situation, Spotify has pursued a strategy of increasing the financialisation of everyday life resulting in health, exercise and wellness activities being incorporated into the circuits of financialised capitalism at an ever more granular level.

Spotify, like many digital tech companies, has taken increasing interest in health, exercise and wellness in recent years, most prominently with their development of

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generic and personalised playlists, as these interests are considered to be key drivers of engagement and to produce data valuable for targeted marketing (Almeida, 2021; Fitzpatrick, 2020; Spotify, 2020, 2022). This article focuses on Spotify's existing and forthcoming methods of generating such data and the ways they reformat these into 'audience commodities' to be sold to advertisers (Vonderau, 2017). This will be investigated through an analysis of reports and statements published by Spotify to attract advertisers or investors, patents detailing technical innovations and reportage on these in technology and financial media; an approach previously identified as useful for sociological analysis of elements of technology and platform design (Carmi, 2020: 184). Through this analysis of how Spotify construct and present the utility, impact and value of its platform I will suggest they are engaged in a form of 'biopolitical marketing' through encouraging the 'deep mediatisation' of health, exercise and wellness practices of users (Couldry and Hepp, 2017; Zwick and Bradshaw, 2016). Specifically, they are attempting to financialise such practices in a fashion consistent with the ongoing colonisation of everyday life and the commercial capture of physical activity and health practices with potential consequences for how these are framed, promoted and experienced (Couldry and Mejias, 2019b; Dewart Mcewen, 2018; Millington, 2016; Till, 2014, 2018a, 2018b, 2019). Such a move is necessary due to Spotify's integration into 'financialised capitalism', with their focus on growth and investment, and the heavy dependence of this system on cultural and symbolic value (Beckert, 2013; Berardi, 2012; Davis, 2018). The focus of the article is not on the experiences of users themselves but on Spotify's use of health, exercise and wellness practices of users, and associated affective energies, for attracting advertisers and as a source of meaningful narratives to convince potential investors of future profitability (Beckert, 2013; Cegłowski, 2014; Davis, 2018). The following section will situate the current project in relation to existing work on the datafication and financialisation of everyday life through digital media.

Datafication and financialisation of everyday life

Some previous work has suggested that the datafication and commodification of everyday life by social media and search platforms results in a 'deep mediatisation' of 'human life itself' which is framed as a natural resource amenable to data extraction useful in the construction of markets built on selling predictions of their behaviour (Couldry and Hepp, 2017; Couldry and Mejias, 2019a: 342–344; Srnicek, 2017a: 56–57; Zuboff, 2019: 100). Alternative approaches have suggested that such online activity should be analytically approached as a form 'digital labour' as it is these activities which generate data commodities for platforms to exploit (Fuchs, 2012, 2015; Terranova, 2000). Such critiques and debates have also been applied to the datafication of health and exercise practices usually through analysis of self-tracking facilitated by smartphones, smartwatches and fitness trackers analysing their impact on the sense of self, relation to political economy and functioning as a technology of the self (Dewart Mcewen, 2018; Lupton, 2014, 2016a, 2016b; Till, 2014). In broad terms, these critiques have engaged with the consequences of the ever-increasing 'datafication' of lives and how value is extracted from this. This article builds on this work but emphasises that Spotify proposes that it can harness the affective experiences of health, exercise and wellness practices in real-time to generate valuable data.

The case considered in this article is, then, engaged with the 'mediatisation of time' in which media technologies affect the 'temporal scaffolding' of social life through embedding conceptualisations of time and 'temporal subjects' in digital artefacts and how this is situated within the functioning of digital capitalism (Pentzold, 2018: 929; Wajcman, 2019: 1273). Previous work has suggested that such technologies are often structured and implemented to promote neoliberal subjectivities through encouraging a 'chrononormative' orientation with desirable lifestyles largely structured around increasing productivity (Eriksson et al., 2019; Wajcman, 2019: 1286). Such processes become 'chronobiopolitical' by synchronising individuals' bodies with broader strategies of living considered useful to state or market interests as seen in Wajcman's analysis of digital calendars (Edelstein, 2020: 147; Freeman, 2005: 4, 57; Wajcman, 2019). On the surface, the examples analysed in this article speak to a similar 'instrumental temporal logic' with users encouraged to maximise work and leisure (particularly exercise) time through a utilitarian approach to 'sounds' (Eriksson and Johansson, 2017; Mazmanian et al., 2015). However, the case here represents a form of 'governing through rhythm' which is made possible through digital health and exercise monitoring and necessary for exercising modulating controls over populations, and periods of time (e.g. non-work time, sleep, exercise), which are resistant to traditional disciplinary controls and to make them productive (Davies, 2019: 520–523; O'Neill and Nansen, 2019). Moreover, a greater emphasis is placed on the importance of affective engagement to package user experiences for advertising purposes.

Analyses of datafication by social media platforms have highlighted the tracking of emotions and moods usually through automated text-based sentiment analysis for targeted marketing, political persuasion and psychological insights and highlighted the potential harms of these systems (Bakir and McStay, 2018; McStay, 2016; Papacharissi, 2014; Stark, 2018). Some existing work has explored Spotify's potential for generating psychological

insights and its encouragement of intimacy and subjective investment in neoliberal ideology through the discursive framing of playlists and as a tool of 'mood management' (Anderson et al., 2021; Eriksson and Johansson, 2017; Siles et al., 2019). However, this existing work has not identified Spotify's mood tracking or the use of voice analysis which is somewhat similar to that conducted through smart speakers (Couldry and Turow, 2022). The case here also identifies how moods and emotions are drawn together with a commercialisation of health, exercise and wellness practices through strategies to generate surplus value via datafication (Millington, 2016: 1194–1195). The case in this article, then, requires a focus on the construal of individuals as 'scalable subjects' (analysis of whom can be extrapolated to others) accumulated into 'affective publics' (grouped on the basis of emotional states) (Papacharissi, 2014; Stark, 2018, 2020: 118–120; Turow, 2021). Such groups are, I suggest, subject to modulating controls of affective states and approached as 'living multiplicities' by making their engagement with the physical rhythms of their own bodies amenable to 'financialisation' by feeding the 'stories' told to investors (Petrina, 2020: 128). The following section will outline how Spotify's business model has developed to centralise this kind of engagement through a focus on advertising and their integration with 'financialised' capitalism.

Spotify and its business model

This section will outline the specific approach to the 'platform' business model which Spotify has taken, their integration with the 'financialised' economy and how they have pursued a 'ubiquity strategy' and 'programmatic advertising' to aid their construction of effective and convincing 'stories' to investors.

The platform model is built on acting as an intermediary for disparate actors with their power and potential for revenue generation resting in their centralised position through which they can datafy, select, commodify and in the process extract data and sometimes charge fees or rents (Gillespie, 2010; Srnicek, 2017b; Van Dijck et al., 2018). It is thus common for the purpose of the platform to appear differently depending on perspective, for instance, Facebook might appear to be a communication service or an advertising agency (Keyzer et al., 2015; Wiese and Akareem, 2020). For many users, Spotify is a replacement for their music collections and/or radio but when Spotify presents itself to industry and markets they are 'a consumer behavior platform' (Digital Magazine, 2019: unpaged) which 'unlocks audience insights to connect [brands] with the streaming generation' (Spotify for Brands, 2017: unpaged).

This self-presentation is borne from their peculiar but not unusual financial situation. Spotify launched in 2006 and, aside from occasional flirtations with profitability (Ingham, 2019b), has largely remained a loss-making enterprise over that time with 2022 seeing fourth-quarter operating losses of €231 m (Warrington, 2023). Despite this, the company has attracted significant investment initially from venture capitalists and latterly the stock market (Monaghan, 2018). This is not uncommon in the tech industry with some companies taking a long time to become profitable; Amazon, for instance, only achieved profitability after almost 10 years (Perez, 2004). Such delayed profits are, however, characteristic of the platform business model which is largely funded by 'patient' capital, or investors willing to wait for significant returns, driven by a 'winner-take-all' or a 'growth before profit' strategy (Prey, 2020: 6; Rahman and Thelen, 2019: 179–181; Srnicek, 2017a: 51). Other companies may never even intend to achieve profitability, instead aiming to indefinitely attract ever greater investment (or be bought by one of the tech giants) by telling a story of future profitability by finding ways of generating and harvesting increasing volumes of user data (Cegłowski, 2014; Zuboff, 2019).

This strategy is confirmed by Spotify in their 2020 annual statement to investors when they admitted they are unlikely to pay dividends in the foreseeable future with the only hope of returns from selling on shares after their value increases (Spotify Technology S.A., 2020: 33). The value of the company is, thus, built on constant growth, rather than profitability and firmly places them within a 'financialised' economy wherein non-financial companies structure their business to service the financial sector and are 'hollowed out' with investment redirected from productive activities to financial accumulation and shareholder value taken as the key metric of success (Cegłowski, 2014; Eriksson et al., 2019; Lazonick, 2010: 680; Sawyer, 2013: 9; Vonderau, 2017). Central to this system is 'fictitious capital' or claims to future property rights (e.g. stocks, shares, debt) and income from future value production (labour expended or commodities produced) which does not yet exist (Lapavitsas, 2011: 614; Marazzi, 2011: 32; Marx, 1894). The fictitious and speculative nature of these assets means that the capacity to imagine and tell stories about the future is central to their valuation (Beckert, 2013: 235–236; Cegłowski, 2014; Davis, 2018).

A crucial means by which companies can tell a story of constant growth is through actual or projected innovations often communicated in the form of patents. As stated in their 2020 annual report Spotify's 'ability to grow [their] business and generate revenue depends on retaining, expanding, and effectively monetising [their] total user base, including by increasing advertising' (Spotify Technology S.A., 2020: 8). Patents, investor calls and marketing materials aimed at advertisers, such as the ones discussed below, are central in telling the kind of story to investors which will convince them that the company will grow in the future. Spotify's strategy is founded in financialisation and mediatisation which can be seen through two

key aspects of their approach which are central to the analysis in this paper; their 'ubiquity strategy' (Spotify, 2019) and their version of 'programmatic advertising' (Spencer, 2017).

Ubiquity strategy

The 'winner-take-all model' described above is built on an assumption of the advantages of 'network effects' or the notion that platforms become more useful as they gain more users (and increase user engagement) as more activity becomes 'datafied', enabling greater commodification and more selection which in turn drives more usage (Gillespie, 2010; Rahman and Thelen, 2019: 187; Srnicek, 2017b: 256). However, despite its success and longevity Spotify has not followed the trend towards 'convergence' common to the platform model, that is, the tendency to become more similar to competitors and encroach on their territory in order to datafy more areas of activity (Srnicek, 2017a: 107–108). Rather than competing with the tech giants (e.g. Amazon, Apple) by spreading into other areas in a *breadth* battle, Spotify instead aims for *depth* through their 'ubiquity strategy' of 'creating a truly frictionless experience for consumers […] to take whatever moment you're in […] and make sure that you can get to your Spotify experience as easily and as quickly as possible' (Spotify, 2019: unpaged). This integration of the platform with users' lives is consistent with broader trends towards 'deep mediatisation' and 'colonisation' and the construction of productive users who are encouraged to behave 'chronomormatively' and approach music as 'functional' (Couldry and Hepp, 2017: 7, 2017: 37; Couldry and Mejias, 2019b: 5; Eriksson and Johansson, 2017: 76). It is argued below that engaging the bodies of users is presented as an effective means of feeding the hunger for greater intensity of meaning necessitated by Spotify's particular 'growth before' profit strategy built on constructing a narrative for investors.

Programmatic advertising

While Spotify has always used advertising as part of its funding model it has latterly taken a more central role to bolster returns for its 'patient capital' investors because the subscription model has so far failed to produce profits (Caplan and Gillespie, 2020; Eriksson et al., 2019; Ingham, 2019a; Johnston, 2021; Nieborg and Poell, 2018: 4278). The Spotify paid user experience now increasingly services the advertising business with the move to a 'programmatic' approach in which individual user interactions are auctioned to advertisers representing a key way engagement is commodified (Kininmonth, 2022: 3; McStay, 2017: 144; Spencer, 2017). Automated 'real-time bidding', which enables advertisers to choose the ads they want to run, who to target and how much they are willing to pay, has been described as 'biopolitical marketing' as it harnesses the 'wild' rhythms and disordered passions of online engagement and renders them predictable by forming them into 'brand communities' (McNeil, 2018; Zwick and Bradshaw, 2016: 96). These are not used to target individuals as such but to generate 'prediction products' about groups constructed through 'bundling' together various sets of aggregated data to form 'audience commodities' largely drawn from 'fellow feeling' or 'group emotional behaviour' (Bakir and McStay, 2018: 155; McStay, 2016: 2–3, 2017: 153; Zwick and Bradshaw, 2016: 431–433). While other platforms aggregate data on search history, 'likes' and other engagements to form these 'audience commodities' we will see below that Spotify increasingly incorporates various aspects of users' health, exercise and wellness-related 'passions' and practices into their advertising infrastructure. The principal form such commodities take is as 'Moments' which are informed by analysis of the 'rhythm and tempo' of users' lives and interpretation of their 'passions, emotions and personality'.

Moments

The ways Spotify is used alongside other activities and throughout a user's day means the times when they are receptive can, according to Spotify, be identified and targeted as 'Addressable Moments' and these represent one of the key ways in which audience commodities are formed and affective attachments to health, exercise and wellness are used. 'Running' is identified as one such 'Moment' which is particularly valuable as Spotify claims listeners are 'leaned in, paying attention, and open to hearing from brands […due to] the relevant, personalised content that Spotify provides' (Spotify Advertising, 2020). 'Addressable Moments' offer direct access to people as they participate in activities through sponsoring playlists. The 'Align with Spotify' initiative suggests advertisers '[g]et in the zone on Spotify and sponsor our top fitness playlists' such as 'Beast Mode', 'Motivation Mix', 'Power Workout' and 'Yoga & Meditation' (Spotify Advertising, 2020: unpaged). They urge advertisers to '[r]each users currently listening to music aligned with health and well-being moments' (Spotify Advertising, 2020: unpaged). Even if users are not currently engaged in 'health activities' their presumed desire to be, or guilt over not doing so, can be monetised as they can '[t]arget users who have previously listened to workout playlists, but lapsed for 30 days or more, to deliver encouraging fitness messages' (Spotify Advertising, 2020: unpaged). Spotify claims they deliver users in a mental state ('engagement') which is more receptive to advertising and produced by a combination of physical activity and aural stimulation which is more powerful than targeting those with defined interests. While these 'Moments' may impose a 'chrononormative' (Eriksson and Johansson, 2017) structure onto

users' daily lives (by suggesting the 'right' time for work, study, relaxation, etc.) from the business perspective, which is the focus of this article, they are packaging users' engagement with, and enthusiasm for, their health, exercise and wellness related body projects for advertisers.

Patent applications highlight how Spotify is seeking to automate the process of identifying 'Moments', delivering relevant content and measuring the level of intensity of engagement of the user through identifying and quantifying 'repetitive motion activity', cadence (when walking, running cycling or swimming) and heart rate. Once indicators are established, systems are applied to search for media content based on the tempo of repetitive motions (Jehan and Montecchio, 2021), queue up multiple tracks during repetitive motions (Dziuk and Sen, 2022) and adjust tempo to suit heart rate (Smith et al., 2022). These combine with other innovations seeking to determine the time of day and stream associated content in combination with data on the user's preferences and mood (Persson et al., 2022). Other patent applications describe how content can be tagged or saved by a user as relevant to a particular 'Moment' (e.g. 'running') to be played automatically when their device detects they are in that 'Moment' (e.g. in a particular geographic location associated with that activity, using a certain peripheral such as Bluetooth earbuds) (Liusaari et al., 2022). These innovations are all intended to enable a better synchronisation between the user's activity and the audio as expressed by a patent application; 'by matching the beat of the music to the cadence, the user's performance or enjoyment of the repetitive-motion activity may be enhanced' (Jehan et al., 2019: 2). The focus of the patent applications is on enjoyment or motivation but the utility of the innovations for marketing becomes clearer in the presentation to potential advertisers.

When introducing Spotify's 'Branded Moments' (30 minutes of ad-free music for 'free' users sponsored by a brand) Spotify's Head of Sales, America, highlighted how brands can exploit the personal relationship the platform has developed with users. She states that 'Moments' are '…opportunities now for a brand to come in and own' (BeetTV, 2016). The opportunity for 'ownership' is outlined:

> …for someone who is working out, an athletic brand or sports related or whatever kind of brand related to workout could come in and say 'hey listen Spotify I want to be part of this moment with your fan, I want to own this experience end-to-end, I don't want to share it with anyone' […]. For thirty minutes that fan, that listener not only gets the workout experience on Spotify's playlist they also get a one-on-one relationship with one brand throughout that time. (BeetTV, 2016)

These are considered to be 'authentic moments' because 'music in and of itself is authentic … [because] unlike any other medium it is a reflection of yourself' (BeetTV, 2016). What Spotify is selling is the ability to brand a particular moment in someone's life in a similar way to how brands have long sought to attach themselves to the experience of sporting events and therefore the emotions associated with them. For Spotify, this is a means of incorporating the relationship people have with health, exercise, and wellness into circuits of capital accumulation by turning their 'passions' into a saleable commodity by packaging it for an advertiser.

The packaging of 'passions' can be seen further in the case study Spotify present to demonstrate the effectiveness of sponsoring exercise activities in the form of a partnership with the beer brand Michelob. Spotify:

> […] built a microsite that offers a custom running playlist for each listener who engages with the digital experience, influenced by their recent listening history [and…] the length and intensity of their run. (Spotify Advertising, n.d.b)

A user of this feature would use the Spotify website to select a run length, set their pace ('slow', 'medium', 'fast', 'Olympic'), select their city, are prompted to watch a Michelob ad, then receive a personalised playlist tailored to their situation (including weather conditions) in their Spotify account. If their workout is logged in a running app they can then submit this data to the Michelob website and claim rewards (free drinks, prize entries). The proposed benefits to the user are that well-crafted advertising can provide similar motivational benefits to music as '[t]he beat gets people to go that extra mile or struggle through the extra rep. A fitness brand can offer some supportive messaging at this moment' (Spotify Advertising, n.d.b). Spotify suggests that they can partner with a brand 'to create hyper-personalised playlists for every runner, and then reward them for a job well done' (Spotify Advertising, n.d.b). This is consistent with Spotify's existing strategy to harness the deep integration they have been fostering with users' body projects through recommendation systems and personalised playlists (e.g. 'Daily Wellness') and functions such as 'My HIIT Workout' playlists which select tracks based on listening history played alongside exercise instructions and timings. This is useful for brands as they can more intimately ingratiate themselves into personal and positively charged 'Moments' in users' lives:

> There's a special part brands can play in the relationship between working out and audio streaming […]. By delivering on a key need state, any type of brand can be relevant within the workout context. One common thread for these need states is that the listeners are focused on themselves and some form of self-improvement while they're working out. This is a great time to land an empowering

> message that creates a positive brand association. (Spotify Advertising, n.d.c)

Here it is proposed that the 'Moments' which Spotify can offer to advertisers are malleable to the needs of any brand. Exercise 'Moments' do not simply offer the chance to make a connection with exercise-related activities but offer a deeper connection to a psychological state which is attained during exercise, that is, users are focused on themselves and on self-improvement at that time. The claims made here build on the notion of 'need states' which are considered to be the primary driver for a consumer to make a purchase and through which a population of potential consumers can be segmented based on, amongst other factors, 'occasion-based segmentation' (Pincus, 2004: 381–383; The Valen Group, n.d.). Spotify's framing here is an attempt to demonstrate how basic human needs and desires associated with health, exercise and wellness activities (e.g. motivation, relaxation, inspiration) can be associated with brands through their platform and its approach to delivering advertising. It is beyond the scope of this article to deal with the validity of these claims as such but what is significant for our purposes is that Spotify are attempting to make a rhetorical connection between need states and brand value for potential advertisers. They are, then, a means of segmenting the audience to accumulate them into 'audience commodities'.

How users' attributes are 'bundled' into 'audience commodities' can be seen in a patent application which also highlights the relational character of this process. Spotify faces a significant 'cold-start' problem as engagement with ads on music streaming platforms is low. To tackle this, user activity is combined with demographic data and music taste to infer ad preferences for a subset of 'seed users' who *have* interacted with ads (Pustejovsky et al., 2022). Other users are then placed in a theoretical multidimensional space, using a 'nearest-neighbour search', to find the 'seed users' to whom they are closest and have their ad preferences applied (Pustejovsky et al., 2022). Users are, then, clustered together in a 'vector space' according to various data points based on their musical preferences and other contextual data such as time of day, emotional state, running activity, heart rate, etc. (Pustejovsky et al., 2022). This demonstrates how the data generation from the strategies mentioned above (e.g. repetitive motion detection, cadence monitoring) have 'chronobiopolitical' controls applied to them to make insights 'scalable' to others and to impose some degree of order onto the 'living multiplicities' of users (Edelstein, 2020: 147; Freeman, 2005: 4; 57; Petrina, 2020: 128; Stark, 2018; Wajcman, 2019). The 'bundling' occurs in a virtual realm of connections, somewhat similar to Facebook's 'Open Graph' (Axon, 2010), which is dynamic and modulates around the changing and ongoing practices of users.

Spotify's commercial framing of the value of exercise above stands in contrast to how most amateur athletes understand their activities. For instance, in existing work running has been identified as enabling individuals to form community ties and as an embodiment of social demands for autonomy and self-determination (Cubizolles et al., 2018: 340–344; Haberman, 2017; Pedersen et al., 2018). It is also seen as an activity which enables embodied interaction and integration with natural environments and social fields which increases bodily, social and existential capital (Allen-Collinson and Owton, 2015; Nettleton, 2013; Tulle, 2007). Spotify's framing above can easily be seen, therefore, as 'colonising' the everyday lives of users. However, the activities are not necessarily considered by Spotify to exist prior to the intervention as central to their narrative is that the platform both stimulates the activity and makes it more meaningful (Couldry and Mejias, 2019a, 2019b). Therefore, I suggest, Spotify's intervention can be characterised as the application of modulating controls to users' activities to ensure that they are performed in such a way that they are amenable to the extraction of surplus value (Davies, 2019: 520–523; Millington, 2016: 1194–1195). Users can thus, I suggest, be made to function efficiently within the system of financialised capitalism by generating data from meaningful, embodied activities and allowing their affective and desiring energies to be harnessed both to generate advertising for 'people like them' and to produce a meaningful narrative about Spotify as a company and a desirable investment opportunity.

Rhythm and tempo

This section will demonstrate how Spotify's innovations represent attempts to not only datafy the practices of users but implement a form of 'chronobiopolitical' control by analysing and exerting modulating controls over the rhythms and tempos of their health, exercise and wellness practices in a fashion useful for commercialisation. The broadest way in which Spotify seek to monitor, analyse and package the rhythm of their users' lives is by identifying the times of the year when they are most passionate about exercise:

> Streaming shows that January is a universal time for revamping your fitness routine, new gadgets included. Use creative audio spots to prove that your wearable tech product is key to keeping resolutions this year. Leverage the audio identity of voice assistants, giving Fitness Enthusiasts a glimpse into what an accountability partner can do for their goals and beyond. (Spotify Advertising, 2020: unpaged)

Given this commonly held passion for exercise in January, Spotify suggested that wearable technology products (e.g. smartwatches) can be aligned with the desire to improve

fitness through well-positioned advertising. This is similar to the 'chrononormativity' and intervention into the 'temporal scaffolding' of users' lives described by Eriksson and Johannson (2017) and Wajcman (2019) respectively as it targets individuals at standardised times and encourages them all to respond in similar ways. Less standardised rhythms are, however, identified by Spotify who reveal that users can be further exploited by advertisers through targeting them after their workout (presumably through playlists such as 'Songs to Sing in the Shower'). Here the positive feeling experienced after working out can be leveraged for association with a brand:

> Best thing about a workout? That sense of accomplishment when you finish it and the subsequent shower. Help the Fitness Enthusiasts who give it all by delivering: 30s audio spots that accompany the rejuvenating powers of the shower. (Spotify Advertising, 2020: unpaged)

Similarly, data suggests that running tends to happen before mealtimes meaning users might be particularly susceptible to indulgent food-based advertising:

> Running streams peak right before lunch and dinner. We'll lean into the 'treat yo'self' mentality. How? Get a body positive-musical artist with a lust for life and love for fries, to talk about their favorite indulgence or cheat meal. Because even the biggest fitness and nutrition aficionados can agree: you can still enjoy sitting down to a good burger with your kids. (Spotify Advertising, 2020: unpaged)

Here daily, weekly or annual patterns of exercise activity can be leveraged through targeting the times when users will be most receptive to advertising. These rhythms identified by user data are specific to individual users, unlike standardised targeting. This is consistent with the modulating controls of 'chronobiopolitics' described by Petrina (2020) as it responds to the patterns of particular individuals but this is deepened with a move to the more micro level of tempo as seen in the proposed datafication of cadence seen below.

In 2021 Spotify were granted a patent (Savage, 2021) for technology which would determine cadence and select media on this basis (Jehan et al., 2019). This attempt to capture the tempo of users' activities functions as a deepening of the 'chronobiopolitical' intervention described above as it both functions as an example of intervention into the temporal lives of users and a more direct means of capturing and modulating the practices of a multiplicity without reducing their affective intensities. The granularity of their targeting is such that it takes aim at the 'building-blocks from which a sense of the social is constructed' (Couldry and Hepp, 2017: 7). The patent described a system which can measure and analyse cadence, or the frequency of repetitive motions such as running, cycling or swimming. The rationale for this innovation is given as:

> The user may desire that the media content fits well with the particular repetitive-motion activity. For example, a user who is running may desire to listen to music with a beat that corresponds to the user's cadence. Beneficially, by matching the beat of the music to the cadence, the user's performance or enjoyment of the repetitive-motion activity may be enhanced. This desire cannot be met with traditional media-playback devices and media-delivery systems. (Jehan et al., 2019: 2)

Although the marketing potential of the innovation is not discussed in the patent it is easy to imagine how such a technology could enhance the kind of advertising with which Spotify are already engaged. Data on the cadence of a user could be deemed useful as a proxy for the intensity of their engagement with the activity. It is already assumed in the patent that cadence might indicate the user's 'desire' for a particular kind of music and Spotify is already engaged in aligning different styles and moods of music with consumer preferences and brands. Furthermore, it is proposed that the matching of 'repetitive-motion activity' with the beat of the music might enhance the user's performance or enjoyment which could put them in an emotional state which is receptive to particular kinds of advertising messages. This demonstrates how the 'governing of rhythm' can function through modulating controls by 'sensing' bodily patterns and making them productive without stymieing the passions which are the source of the value (Davies, 2019). It thus produces a means of generating 'affective publics' whose affective intensities can be identified, tracked, stimulated and targeted even though they are occurring on individualised schedules.

Spotify had previously offered a similar function called 'Spotify Running' which was retired in 2018 (Meahtenoha, 2018) presumably to focus on creating this more sophisticated version. The utility of such an innovation can be further identified through Spotify's advice to advertisers on 'How to reach millennials in the workout moment' with their suggestion to:

> Keep the tempo high and make sure the sounds of your creative are not invasive. Introduce your message in content that matches the general pace of the playlist through our real-time playlist targeting or genre and subgenre targeting. (Spotify Advertising, n.d.a: unpaged)

This strategy asserts the significance of not just identifying times or contexts when users will be amenable to messaging but also the importance of fitting the message with the music with which it will be integrated. Here it is proposed that effective advertising synchronises with the rhythm and

tempo of the user's life which similarly can be accessed through understanding of their Spotify use.

While the above pitches made by Spotify suggest that advertising on their platform can drive sales, they also focus on the ways associations can be built between brands and the life rhythms, moods, and emotional states of their users. Fitness-related activities (and the desire for health and fitness) are positioned as a particularly powerful route into peoples' intimate lives. Moreover, the examples cited above are demonstrative of the kind of 'bundling' of various types of data into packages which can be commoditised and sold to advertisers. Advertisers are not buying access to individuals but to the 'sense of accomplishment' after finishing a workout, a 'mentality' ('treat yourself') an aspirational desire ('January is a universal time for revamping your fitness regime') a social experience, or desire for it ('sitting down to a good burger with your kids') (Spotify Advertising, 2020: unpaged).

The search for persuadable users and 'Moments' when they are susceptible has led Spotify to seek deeper understanding than the relatively surface-level correlations between rhythms and tempos described above through analysis and exploitation of personality and emotional and physical states.

Emotions and personality

The two sections above highlight how Spotify constructs health, exercise and wellness 'Moments' for users, based on both standardised and personalised rhythms, and datafies and analyses the tempo of their activities to measure the intensity of their activities. Both help to exercise 'chronobiopolitical' control by constructing 'temporal subjects', identifying times when users might be more amenable to marketing messages and assessing the intensity of their engagement (e.g. through analysis of cadence). This section will discuss some of Spotify's attempts to generate data on emotions and personality which, when combined with the above-discussed data, are considered useful for identifying affective states and intensities and related cultural preferences. Such understanding is particularly important for identifying marketing opportunities and enabling users to be inserted into the affectively driven circuits of financialised capitalism.

A study conducted by a researcher employed by Spotify found that data on listening habits taken from the platform including song selection and context of listening was effective at predicting personality traits in the listener (Anderson et al., 2021). The study drew on the 'Big 5' personality traits often used in marketing research and used to structure social media persuasion campaigns run by Cambridge Analytica (Brodwin, 2018; Caliskan, 2019; Hirsh et al., 2012). They found that 'emotional stability' (usually referred to as 'neuroticism') and 'conscientiousness' were the most predictable and suggested that people with low scores on these measures:

> may select music to regulate their emotions (e.g., searching for music with matching emotional content), and users who score high on Conscientiousness may choose music based on goal-oriented behavior (e.g., study music, workout music). (Anderson et al., 2021: 8)

The company also submitted a patent application for a system to use listener behaviour to derive a personality profile which could then be used to tailor content (Gibson et al., 2020; Stassen, 2020). The authors of the study proposed two possible underlying mechanisms which might explain their findings:

> On the one hand, people may seek out music that reflects their personalities […]. Alternatively, people's personalities may be shaped by the music they are exposed and listening to. (Anderson et al., 2021: 8)

In the patent application, the rationale offered for the system is:

> To assist users in having a positive user experience, media content providers track and process the data in an attempt to understand your preferences, and ultimately to provide relevant content personalisation […]. Accordingly, there is a need for systems and methods for personalising media content in accordance with one or more personality traits associated with the user. (Gibson et al., 2020: 1)

Spotify describes itself as a 'two-sided market' (Baglietto, 2020; Houghton, 2019; Ingham, 2019a) referring to the subscription and advertising sides of the business. The first explanation in the quotation above would be beneficial to the subscription business as this would mean that the platform would be able to analyse interactions with the platform, determine personality type and deliver music which would appeal to the user, keep them engaged and therefore maintain them as a paid subscriber. The second explanation would be useful for the advertising side of the business as this would mean that musical choices could be promoted to users which could shape their personalities into types which would be more amenable to advertising. While the paper by Anderson et al. (2021) shows that personality traits can be predicted from music choices, in order for the technology suggested in the patent to be effective it would also need to be established that personality is a good predictor of musical preference. That is unless the personalisation referred to in the patent is not primarily intended for delivering music. A meta-analysis of studies of personality and music preference found that 'personality traits are not a good predictor of musical style preferences' (Schäfer and Mehlhorn, 2017: 271). However, the patent indicates that Spotify does not only intend to use musical preference in their predictions but other engagements with

the platform such as 'track skipping'. They suggest that the innovation

> may determine that a threshold use of a skip feature is assigned to neuroticism. As another example, the electronic device may associate threshold use of a shuffle feature is assigned to openness. (Gibson et al., 2020: 7–8)

While the utility of using personality as a predictor of musical preference is questionable its use is well-established in marketing research and practice (Caliskan, 2019; Hirsh et al., 2012; Patton, 2020). Spotify has demonstrated its interest in using this kind of analysis to influence consumer behaviour in physical locations. They are the main investor in 'Soundtrack Your Brand' an online service which produces Spotify playlists for retail environments. Their CEO and co-founder, Ola Sars, claims 'Music can affect your emotions, it can probably affect your behavior' (Farmbrough, 2018: unpaged) meaning that aligning with a mood produced by certain music will drive sales. While 'Soundtrack Your Brand' represents a revenue stream in itself, it would also seem likely that Spotify will use similar methods to influence the persuadability of direct users of their platform.

A further data stream for analysing the potential persuadability of users can be seen in a patent application from Spotify (granted in 2020) for a technology which would use speech recognition to guess the emotional state of a user and recommend music on that basis (Savage, 2021). The patent states that:

> …the emotions object could be classified using any number of approaches. One approach is Parrott's emotions by groups, which uses a tree-structured list of emotions with levels (e.g., primary, secondary, tertiary). A more basic approach might simply categorise the emotion into happy, angry, afraid, sad or neutral. For example, prosodic information (e.g., intonation, stress, rhythm and the like units of speech) can be combined and integrated with acoustic information […]. Using this architecture, that prosodic information allows the emotional state of a speaker to be detected and categorised. (Hulaud, 2021: unpaged)

Although the patent focuses on the potential of the innovation for music recommendations Spotify has elsewhere made their intention to use understanding of users' moods for targeted advertising. As Amarjit Singh Batra, Spotify's Managing Director for India stated:

> We want to help brands to create personalised content which directly communicates with our listeners. We do not want to stream ad campaigns which our users dislike or get irritated with. We are understanding our users by collecting data in terms of behaviour, mood, age group, daily activities, taste in music, geography and choice of preference. We want brands and agencies to analyse this data and create campaigns which are directly relevant and connect to our listeners. Brands can provide solutions to our listeners by understanding their moods. (Rodrigues, 2019)

The innovations cited above demonstrate a drive towards determining personality traits and capturing emotional states which, given Spotify's expansion into advertising, is likely to be used for targeted marketing. It is well established that other platforms have drawn on similar data and analysis for the same purposes and they are seen as central for political and commercial persuasion (Bakir and McStay, 2018; Hallinan et al., 2020; Levin, 2017; Till, 2021). Such data is also crucial for constructing 'scalable subjects' who will be useful in constructing 'audience commodities' by being situated within the 'vector spaces' described above (Stark, 2020; Vonderau, 2017). This shows that Spotify is not only interested in hooking advertising messages to positive moments of athletic achievement but also in negotiating access to emotional states and personality traits.

Conclusion

Spotify's so far elusive profitability has led to them pursuing a funding strategy increasingly built on advertising and stock market investment which has seen them become more deeply integrated into systems of financialised capitalism. As the company comes to be structured around attracting investment, with other areas of business subordinate to this, 'fictitious capital' becomes ever more significant. These inherently speculative and future-oriented commodities rely on symbolic and affective resources to tell convincing stories about future value (either profits or higher share prices). Spotify has identified health, exercise and wellness activities as a key area for the production of meaning to service their investment strategy. These are some of the more prominent targets for such interventions due to their centrality to many users' sense of self and body projects and their association with intense physical and emotional experiences assumed by Spotify to be strongly related to the potential for persuasion (Spotify Advertising, n.d.c; Thualagant, 2016; Wiltshire et al., 2018). However, these are crucial aspects of individuals' and groups' sense of self, self-expression, identity and broadly corporeal being in the world. As with more familiar forms of digital 'self-tracking' practices (e.g. by Fitbit and Apple Watches) there is the danger of these practices being, at least to some extent, defined through their financial value (Till, 2014). The case here, therefore, represents a development and elaboration of the datafication and commodification of social media content and exercise activity (Dewart Mcewen, 2018; Till, 2014). The focus on temporality and targeting of activities as they happen means that rather than transforming an embodied activity into a cold, rational,

detached quantity and, in the eyes of some scholars, reframing the users as a business (Lupton, 2013, 2014, 2016a) it opens up such activities to intimate and affective engagement. While data on the activity is necessary it is the meaning-making practices which occur with the intertwining of the activity with audio where the value lies for the platform and potential advertisers. This functions as a means of integrating exercise activities into the circuits of financialised capitalism by stimulating and capturing meaningful and affectively engaging events in peoples' lives which can be repurposed both as prediction products and for constructing narratives about their profitability to investors and shareholders.

Data is generated from streaming activity and how this occurs alongside health, exercise and wellness activities to inform the construction of 'affective publics' made up of users who can be more effectively bundled into 'audience commodities' through being situated in a 'vector space' with other users and therefore estimate their potential for targeting (Papacharissi, 2014; Pustejovsky et al., 2022; Stark, 2018, 2020; Vonderau, 2017). The value of these audiences for marketing and the promise of the technical innovations discussed in this paper are used to construct a story to investors about the value of the Spotify brand and how it can enable integration with the intimate, personal lives of their users (Cegłowski, 2014; Davis, 2018). This represents a further opening up of aspects of everyday lives to commercial exploitation through datafication and contributes to an attempt to reposition health-related practices as assets which can be packaged for investment portfolios. The publications analysed in this paper demonstrate some of the ways in which Spotify seek to both monitor and shape practices of users to make them more amenable to this financialisation.

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