

Exploring the implications of blockchain technology for brand-consumer relationships: a future research agenda

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Exploring the implications of blockchain technology for brand-consumer relationships: A future research agenda

Purpose

This conceptual paper delves into the implications of blockchain technology adoption for brands and consumers. Drawing on existing branding literature and real-life applications of blockchain, the challenges, risks and opportunities from blockchain adoption for four important areas of the branding literature are canvassed (i.e., brand positioning and corporate brand image, consumer-brand relationships, online brand communication and consumers' trust in the brand). Also, a future-oriented discussion is provided that highlights some important avenues for researchers in the field.

Design/methodology/approach

This conceptual discussion sheds light on the potential implications of blockchain technology for brand-consumer relationships. To do so, an analytical review of the blockchain literature is conducted, the nature of blockchain technology is presented and its unique features and functions for brand-consumer interactions are discussed.

Findings

This work ignites an exploratory discussion around how blockchain applications and platforms can affect consumer-brand relationships, drawing on a number of real-life examples of blockchain adoption. This discussion sheds light on how blockchain features can impact on various areas of interest for strategic brand management, such as the adoption of digital currencies, brand storytelling, the use of blockchain-enabled loyalty programmes, the role of intermediaries in online advertising, counterfeit consumption, brand transparency and trust for brands in online marketplaces, among others.

Originality/value

This is one of the first conceptual efforts in the branding literature that draws on the scarce existing knowledge around blockchain adoption and discusses the potential implications of blockchain technology for brands and consumers while also providing directions for future research.

Keywords: blockchain technology, online branding, consumer brand trust, consumer-brand relationships, brand transparency, digital currencies

Introduction

The role of branding is central in delivering a firm's promise to consumers in a competitive global market, reassuring them of the quality of the products purchased (Veloutsou and Moutinho, 2009). Whereas, in the past, brand managers used mass marketing approaches to pass their brand messages on to consumers, the rise of the Internet and the proliferation of social media has disrupted traditional brand communications and shifted the focus and scope of brand management to online and technology-mediated interactions (Christodoulides, 2009; Kohli, Suri and Kapoor, 2015). In this era of digital intermediation, recurring technological advancements (e.g., blockchain, virtual reality) provide new opportunities for brands to foster their relationships with consumers; however, they also create new challenges that might result in wide repercussions, damaging customers' experience with the brand (Scholz and Duffy, 2018).

Echoing this new reality, the branding literature increasingly focuses on how social media can affect consumers' advocacy and online reviews (Kohli *et al.*, 2015; Karakaya and Barnes, 2010). Also, pertinent work examines the role of online brand communities and consumer collectives for consumers' brand engagement (Laroche *et al.*, 2012; Essamri *et al.*, 2019), the use of interactive communication approaches (e.g., storytelling) in building consumers' brand relationships (Pera and Viglia, 2017) and the impact of user-generated content on consumers' experience with the brand (Kim and Johnson, 2016; Veloutsou and Guzman, 2017). Despite this evidence, limited work in this stream explores how firms can integrate such emerging technologies in their branding efforts and, more importantly, how these technologies change consumers' experience with the brand and create value for them (Scholz and Duffy, 2018; Gielens and Steenkamp, 2019).

'Blockchain' constitutes one such foundational technology that allows the use of decentralized databases and peer-to-peer networks to store a registry of transactions

cryptographically chained together (Kokina *et al.*, 2017). The term ‘blockchain’ refers to the use of a shared distributed database, which processes any digital transactions over a network of users and tracks the tangible or intangible assets involved in it (Iansiti and Lakhani, 2017). Although existing work in marketing and branding journals around the potential challenges and opportunities from blockchain adoption remains scarce (Hughes *et al.*, 2019; Morkunas *et al.*, 2019; Montecchi *et al.*, 2019), blockchain-based apps and platforms have become increasingly popular over the past few years in various industries from airlines to retailers and financial service providers (Kokina *et al.*, 2017; Casino *et al.*, 2018).

The adoption of this foundational technology from businesses is reported to affect several aspects of their marketing performance, including brand communications, the design of online marketing campaigns and the brand’s transparency to consumers (Risius and Spohrer, 2017; Önder and Treiblmaier, 2018). As blockchain features have the potential to change the way consumers interact with and connect with brands, firms need to consider carefully how they might become affected by rapidly growing blockchain-enabled apps (Mattila, 2016; Tapscott and Tapscott, 2017). Hence, an important question raised is: How does the adoption of blockchain technology affect a firm’s efforts to build and enhance consumers’ relationship and experience with the brand?

This conceptual paper aspires to shed light on how this foundational technology can affect strategic brand management and to explore its potential implications for consumer-brand relationships. To achieve this, first, a review of the nature of blockchain takes place and its key underlying features are briefly discussed (i.e., use of decentralized databases, peer-to-peer transmission, transaction visibility, irreversibility of transaction records, lack of data ownership, anonymity, efficiency). Second, a number of challenges and opportunities that derive from blockchain adoption are presented in light of existing branding knowledge. Third, this discussion provides insights around blockchain technology’s impact on four areas

of strategic brand management (i.e., brand positioning and corporate image, consumer-brand relationships, online brand communication and consumers' brand trust). This discussion adds to pertinent literature around how technological advances and disruptive innovations affect consumer-brand relationships (e.g., Swaminathan, 2016; Hughes *et al.*, 2019) and around the management of brands in the online environment (Gielens and Steenkamp, 2019; Essamri *et al.*, 2019). Finally, some extensive research directions are provided, offering insights to researchers in the online branding and technology areas.

The underlying features of blockchain technology

Blockchain constitutes a peer-to-peer technology that was introduced as a solution to the so-called 'double spending problem' (i.e., a potential flaw in a digital transaction in which money can be spent more than once, as the copies sent on the Internet are not unique) (Hawlitshchek *et al.*, 2018). The definition of the term *blockchain* is quite complex; its origin can be traced back to Nakamoto's original white paper (2008). This paper describes a technology component underlying the cryptocurrency as a series of data blocks, which are cryptographically chained together. Blockchain is a large distributed digital database (or ledger) that stores records of transactions (Pilkington, 2016); it consists of a continuously growing list of records and data structures, called 'blocks', which are linked and secured cryptographically.

When a new user joins a specific blockchain network and initiates a transaction (e.g., monetary transaction), the transaction is broadcast to the peer network and every network user receives a copy of all the info previously stored on the blockchain until that moment (Risius and Spohrer, 2017; Tapscott and Tapscott, 2017). Once verified from the peer network, this transaction is given a unique identity and is added into a new block at the end of the chain. Each block constitutes a bundle of transactions that are sent to other users in the network once executed; these blocks together form a chain, namely a blockchain (Crosby *et*

al., 2016; Risius and Spohrer, 2017). This linked sequence of blocks holds transactions that are secured by public-key cryptography and communicated to the network community (Tapscott and Tapscott, 2016; 2017). Once a transaction is appended to the blockchain it cannot be altered, turning a blockchain into an unchangeable record of past transactions and, at that point, the transaction is completed (Seebacher and Schüritz, 2017; Ksetri and Voas, 2019). Figure 1 below displays visually the steps in a transaction in the blockchain network.

Insert Figure 1

This conceptual discussion draws on a literature review made around blockchain. In conducting the literature review, prior work in the area was followed (Gabbott, 2004; Denyer and Tranfield, 2009); this recommends the use of specific criteria and steps in the selection of articles for review so that an unbiased and inclusive view of the domain of interest is produced (Grinsven *et al.*, 2016). First, a computerized database search took place in Business Source Premier, ABI/INFORM Global, Web of Science and Scopus. The keyword ‘blockchain’ and interchangeably the keywords ‘consumers’, ‘users’, ‘customers’, ‘marketing’ or ‘branding’ in the title, abstract or keywords, were used to search relevant articles.

Overall, the literature searches resulted initially in 135 published academic articles, books and conference papers. These items, all published after 2014, were retrieved from the search. In looking closer at this work, 38 articles and conference publications were found to be relevant in an organizational/business context. To gain a better understanding around blockchain, this work was further used to support the arguments presented in this work. In examining the relevance of these articles/conference papers with the focus of this work (i.e., the impact of blockchain on marketing/branding activities) we note that; the vast majority of this work is conceptual/theoretical in nature (28); many of them are conference papers (23); there are only seven papers published in ABS-ranked journals; about a third of this work is

industry specific (14); and few articles take a business perspective and draw on secondary data from the energy/electricity industries (4).

The focus of this literature is mostly on the underlying features of blockchain (e.g., Iansiti and Lakhani, 2017), its implementation consequences in specific industries (e.g., food, electronics, etc.) and outlines some of its implications for organizations and new business models that could emerge (e.g., Casino *et al.*, 2018; Morkunas *et al.*, 2019). Other work on blockchain (articles, conference papers, books, etc.) was also evident in the search, focusing on blockchain implications that are beyond the scope of this article, such as policy implementation (19), energy trading and engineering infrastructures (37), supply chain/production networks (29), healthcare applications (22) and international trade (11).

Key facets of blockchain technology

The first unique facet of blockchain is the default *use of a decentralized digital database*, which refers to the fact that a decentralized copy of any blockchain transaction exists for other users of the network. This allows every party to access the entire transaction background of previous transactions made by any parties involved (Risius and Spohrer, 2017) and each user has its own, local copy of each blockchain created. Therefore, to change information that already exists in the blockchain, one would have to modify all existing peers that already contain all the previous information on the blockchain (Basden and Cottrell, 2017). This distributed transaction validation prevents any party from controlling the flow of information and, at the same time, allows other parties to verify the records of its transaction partner directly, without the use of any intermediaries (Iansiti and Lakhani, 2017; Pilkington, 2016). As a result, blockchain is permissionless and *transaction data are not owned or controlled by any party* (e.g., between firm and consumers); all parties have to give up control of their data, which results in wide transparency to all transactions taking place in blockchain-based networks (Basden and Cottrell, 2017).

The second facet of blockchain technology is *peer-to-peer transmission*. When it comes to the execution of any transaction between two parties, the communication process between transaction partners takes place directly between these parties without any intermediary, as is usually the case with traditional online exchanges (e.g., online purchases), which are validated and stored from an independent third-party (e.g., credit card provider) (Iansiti and Lakhani, 2017; Hawlitschek *et al.*, 2018; Boukis and Magrivos, 2018). Blockchain is viewed as the “trust machine”, suggesting that it eliminates the need for trust between peer-to-peer transactions (*Economist*, 2015). The elimination of intermediaries from peer-to-peer transactions makes the transactions quicker and more cost effective; users interact with each other without having to use a trusted third-party and blockchain itself ensures data integrity (Kosba *et al.*, 2016; Tapscott and Tapscott, 2017). Hence, *transaction efficiency* is another important facet of blockchain technology.

In addition, the type and features of every transaction made in blockchain networks *are visible to any party with access to the network*. Each user has a unique identifier (i.e., blockchain address), which is used for every transaction made in the network (Iansiti and Lakhani, 2017). Blockchain also offers pseudonymity, as transactions only occur between the validated unique addresses possessed from various network users. The users can remain *fully anonymized to other users* or choose to reveal some evidence of their identity. Hitherto, allowing third-party access to encrypted data by other users is another feature of blockchain (Zyskind and Nathan, 2015). Blockchain networks could be used for the safe storage of large amounts of anonymous customer data, ensuring individual anonymity, while also allowing third-parties to use this data to offer more value to their customers (Lee and Pilkington, 2017).

Another facet of blockchain is the *irreversibility of transaction records*. Once any transaction is made and entered into the decentralized blockchain database, the records

cannot change; this is because they are linked to all transactions previously made (Crosby *et al.*, 2016). Data of blockchain-based transactions exist at multiple parties over the network and every transaction that occurs is permanently recorded in chronological order (Iansiti and Lakhani, 2017; Basden and Cottrell, 2017). Therefore, blockchain data remain consistent, time-stamped and accurate.

These are not the only important facets of blockchain technology, but there is a variety of additional features that are constantly evolving and are likely to widen the range of blockchain applications (Pilkington, 2016; Seebacher and Schüritz, 2017). For example, blockchain applications also enable the use of “smart” contracts; these can self-execute a set of provisions in a contract, such as an agreement between a booking site and an airline, which can be executed autonomously once the agreed event occurs (Crosby *et al.*, 2016; Kosba *et al.*, 2016).

Implications of blockchain technology for consumer-brand relationships

Recent work has started to delve into how blockchain technology affects existing business models and organizational functioning in various industries, including online retailers, healthcare, hospitality, governmental services, etc. (Kshetri, 2018; Casino *et al.*, 2018; Hughes *et al.*, 2019; Morkunas *et al.*, 2019). Nevertheless, there is still little guidance about how brands could act on this new technology to improve customers’ experience and increase their engagement with the brand. In light of blockchain adoption, the focus of brand management in those industries is likely to evolve from enhancing brand equity (Chatzipanagiotou *et al.*, 2016) into offering brand promises to consumers that can be displayed, captured, assessed and transferred via digitally-recorded transactions (Crosby *et al.*, 2016; Mougayar, 2016; Ghose, 2018). The following sections explore how blockchain adoption can affect four important aspects of brand-consumer relationships. These areas include (1) brand positioning and corporate brand image; (2) the benefits from consumers’

relationship with brands; (3) online brand communication and (4) consumers' trust in the brand. Figure 2 visually depicts these areas.

Insert Figure 2

Improve corporate brand positioning and brand image

Digitalization and the dominance of social media have brought technological advancements to the forefront of research around how companies can build their corporate brand image or co-create their brand meaning online (e.g., Fuchs and Diamantopoulos, 2010; Gammoh *et al.*, 2011; Ramaswamy and Ozcan, 2016). Given the real need for brands to build direct and authentic interactions with internal and external stakeholders through technology-mediated communication, adopting new technologies that can register a brand's unique features has changed their brand positioning channels and strategies (Laroche *et al.*, 2013; Keller, 2017; Boukis and Christodoulides, 2018). For instance, recent work explores how new interactive technologies could affect corporate brand positioning and how consumers experience brand image through them (e.g., Scholz and Duffy, 2018; Dacko, 2017). In this vein, the adoption of blockchain could affect a corporate brand's image through (1) the adoption of brand-specific digital currencies and (2) increasing its brand storytelling capabilities.

Adopting corporate brand digital currencies

The launch and exponential growth of cryptocurrencies (or digital currencies), whose backbone is blockchain technology, have resulted in several online retailers and service providers (e.g., Expedia, Dish, Microsoft, KFC Canada, CheapAir) announcing that they accept payments in digital currencies, such as Bitcoin. Apart from the wide use of digital currencies in various online marketplaces and C2C transactions, blockchain also enables firms to issue their digital currencies for transactions with customers (Hawlitschek *et al.*,

2018; Kwok and Koh, 2018). For instance, Malaysian low-cost airline Air Asia has announced the launch of their own digital currency for their customers; this could replace monetary exchanges with their affiliated partners, such as local retailers and shops. These digital currencies could replace existing national currencies in firm-customer transactions (Cocco *et al.*, 2017), rendering them as a new element of their corporate brand image. The use of digital currencies is likely to change the transactional role of monetary exchanges between firms and consumers. Due to the increased exposure to brand elements, blockchain-enabled monetary exchanges between consumers and firms could enhance consumers' recall of the corporate brand and offer increased brand awareness (Baumann *et al.*, 2015).

Introducing brand-specific digital currencies might also entail some important risks for firms. Adding a new innovative and technology-related dimension into a well-established brand image entails the risk of a poor fit with the existing corporate brand's image. This might be more likely in cases where consumers' brand associations are infused with a long brand heritage (e.g., luxury brands), or when any technology-related product/corporate associations become misaligned with the brand's current positioning in a specific market (Morgan-Thomas and Veloutsou, 2013). Another risk linked to the launch of digital currencies is the high volatility of their value and lack of regulatory framework in their exchange in online marketplaces (Pieters and Vivanco, 2017). Given their peer-to-peer nature, firms or consumers have no real control of their exchange value (Kwok and Koh, 2018). As a result, high volatility in their exchange rate might result in eliminating financial benefits for consumers or even in financial losses, compromising the brand's promise to its customers.

Enhanced brand storytelling capabilities

Brand storytelling remains one of the key strategies to stimulate consumers' interest in various brand elements and render them more memorable in consumers' minds (Lundqvist *et*

al., 2013; Dessart *et al.*, 2015). As consumers seek experiences appealing to their emotions and dreams (Solja *et al.*, 2018), blockchain apps could help firms share a more inspiring and meaningful story to external audiences (Dacko, 2017; Nofer *et al.*, 2017). Brands with an authentic personality could leverage their corporate image via sharing their brand identity and long heritage into each of their products equipped with blockchain apps. For instance, Curtis Park Market (i.e. wine firm) enables consumers, through a virtual reality blockchain app, to find out about the story of each of their products, from its production to the store, by scanning a barcode on each bottle of wine (i.e. 19 Crimes Wine). This way, customers could search and gain deeper knowledge on the spot about the brand they purchase, making their experience with the brand more compelling and factual.

On the other hand, brands could face increased threats fuelled from the integration of blockchain features in their storytelling efforts (Dacko, 2017; Nofer *et al.*, 2017). Brand communication and positive user-generated valence might no longer suffice for sustaining an authentic brand image in the long-term. Firms might have to integrate blockchain apps to enhance their storytelling practices behind their brand portfolio and design more informative, authentic and interactive experiences with consumers.

More benefits for consumers from their relationship with brands

Technological evolution, the rise of social media and extensive C2C interactions have given consumers increasingly more leverage and influence over brands in the past few years. Pertinent work acknowledges that emerging technologies (e.g., augmented reality) and new forms of online interactions (e.g., online communities) have made consumers better informed about their purchases, more demanding with regards to their data privacy and more empowered to voice the experience they want with brands (Kim and Johnson, 2016; Morkunas *et al.*, 2019). Blockchain is likely to enable consumers to gain more from their relationship with brands, creating an even more competitive arena for firms (Lee and

Pilkington, 2017). Such power can derive from consumers' participation in blockchain-enabled brand loyalty programmes and through consumers' better control over their personal data.

Consumer participation in blockchain-enabled brand loyalty programmes

Although brand loyalty programmes traditionally aim at increasing consumers' share-of-wallet loyalty to the brand (Melnyk and Bijmolt, 2015; Odoom, 2016), evidence shows that brand loyalty schemes might not always be correlated with programme loyalty (Evanschitzky *et al.*, 2012; Kang *et al.*, 2014). Also, the tightly-defined rewards in point redemption, the fragmentation of loyalty schemes and the elimination of strong rewards for loyalty over time, resulted in lower consumer motivation to participate in loyalty programmes (Wendlandt and Schrader, 2007). As a result, consumers often do not realize the value of loyalty programmes or their programme loyalty might not evolve into brand loyalty (Kang *et al.*, 2014). In response, brands have embraced the use of modern technologies to reduce customer churn or enhance customer's participation in such schemes (e.g., Lee *et al.*, 2003; Bilgihan, 2016).

Through blockchain adoption, brands are enabled to use digital currencies (tokens) as a means of better loyalty points' redemption, improving customers' experience with such programmes (Iansiti and Lakhani, 2017; Kowalewski, McLaughlin and Hill, 2017). Customers exchange their loyalty tokens with others, allowing them to break out of one-size-fits-all loyalty programmes and gain a wider variety of rewards available (de Boer, 2018). In this vein, Singapore Airlines announced the adoption of a blockchain-based loyalty scheme in partnership with other national retailers. Their customers can have a "digital wallet" for all their loyalty points with the option of redeeming them at varying local partners; they would no longer have to wait for long periods to accumulate their points.

Blockchain-enabled loyalty programmes could also incentivize customers to cash loyalty points out in other industries, or exchange them for other currencies if their value significantly increased (Ksetri and Voas, 2019). Increasing the variety of redemption options could significantly increase the internal value of digital currencies for consumers, further encouraging their participation in blockchain-enabled loyalty schemes (Kowalewski, *et al.*, 2017; Casino *et al.*, 2018). Given the high visibility of blockchain transactions to all users of the network, brands could potentially offer more customized bundles of rewards to their customers over time, based on their prior redemption activity and their exchange preferences. Startups like Loyyal already offer blockchain-based loyalty incentives, which are easily exchangeable across different markets by using tokens to support and verify their value.

At the corporate brand level, blockchain adoption could drive brands to expand their partnerships to promote their own digital currencies. Just like brand alliances were formed to raise awareness in the minds of consumers (e.g., Star Alliance) (Newmeyer *et al.*, 2018), brands could profit from attracting and convincing consumers to redeem their points through their blockchain loyalty programme, instead of attracting them as customers in the first place. Such loyalty programmes could affect customers' experience with the brand (Lemon and Verhoef, 2016), resulting in more positive user-generated content about the firm's products and services. This development might be quite appealing for emerging brands, new brand extensions, or in cases where firms seek to build brand recognition rapidly among consumers (e.g., when entering a new market). In this scenario, an interesting paradox could emerge for brand loyalty schemes (e.g., Keiningham *et al.*, 2011; Kang *et al.*, 2014); consumers might be consistently purchasing a specific brand but their behavioural attachment to it would no longer echo their participation in its loyalty scheme; this is because they could opt in for other brand-specific digital currencies, seeking to maximize their financial benefits.

Consumers can gain better control of their data

Customer data is rapidly becoming the dominant currency of modern marketplaces. As brands have intensified their efforts to get more and better quality customer data to achieve more measurable results, consumer data privacy has become one of the biggest concerns of our time (Wu *et al.*, 2012; Plangger and Watson, 2015). Recent evidence shows that wide and unauthorized access to personal data enhances feelings of violation and reduces consumer trust in the brand (Martin *et al.*, 2017). To deal with this greater personal data vulnerability, blockchain-enabled browsers could allow consumers to gain better control over their data or manage it to their own preferences (Lee and Pilkington, 2017).

The wide adoption of blockchain would result in data no longer belonging either to firms or anyone else; rather it would become available to other network participants, consumers and even competitors (Basden and Cottrell, 2017; Iansiti and Lakhani, 2017). Compared to the previous state, where brands have been leveraging consumer data to fuel customer acquisition and inform their marketing strategy, consumers might have a more active say in how their own data are used. For example, platforms, like uPort and MetaMask, enable consumers to maintain some (or full) control of their identity and transaction data through using blockchain-based browsers.

The use of such browsers could offer an additional advantage to consumers, as they could also monetize their personal data by giving access to firms for their own use (Lee, 2017). Instead of advertisers struggling to gain information about their customers from various sources, blockchain could enable them to build unique anonymized customer profiles for their target markets from the data that customers themselves are willing to share (Mougayar, 2016). For this to happen, brands should first alleviate consumer concerns by showing them clearly how their data will be used (Lwin *et al.*, 2007). In exchange for providing such personal information, advertisers need to offer rewards and strong motives to customers to

reduce their data sharing concerns. Existing blockchain platforms, such as Basic Attention Token (BAT), allow digital ad exchanges between consumers and advertisers; tokens are issued for both parties and rewards are given for consumers' attention when viewing ads but also for advertisers, once their ads are viewed.

As consumers would be empowered to trade their data directly to advertising agencies, the need for intermediation between advertiser-consumer relationships is likely to decline (Iansiti and Lakhani, 2017; Plant, 2017). For instance, existing blockchain platforms, like BitClave, allow advertisers to reward consumers directly for viewing their advertisements, optimizing advertising spending for brands and offering a better experience for their customers. Brands in the future might systematically approach users and request access to their online activity in exchange for rewards made through digital currencies, without the intervention of third-parties (Puthal *et al.*, 2018; Montecchi *et al.*, 2019). Platforms like Filecoin attract new customers by offering blockchain-based cloud storage to secure their data in a centralized server, while at the same time rewarding them with tokens for using their services. In any case, marketers will be challenged to prove the value of their data-sharing relationship to consumers and find mutually beneficial ways to convince them to allow access to their personal data.

In any case, brands would have to reconcile with the idea that one of their most valued assets would no longer belong to them, as every user might have a copy of the data (Zyskind and Nathan, 2015; Hughes *et al.*, 2019). Brands should undertake a more active role in reaching consumers and offering them value so that they reciprocally help firms build new products and services. Inevitably, the question that will emerge is how firms can inform their marketing strategy quicker than competitors to better meet customer needs, which could change the nature of competition in many industries.

Authentication of brand communication

Today, given the dominance of social media in corporate and product communication, online advertising has become the mainstream channel for most brands (Pfeiffer and Zinnbauer, 2010; Okazaki and Taylor, 2013). However, the lack of verification about where online ads are being placed remains a key concern for brands (Metzger, 2007). This is because it has adversely affected trust among firms and intermediaries in the online advertising landscape, where ad fraud is estimated to have cost \$16.4 billion in wasted advertising in 2016 (WFA report, 2017). Moreover, online advertising is dominated by a few intermediaries (e.g., Facebook), who act as intermediaries between firms and their target clientele, increasing the cost per impression for brands (Gielens and Steenkamp, 2019). In exploring these challenges, relevant studies look into how brands can know more about where their ads are placed (e.g., Edelman, 2009) and provide insights on how firms can deal with digital intermediation (Kleis Nielsen and Ganter, 2018). Evidence also shows that new technologies can help brands tackle online advertising fraud, such as machine learning (e.g., Komulainen *et al.*, 2016). The implementation of blockchain could also help brands improve their advertising effectiveness and reduce the need for intermediaries, establishing more direct consumer-brand relationships.

Improved online brand advertising ROI

A first potential benefit of blockchain-based apps might be the decrease in wasted advertisement spending through verifying whether ads are delivered to targeted consumers (Iansiti and Lakhani, 2017; Ksetri and Voas, 2019). This can become feasible through the use of blockchain-based browsers that monitor the activity of users anonymously and allow ad displays to be tracked, providing advertisers and publishers with a comprehensive trail of ad campaign details (e.g., consumer profile of each viewer, conversion rates, etc.). This could provide marketers with a mechanism to know, with relatively high certainty, where their ads have been placed (Tapscott and Tapscott, 2017). For instance, blockchain platforms, like

BitClave, allow advertisers to ensure who is viewing their ads, at the same time rewarding consumers for doing so. Enhancing ad verification could be seriously attractive for advertisers, as displaying all click-throughs in real time would offer them much better value from online advertising for both parties involved (Ksetri and Voas, 2019). This way, brands would be enabled to measure their impact on consumers in a more reliable and objective way.

Reduced need for intermediaries

In the online advertising ecosystem, numerous intermediary firms are helping brands place ads on millions of websites. A potential long-term consequence of blockchain technology adoption is the reduced need for such intermediaries in online brand advertising (Mougayar, 2016). In the meantime, firms like Facebook use their vast amount of data and targeting algorithms to display personalized advertisements in the user's news feed to enhance advertising effectiveness (Aguirre *et al.*, 2015). Blockchain apps are likely to reduce the need for such intermediation (Iansiti and Lakhani, 2017; Ksetri and Voas, 2019). Instead of intermediaries between brands and advertisers, blockchain could independently verify the reliability of advertising, providing benefits to both parties (Plant, 2017; Hughes *et al.*, 2019). For instance, platforms like AdEx allow users to opt into advertising, ensuring that advertisers only pay for valid click-throughs; once the blockchain confirms that a user has viewed an ad, the contract would automatically release payment to the user's account.

Such applications could allow brands to monitor where their ads are placed with higher accuracy, alleviating ad fraud from automated bots and ensuring their target audience is engaging with their ads (Metzger, 2007; Haddadi, 2010). As a side effect, the launch of blockchain-based registries (e.g., AdChain) can also, in principle, incentivize consumers to determine whether a publisher can be whitelisted or not. For example, platforms such as AdEx create a user profile web page; this allows the user to whitelist advertisers and voluntarily provide specific information on their interests to these favourable advertisers to

receive highly targeted ads (Zyskind and Nathan, 2015; Ksetri and Voas, 2019). Accordingly, brands can then decide on whether they should spend money on the specific publisher. In this direction, blockchain platforms, such as Brave, can validate and analyse each consumer's exposure through verifying the customer profile who saw the ad as per the specifics of a media contract.

Enhance consumers' trust in the brand

Brand trust relates to consumer willingness to rely on the ability of the brand to deliver its promise (Chaudhuri and Holbrook, 2001). Increasing consumers' trust in the brand has been one of the most desired outcomes of branding efforts so that firms can eventually enhance consumer-based brand equity (Delgado-Ballester and Luis Munuera-Alemán, 2005; Veloutsou, 2015). Prior work in the branding area has examined the role of online brand communities and community engagement for building trust in the brand (Laroche *et al.*, 2012), as well as examining how brand trust emerges in the digital environment or through technology-mediated interactions between firms and consumers (Becerra and Korgaonkar, 2011; Giovanis and Athanasopoulou, 2018). The wider adoption of blockchain could restore or enhance consumers' trust in brands in three ways; (1) through enhancing brand transparency; (2) through reducing counterfeit consumption; and (3) through increasing brand trust in online marketplaces.

Reducing counterfeit consumption

One way brands can make their customers trust them is to give them the necessary information about the product and the brand (Gefen *et al.*, 2003; Chiu *et al.*, 2010). However, one of the key challenges in contemporary markets that has yet to be addressed is the verification of product consumption, which remains a key issue in markets where counterfeit products thrive, such as luxury markets and online purchases (Phau and Teah, 2009). Counterfeit products remain a multi-billion industry that is harmful to several sectors and it is

hard to ensure that the products consumers receive through online platforms are authentic. This often results in increased loss of consumer confidence in online transactions (Clemons *et al.*, 2016) and negative brand experiences or increased product returns (Randhawa *et al.*, 2015). The branding literature has extensively explored consumers' motives, attitude and emotions towards counterfeits, as well as how various brand characteristics (e.g., brand image) affect counterfeit consumption (Bian and Moutinho, 2011; Evans *et al.*, 2019). Despite efforts to reduce this phenomenon, sales through social media platforms and online commerce exacerbate the sale of fake goods with harmful effects on businesses and consumers.

Blockchain-based apps could enable brands to track the entire life cycle of each product (from sourcing to production) and associate it directly with manufacturers (Pilkington, 2016; Francisco and Swanson, 2018). This level of certification will allow illegal merchandise to be more easily located and reduce the chance of fraudulent products reaching consumers. Moreover, in verifying the entire life-cycle of product purchases, consumers can reduce disinformation risk in their purchases (Kshetri, 2018; Montecchi *et al.*, 2019). Decreasing information asymmetry and chances for fraudulent product info could eventually result in increased brand trust from consumers (Chaudhuri and Holbrook, 2001). Echoing these benefits, firms such as John West print barcodes on their tuna cans that allow consumers to trace the tuna ingredients back to the fisherman who caught it. Likewise, various organic food suppliers already use blockchain apps as authenticity providers of products for consumers, minimizing concerns about the authenticity of their intended purchase (Apte and Petrovsky, 2016; Hughes *et al.*, 2019). Through blockchain-based apps, brands would be enabled to eventually reduce the harmful effects of counterfeit consumption but, more importantly, to reduce consumers' perceived risk and uncertainty in various consumption settings.

Increased brand transparency

Consumer awareness about social and environmental issues has increased in the past few decades and brands are held increasingly accountable for their actions while being expected to step up their corporate social responsibility (Christodoulides, 2009; Rea *et al.*, 2014; Kang and Hustvedt, 2014). As consumers require more detailed and transparent information about how brands impact third-parties (e.g., local communities), a major challenge for firms has been to make their value chain more transparent and consistently deliver their brand promise to its external stakeholders (Boukis and Christodoulides, 2018). Nevertheless, limited work examines “what exactly constitutes transparency in the eyes of customers” (Liu *et al.*, 2015; p. 451) and how consumers respond to the lack of brand transparency (Lin *et al.*, 2017).

Through blockchain adoption, consumers would eventually gain better access to more detailed information about products and services (Kshetri, 2018; Francisco and Swanson, 2018). This is due to the increased visibility of their supply chain activities, production process and/or service delivery process that blockchain networks offer to their users. As a result, interactions with brands would become more transparent, enabling firms to build consumer trust in the brand in the long term (Bengtsson *et al.*, 2010).

Blockchain is likely to enable brands to become more transparent to external stakeholders in providing information regarding the route of a product from raw materials to manufacturer to distributor to retailer, and finally, to the consumer (Apte and Petrovsky, 2016; Montecchi *et al.*, 2019). An early example of the technology in action is the firm that uses blockchain apps to monitor their whole production process (Francisco and Swanson, 2018). For instance, De Beers monitor their products (i.e., diamonds) through the supply chain to offer their customers registered and more responsibly sourced products. Existing blockchain platforms, such as Provenance and Babyghost, also allow customers to source products and track granular details of their production.

Through blockchain, firms can also make their internal service chain more transparent to their external stakeholders. Prior work in the service profit chain stream establishes that firms can enhance their performance through better connecting their internal production efforts with customers' experience (Heskett *et al.*, 2008). In this way, consumers might be able to gain a more comprehensive understanding about the value chain practices and its products, without relying on external sources of information, such as firm communication or online reviews (Mattila, 2016; Crosby *et al.*, 2016). This heightened supply chain transparency could alleviate consumers' concerns about product quality, a firm's suppliers labour practices, etc., and eventually increase their trust in the brand (Handfield and Bechtel, 2002; Agarwal and Shankar, 2003).

Brands could also utilize smart contracts to enhance their brand promise consistency when interacting with customers (Kosba *et al.*, 2016). By incorporating brand promises, customer policies (e.g., refunds) or contractual agreements into smart contracts, each party can ensure the other party's compliance with the contractual obligations previously undertaken (Mattila, 2016). The public verification and transparency of these promises made from brands can reduce any distress from the customer's side. For example, when customers sign contracts with service providers and agree on a specific date on which the available service needs to be delivered, smart contracts would automatically refund the customer if this condition is not met. In eliminating the costs and delays associated with traditional contracts (Crosby *et al.*, 2016), consumer perceptions that they being treated fairly will be enhanced and brands can easier demonstrate to their customers that they deserve to be trusted (Eggers *et al.*, 2013).

More trust in online marketplaces

Digital intermediation has resulted in the rise of consumer-to-consumer and online marketplaces (e.g., eBay, Alibaba), revolutionizing the way commerce has been conducted over the past decade. These markets allow consumers to find the right provider of a service or good they want, becoming independent brands and disrupting existing branded marketplaces or other providers (Subramanian, 2018; Gielens and Steenkamp, 2019). Despite their considerable success, the first issue when it comes to these marketplaces themselves is trust, especially when dealing with new sellers or first-time buyers (Hong and Cho, 2011).

Blockchain could eventually decentralize trust for online markets in two ways. First, by attaching trust to the seller on various marketplaces rather than to the sites themselves. Trust between parties no longer needs to be executed by a third party intermediary; every transaction is visible (so is every relevant detail about a service provider and a seller), and no reviews can be falsified (Subramanian, 2018; Hawlitschek *et al.*, 2018). In this context, open-source blockchain platforms, such as OpenBazaar, already connect buyers and sellers without intermediaries and the associated fees, allowing customers to purchase and sell products using a variety of existing cryptocurrencies.

Blockchain platforms could also prove vital in restoring or enhancing trust at the product level, where brand promises remain a key reference point (Kosba *et al.*, 2016; Subramanian, 2018). Blockchain-driven verification could enhance trust in online purchases from third-parties, such as high involvement product purchases (e.g., electronics), high-risk purchases (e.g., buying medication from third parties), second-hand products and online purchases of luxury brands. Blockchain adoption could also be of high interest in markets where higher brand accountability is anticipated (e.g., environment-threatening industries); when socially responsible behaviour is increasingly expected from the public (i.e., the financial sector); and when corporate responsibility is heavily intertwined with the nature of the product for sale (i.e., organic product sellers) (Castaldo *et al.*, 2009; Soppe *et al.*, 2011). Likewise, blockchain

apps can be vital in reducing consumer uncertainty for credence services/products; this is due to the lack of tangible evidence or consumers' inability to assess such purchases (Mattila and Wirtz, 2002). A summary of the key implications discussed above is provided below (see Table 1).

Insert Table 1

A Future Research Agenda

The adoption of new technologies, the digitalization of media consumption and the rise of social media has altered consumer-brand relationships in the past few decades (Gielens and Steenkamp, 2019). As blockchain apps are becoming increasingly visible in an array of business and marketing functions, some important implications might exist in how brands connect with consumers in the future (Iansiti and Lakhani, 2017), despite the fact that this technology remains in its nascence. Adding to the stream that looks into the challenges deriving from various technological advances and digital innovation for brands (e.g. Keller, 2017; Gürhan-Canli, *et al.*, 2018; Hughes *et al.*, 2019; Morkunas *et al.*, 2019), a research agenda is provided to help scholars address some of the challenges that are likely to emerge from the wider adoption of blockchain technology. Building on the prior discussion, four key areas of interest are suggested: (1) the adoption and use of blockchain from consumers; (2) the impact of blockchain on consumers' experience with the brand; (3) the implications of blockchain for the use of personal data; and (4) the implications of blockchain for corporate brands and organizations.

Blockchain adoption and consumer usage

The first area for future investigation is around *blockchain technology adoption and its usage from consumers*. Existing literature proposes various technology acceptance frameworks (e.g., unified theory of acceptance and use of technology) and innovation diffusion models (Im *et al.*, 2011) to understand consumers' attitudes towards the adoption of

technology. Given that adopting blockchain features involves paradigmatic shifts in key aspects of consumer behaviour (e.g., payment behaviour), investigating its barriers and enablers in its diffusion as a new technology across consumer markets is an issue of high interest for practitioners (e.g., Tarhini *et al.*, 2015). Some interesting questions emerge for future exploration: To what extent can blockchain adoption be understood through existing technology acceptance frameworks? To what extent do the different processes of social influence that change user behaviour in technology acceptance (i.e., internalization, identification, compliance) remain relevant in a blockchain context? What is the role of environmental/market contingencies (e.g., high volatility in the value of cryptocurrencies), social influences (e.g., social media use) and consumers' cultural background (e.g., culture-technology fit) in their attitude and intention to use blockchain apps and platforms? How do consumer perceptions of the crypto-market affect their attitude towards blockchain apps?

The consequences of blockchain adoption for *consumer usage levels and their interaction with blockchain-based apps* is also a fruitful area for research. Following recent efforts in the area where researchers examine the implications of blockchain features for various organizational functions (e.g., Lee and Pilkington, 2017; Morkunas *et al.*, 2019; Montecchi *et al.*, 2019), additional answers are needed on the following questions: How do the design and usability features of blockchain apps (or platforms) shape consumers' usage intentions of such apps? What type of benefits (e.g., emotional, financial) do consumers receive from the use of blockchain apps and platforms? How do different blockchain features (e.g., the level of interactivity) affect users' experience and perceived consumer risk (e.g., psychological, financial risk, etc.)? Also, what type of rewards could brands use to reduce consumer uncertainty and facilitate consumers' adoption of blockchain apps?

Blockchain and consumers' experience with the brand

A second important area of inquiry lies around how blockchain features could affect *consumers' perceptions of, and experience with the brand*. Indeed, prior literature illustrates the role of new technologies in changing consumers' experience with brands and provides evidence on their impact on brand-customer relationships (e.g., Laroche *et al.*, 2012; Morgan-Thomas and Veloutsou, 2013).

In this context, future research should look into *how value emerges for consumers from using blockchain apps and platforms*, as well as contextualizing the determinants of consumers' experience with blockchain (Venkatesh *et al.*, 2012; Larivière *et al.*, 2013). In light of the discussion around how technology-mediated interactions among various stakeholders (B2C and C2C) affect value creation (e.g., Breidbach and Maglio, 2016; Ramaswamy and Ozcan, 2016), some relevant questions should be further addressed. For example, under which circumstances do blockchain apps enhance and sustain consumer-based brand equity? When combined with the use of other technologies (e.g., virtual reality), does the integration of blockchain apps augment the value that consumers experience? To what extent does the integration of blockchain platforms and apps in customers' interaction with the brand affect their willingness to co-create service experiences?

Given the unique features of blockchain (Risius and Spohrer, 2017), several uncertainties are likely to emerge around the positioning of mainstream brands, as well as the way brands interact with consumers online (e.g., Pfeiffer and Zinnbauer, 2010). For instance, to what extent do blockchain features (e.g., use of digital currencies) affect consumer perceptions of the brand's personality or the brand's corporate image? How could firms design more tailored and interactive experiences for consumers through blockchain apps? How can firms use blockchain-enabled storytelling to stimulate consumers' engagement with the brand, in product categories where consumers' motivation to do so remains low? How do consumers

evaluate the integration of blockchain features in various product and service categories? Do blockchain-enabled experiences remain equally appealing to consumers in different consumption contexts (e.g., hedonic vs utilitarian consumption, service offerings vs manufacturing products)?

Blockchain and the use of personal data

As technological advancements enabled firms to gain easier access to customer data (Kumar *et al.* 2013), data privacy has become one of the greatest sources of psychological strain for consumers (Wu *et al.*, 2012; Martin *et al.*, 2017). Although privacy compliance frameworks were introduced (e.g., General Data Protection Regulation), for public and private organizations operating in the EU to better protect personal data (Dimitrov, 2019), blockchain is viewed as a potential solution to these concerns through ensuring data anonymity (Hughes *et al.*, 2019).

Hitherto, the third avenue for exploration relates to the data sharing challenges that are likely to arise from wider blockchain adoption. Consumers might eventually face the dilemma of sharing their personal data for some benefit (e.g., financial) in exchange for more tailored marketing activities (Tapscott and Tapscott, 2017). The following questions would be of interest for brands: What type of rewards should firms use to encourage consumers to use blockchain-based browsers and give permission to firms to use their personal data? What is the role of rewards and referrals in consumers' intentions to share their anonymized personal data in blockchain networks? To what extent do consumers' perceptions of CSR and corporate ethics affect their willingness to share their personal data with a brand?

Corporate brand and organizational implications from blockchain adoption

Recent work has started to look into the impact of blockchain adoption on the corporate brand level, on firm's performance as a whole and on new business models that might emerge in the future (Casino *et al.*, 2018; Morkunas *et al.*, 2019). Given the wide network of data

availability, the transition cost to this new technology and the intensified competition that is likely to emerge among brands (Hughes *et al.*, 2019), insights on the following questions would be valuable for firms: How would the availability of customer data to other competitors affect the design of firm-level marketing strategies? Under which circumstances should firms with successful loyalty programmes move into blockchain-enabled loyalty schemes? In which markets do the use of blockchain apps remain financially rewarding? To what extent would the use of digital currencies benefit the firm's financial performance? When does blockchain result in enhanced ROI from various marketing activities?

Blockchain application and the underlying distributed database technology could also result in the emergence of new business models and peer-to-peer platforms in emerging markets (e.g., sharing economy) (Morkunas *et al.*, 2019; Hughes *et al.*, 2019). In this context, researchers could look into some of the following issues: What would be the features of new business models enabled from blockchain technology? What are the sustainable business models for existing online advertising intermediaries? What is the impact of integrating blockchain apps on sharing economy platforms on consumers' trust? How do blockchain apps affect second-hand markets and peer-to-peer sharing of their underutilized resources?

Limitations

Although blockchain features can offer new directions in the way firms build relationships with consumers, a wide blockchain-led transformation of brand-consumer relationships is far from evident due to some important technological limitations and barriers. For instance, there are often rising transaction costs in blockchain networks as the amount of information that needs to be verified in each transaction is radically increasing (Apte and Petrovsky, 2016). As a result, the cost of transactions in some blockchain networks (i.e., Bitcoin network) has become notable. Moreover, given that blockchain is used mostly as a widely accessed (but anonymized) database in marketing activities, the information entered

into such databases needs to be of high quality. For example, if falsified information about the source of a product is entered into the network, this information cannot be changed and will be carried across all transactions, misleading other network users. Finally, blockchains are not 100% flawless, especially in the case of the so-called “51% attack”, where a group of network users could take control of more than half of the blockchain network’s computing power and prevent new transactions from being verified (Seebacher and Schüritz, 2017; Ksetri and Voas, 2019). The aforementioned barriers are just some of the challenges that need to be overcome before blockchain apps can be widely implemented.

Conclusion

This conceptual paper aspires to ignite a discussion around how the integration of blockchain could affect consumers’ relationship and experience with the brand. Overall, some important insights emerge from the previous discussion that brands and researchers need to explore further and investigate the potential risks and benefits from this new foundational technology. First, brands should pay attention to the fit of blockchain features and apps with their existing corporate brand positioning and the extent to which such features could match their current standing in the market. Second, brands should re-visit the use of firm-based crypto-currencies as an alternative form of payment and assess its implications in the short- and long-term in terms of new customer acquisition and brand image revitalization. Third, firms should assess the extent to which various blockchain apps can add value to consumers and improve their experience with the brand and whether they could result in increased brand equity in the target market of interest.

Fourth, brands should revisit their customer loyalty programmes in light of this new technology and balance the risks and benefits from adding blockchain features in their customer loyalty schemes. A fifth important area is understanding the risks from the democratization of consumer data that firms will face in the future in their marketing tasks.

Sixth, further attention is needed on whether brands should move towards removing intermediaries in their online advertising campaigns and aim to find ways to incentivize (and reward) consumers to voluntarily share personal information, building more direct and genuine consumer-brand relationships. Seventh, brands should benefit from blockchain features and seek new ways to deliver their brand promise in an error-free way to their internal and external stakeholders, becoming more authentic, transparent and trustworthy.

References

Agarwal, A. and Shankar, R. (2003), “On-line trust building in e-enabled supply chain”, *Supply Chain Management: An International Journal*, Vol. 8 No. 4, pp. 324-334.

Aguirre, E., Mahr, D., Grewal, D., de Ruyter, K. and Wetzels, M. (2015), “Unraveling the personalization paradox: The effect of information collection and trust-building strategies on online advertisement effectiveness”, *Journal of Retailing*, Vol. 91 No. 1, pp. 34-49.

Apte, S. and Petrovsky, N. (2016), “Will blockchain technology revolutionize excipient supply chain management?”, *Journal of Excipients and Food Chemicals*, Vol. 7 No. 3, pp.76-78.

Basden, J. and Cottrell, M. (2017), “How utilities are using blockchain to modernize the grid”, *Harvard Business Review*, Vol. 3.

Baumann, C., Hamin, H. and Chong, A. (2015), “The role of brand exposure and experience on brand recall—Product durables vis-à-vis FMCG”, *Journal of Retailing and Consumer Services*, Vol. 23 No. 4, pp. 21-31.

Bengtsson, A., Bardhi, F. and Venkatraman, M. (2010), “How global brands travel with consumers: An examination of the relationship between brand consistency and meaning across national boundaries”, *International Marketing Review*, Vol. 27 No. 5, pp. 519-540.

Becerra, E.P. and Korgaonkar, P.K. (2011), "Effects of trust beliefs on consumers" online intentions", *European Journal of Marketing*, Vol. 45 No. 6, pp. 936-962.

Bian, X. and Moutinho, L. (2011), "The role of brand image, product involvement, and knowledge in explaining consumer purchase behaviour of counterfeits: Direct and indirect effects", *European Journal of Marketing*, Vol. 45 Iss ½, pp. 191-216.

Bilgihan, A. (2016), "Gen Y customer loyalty in online shopping: An integrated model of trust, user experience and branding" *Computers in Human Behavior*, Vol. 61 No. 1, pp. 103-113.

Boukis, A. and Christodoulides, G. (2018), "Investigating Key Antecedents and Outcomes of Employee-based Brand Equity", *European Management Review*, Vol. 4 No. 2, pp. 1-15.

Boukis, A. and Magrizos, S. (2018), "Managing brands in the blockchain era", in *Annual Macromarketing Conference proceedings*, Leipzig, Germany, 2018, pp. 2-4.

Breidbach, C.F. and Maglio, P.P. (2016), "Technology-enabled value co-creation: An empirical analysis of actors, resources, and practices", *Industrial Marketing Management*, Vol. 56 No. 3, pp. 73-85.

Casino, F., Dasaklis, T.K. and Patsakis, C. (2018), "A systematic literature review of blockchain-based applications: current status, classification and open issues", *Telematics and Informatics*, Vol. 36, pp. 55-81.

Castaldo, S., Perrini, F., Misani, N. and Tencati, A. (2009), "The missing link between corporate social responsibility and consumer trust: The case of fair trade products", *Journal of Business Ethics*, Vol. 84 No. 1, pp. 1-15.

Chatzipanagiotou, K., Veloutsou, C. and Christodoulides, G. (2016), “Decoding the complexity of the consumer-based brand equity process”, *Journal of Business Research*, Vol. 69 No. 11, pp. 5479-5486.

Chaudhuri, A. and Holbrook, M.B. (2001), “The chain of effects from brand trust and brand affect to brand performance: the role of brand loyalty”, *Journal of Marketing*, Vol. 65 No 2, pp. 81-93.

Christodoulides, G. (2009), “Branding in the post-internet era”, *Marketing Theory*, Vol. 9 No 1, pp. 141-144.

Clemons, E.K., Wilson, J., Matt, C., Hess, T., Ren, F., Jin, F. and Koh, N.S. (2016), “Global differences in online shopping behavior: Understanding factors leading to trust”, *Journal of Management Information Systems*, Vol. 33 No. 4, pp. 1117-1148.

Cocco, L., Concas, G. and Marchesi, M. (2017), “Using an artificial financial market for studying a cryptocurrency market”, *Journal of Economic Interaction and Coordination*, Vol. 12 No. 2, pp. 345-365.

Crosby, M., Pattanayak, P., Verma, S. and Kalyanaraman, V. (2016), “Blockchain technology: Beyond bitcoin”, *Applied Innovation*, Vol. 2 Iss. 2, pp. 6-10.

Dacko, S.G. (2017), “Enabling smart retail settings via mobile augmented reality shopping apps”, *Technological Forecasting and Social Change*, Vol. 124, pp. 243-256.

de Boer, E.R. (2018), “Future of the Frequent Flyer Program”, In *Strategy in Airline Loyalty* (pp. 227-244). Palgrave Macmillan, Cham.

Delgado-Ballester, E. and Luis Munuera-Alemán, J. (2005), “Does brand trust matter to brand equity?”, *Journal of Product and Brand Management*, Vol. 14 No. 3, pp. 187-196.

Denyer, D. and Tranfield, D. (2009), "Producing a systematic review", *The Sage handbook of organizational research methods*, pp. 671-689.

Dessart, L., Veloutsou, C. and Morgan-Thomas, A. (2015), "Consumer engagement in online brand communities: a social media perspective", *Journal of Product and Brand Management*, Vol. 24 No. 1, pp. 28-42.

Dimitrov, D.V. (2019), "Blockchain Applications for Healthcare Data Management", *Healthcare informatics research*, Vol. 25 No. 1, pp. 51-56.

Eggers, F., O'Dwyer, M., Kraus, S., Vallaster, C. and Guldenberg, S. (2013), "The impact of brand authenticity on brand trust and SME growth: A CEO perspective", *Journal of World Business*, Vol. 48 No. 3, pp. 340-348.

Essamri, A., McKechnie, S. and Winklhofer, H. (2019), "Co-creating corporate brand identity with online brand communities: A managerial perspective", *Journal of Business Research*, Vol. 96 No. 1, pp. 366-375.

Evans, B.P., Starr, R.G. and Brodie, R.J. (2019), "Counterfeiting: conceptual issues and implications for branding", *Journal of Product and Brand Management*, in press.

Evanschitzky, H., Ramaseshan, B., Woisetschläger, D.M., Richelsen, V., Blut, M. and Backhaus, C. (2012), "Consequences of customer loyalty to the loyalty program and to the company", *Journal of the Academy of Marketing Science*, Vol. 40 No. 5, pp. 625-638.

Francisco, K. and Swanson, D. (2018), "The supply chain has no clothes: Technology adoption of blockchain for supply chain transparency", *Logistics*, Vol. 2 No. 1, pp. 2.

Fuchs, C. and Diamantopoulos, A. (2010), "Evaluating the effectiveness of brand-positioning strategies from a consumer perspective", *European Journal of Marketing*, Vol. 44 Iss. 11/12, pp. 1763-1786.

Gabbott, M. (2004), "Undertaking a literature review in marketing", *The Marketing Review*, Vol. 4 No. 4, pp. 411-429.

Gammoh, B.S., Koh, A.C., and Okoroafo, S.C. (2011), "Consumer culture brand positioning strategies: an experimental investigation", *Journal of Product and Brand Management*, Vol. 20 No. 1, pp. 48-57.

Gielens, K. and Steenkamp, J.B.E. (2019), "Branding in the era of digital (dis)intermediation", *International Journal of Research in Marketing*, in press.

Ghose, A. (2018), "What blockchain could mean for marketing", *Harvard Business Review*.

Giovanis, A.N. and Athanasopoulou, P. (2018), "Consumer-brand relationships and brand loyalty in technology-mediated services", *Journal of Retailing and Consumer Services*, Vol. 40 No. 2, pp. 287-294.

Van Grinsven, M., Heusinkveld, S. and Cornelissen, J. (2016), "Translating management concepts: towards a typology of alternative approaches", *International Journal of Management Reviews*, Vol. 18 No. 3, pp. 271-289.

Gürhan-Canli, Z., Sarial-Abi, G. and Hayran, C. (2018), "Consumers and Brands Across the Globe: Research Synthesis and New Directions", *Journal of International Marketing*, Vol. 26 No. 1, pp. 96-117.

Habibi, M.R., Laroche, M. and Richard, M.O. (2016), "Testing an extended model of consumer behavior in the context of social media-based brand communities," *Computers in Human Behavior*, Vol. 62 No. 2, pp. 292-302.

Haddadi, H. (2010), "Fighting online click-fraud using bluff ads", *ACM SIGCOMM, Computer Communication Review*, Vol. 40 No. 2, pp. 21-25.

Handfield, R.B., and Bechtel, C. (2002), “The role of trust and relationship structure in improving supply chain responsiveness”, *Industrial Marketing Management*, Vol. 31 No. 4, pp. 367-382.

Hawlitsek, F., Notheisen, B. and Teubner, T. (2018), “The limits of trust-free systems: A literature review on blockchain technology and trust in the sharing economy”, *Electronic Commerce Research and Applications*, Vol. 29, pp. 50-63.

Heskett, J.L., Jones, T.O., Loveman, G.W., Sasser, W.E. and Schlesinger, L.A. (2008), “Putting the service-profit chain to work”, *Harvard Business Review*, pp. 118-129.

Hong, I.B. and Cho, H. (2011), “The impact of consumer trust on attitudinal loyalty and purchase intentions in B2C e-marketplaces: Intermediary trust vs. seller trust”, *International Journal of Information Management*, Vol. 31 No. 5, pp. 469-479.

Hughes, A., Park, A., Kietzmann, J. and Archer-Brown, C. (2019), “Beyond Bitcoin: What blockchain and distributed ledger technologies mean for firms”, *Business Horizons*, in press.

Iansiti, M. and Lakhani, K.R. (2017), “The truth about blockchain”, *Harvard Business Review*, Vol. 95 No. 1, pp. 118-127.

Kang, J. and Hustvedt, G. (2014), “Building trust between consumers and corporations: The role of consumer perceptions of transparency and social responsibility”. *Journal of Business Ethics*, Vol. 125 No. 2, pp. 253-265.

Karakaya, F. and Ganim Barnes, N. (2010), “Impact of online reviews of customer care experience on brand or company selection”, *Journal of Consumer Marketing*, Vol. 27 No. 5, pp. 447-457.

Keiningham, L.T., Lerzan, A. and Alexander Buoye, B.C. (2011), “Customer Loyalty Isn’t Enough Grow Your Share of Wallet”, *Harvard Business Review*, Vol. 10, pp. 29-31.

Keller, K.L. (2017), “Managing the growth tradeoff: Challenges and opportunities in luxury branding”, In *Advances in Luxury Brand Management* (pp. 179-198). Palgrave Macmillan, Cham.

Kim, A.J. and Johnson, K.K. (2016), “Power of consumers using social media: Examining the influences of brand-related user-generated content on Facebook”, *Computers in Human Behavior*, Vol. 58 No. 3, pp. 98-108.

Kleis Nielsen, R. and Ganter, S.A. (2018), “Dealing with digital intermediaries: A case study of the relations between publishers and platforms”, *New Media and Society*, Vol. 20 No. 4, pp. 1600-1617.

Kokina, J., Mancha, R. and Pachamanova, D. (2017), “Blockchain: Emergent industry adoption and implications for accounting,” *Journal of Emerging Technologies in Accounting*, Vol. 14 No. 2, pp. 91-100.

Komulainen, H., Mainela, T. and Tähtinen, J. (2016), “Intermediary roles in local mobile advertising: Findings from a Finnish study”, *Journal of Marketing Communications*, Vol. 22 No. 2, pp. 155-169.

Kowalewski, D., McLaughlin, J. and Hill, A. (2017), “Blockchain will transform loyalty programs”, *Harvard Business Review*, Vol. 14.

Kohli, C., Suri, R. and Kapoor, A. (2015), “Will social media kill branding?”, *Business Horizons*, Vol. 58 No. 1, pp. 35-44.

Kosba, A., Miller, A., Shi, E., Wen, Z. and Papamanthou, C. (2016), “Hawk: The blockchain model of cryptography and privacy-preserving smart contracts”, In *Security and Privacy (SP), 2016 IEEE Symposium on* pp. 839-858, IEEE.

Kshetri, N. (2018), "Blockchain's roles in meeting key supply chain management objectives". *International Journal of Information Management*, Vol. 39 No. 2, pp. 80-89.

Kshetri, N. and Voas, J. (2019). "Online Advertising Fraud", *Computer*, Vol. 52 No. 1, pp. 58-61.

Kumar, V., Chattaraman, V., Neghina, C., Skiera, B., Aksoy, L., Buoye, A. and Henseler, J. (2013), "Data-driven services marketing in a connected world", *Journal of Service Management*, Vol. 24 No. 3, pp. 330-352.

Larivière, B., Joosten, H., Malthouse, E.C., Van Birgelen, M., Aksoy, P., Kunz, W.H. and Huang, M.H. (2013), "Value fusion: The blending of consumer and firm value in the distinct context of mobile technologies and social media", *Journal of Service Management*, Vol. 24 No. 3, pp. 268-293.

Laroche, M., Habibi, M.R. and Richard, M.O. (2013), "To be or not to be in social media: How brand loyalty is affected by social media?", *International Journal of Information Management*, Vol. 33 No. 1, pp. 76-82.

Lee, I. (2017), "Big data: Dimensions, evolution, impacts, and challenges", *Business Horizons*, Vol. 60 No. 3, pp. 293-303.

Lee, S.C., Barker, S. and Kandampully, J. (2003), "Technology, service quality, and customer loyalty in hotels: Australian managerial perspectives", *Managing Service Quality: An International Journal*, Vol. 13 No. 5, pp. 423-432.

Lee, J.H. and Pilkington, M. (2017), "How the Blockchain Revolution Will Reshape the Consumer Electronics Industry [Future Directions]", *IEEE Consumer Electronics Magazine*, Vol. 6 No. 3, pp. 19-23.

Lemon, K.N. and Verhoef, P.C. (2016), “Understanding customer experience throughout the customer journey”, *Journal of Marketing*, Vol. 80 No. 6, pp. 69-96.

Lin, J., Lobo, A. and Leckie, C. (2017), “The role of benefits and transparency in shaping consumers’ green perceived value, self-brand connection and brand loyalty”, *Journal of Retailing and Consumer Services*, Vol. 35 No. 2, pp. 133-141.

Liu, Y., Eisingerich, A.B., Auh, S., Merlo, O. and Chun, H.E.H. (2015), “Service firm performance transparency: How, when, and why does it pay off?”, *Journal of Service Research*, Vol. 18 No. 4, pp. 451-467.

Lundqvist, A., Liljander, V., Gummerus, J. and Van Riel, A. (2013), “The impact of storytelling on the consumer brand experience: The case of a firm-originated story”, *Journal of Brand Management*, Vol. 20 No. 4, pp. 283-297.

Lwin, M., Wirtz, J. and Williams, J.D. (2007), “Consumer online privacy concerns and responses: a power–responsibility equilibrium perspective”, *Journal of the Academy of Marketing Science*, Vol. 35 No. 4, pp. 572-585.

Martin, K.D., Borah, A. and Palmatier, R.W. (2017), “Data privacy: Effects on customer and firm performance”, *Journal of Marketing*, Vol. 81 No. 1, pp. 36-58.

Mattila, A.S., and Wirtz, J. (2002), “The impact of knowledge types on the consumer search process: An investigation in the context of credence services”, *International Journal of Service Industry Management*, Vol. 13 No. 3, pp. 214-230.

Mattila, J. (2016), “The Blockchain Phenomenon–The Disruptive Potential of Distributed Consensus Architectures”, *The Research Institute of the Finnish Economy*, Vol. 38.

Melnyk, V. and Bijmolt, T. (2015), “The effects of introducing and terminating loyalty programs”, *European Journal of Marketing*, Vol. 49 No. 3/4, pp. 398-419.

- Metzger, M.J. (2007), "Making sense of credibility on the Web: Models for evaluating online information and recommendations for future research", *Journal of the Association for Information Science and Technology*, Vol. 58 No. 13, pp. 2078-2091.
- Montecchi, M., Plangger, K. and Etter, M. (2019), "It's real, trust me! Establishing supply chain provenance using blockchain", *Business Horizons*, Vol. 62 No. 3, pp. 283-293.
- Morgan-Thomas, A. and Veloutsou, C. (2013), "Beyond technology acceptance: Brand relationships and online brand experience", *Journal of Business Research*, Vol. 66 No. 1, pp. 21-27.
- Morkunas, V.J., Paschen, J. and Boon, E. (2019), "How blockchain technologies impact your business model", *Business Horizons*, Vol. 62 No. 3, pp. 295-306.
- Mougayar, W. (2016). *"The business blockchain: promise, practice, and application of the next Internet technology"*, John Wiley and Sons.
- Newmeyer, C.E., Venkatesh, R., Ruth, J.A. and Chatterjee, R. (2018), "A typology of brand alliances and consumer awareness of brand alliance integration", *Marketing Letters*, Vol. 29 No. 3, pp. 275-289.
- Nofer, M., Gomber, P., Hinz, O. and Schiereck, D. (2017), "Blockchain", *Business and Information Systems Engineering*, Vol. 59 No. 3, pp. 183-187.
- Odoom, R. (2016), "Brand marketing programs and consumer loyalty—evidence from mobile phone users in an emerging market", *Journal of Product and Brand Management*, Vol. 25 No. 7, pp. 651-662.
- Okazaki, S. and Taylor, C.R. (2013), "Social media and international advertising: theoretical challenges and future directions", *International Marketing Review*, Vol. 30 No. 1, pp. 56-71.

Önder, I. and Treiblmaier, H. (2018), “Blockchain and tourism: Three research propositions”, *Annals of Tourism Research*, Vol. 72 C, pp. 180-182.

Pfeiffer, M., and Zinnbauer, M. (2010), “Can Old Media Enhance New Media?: How Traditional Advertising Pays off for an Online Social Network”, *Journal of Advertising Research*, Vol. 50 No. 1, pp. 42-49.

Phau, I. and Teah, M. (2009), “Devil wears (counterfeit) Prada: a study of antecedents and outcomes of attitudes towards counterfeits of luxury brands”. *Journal of Consumer Marketing*, Vol. 26 No. 1, pp. 15-27.

Pieters, G. and Vivanco, S. (2017), “Financial regulations and price inconsistencies across Bitcoin markets”, *Information Economics and Policy*, Vol. 39, pp. 1-14.

Pilkington, M. (2016), “11 Blockchain technology: principles and applications”, *Research handbook on digital transformations*, pp. 225-231.

Puthal, D., Malik, N., Mohanty, S.P., Kougianos, E. and Yang, C. (2018), “The blockchain as a decentralized security framework [future directions]”, *IEEE Consumer Electronics Magazine*, Vol. 7 No. 2, pp. 18-21.

Ramaswamy, V. and Ozcan, K. (2016), “Brand value co-creation in a digitalized world: An integrative framework and research implications”, *International Journal of Research in Marketing*, Vol. 33 No. 1, pp. 93-106.

Randhawa, P., Calantone, R.J. and Voorhees, C.M. (2015), “The pursuit of counterfeited luxury: An examination of the negative side effects of close consumer–brand connections”, *Journal of Business Research*, Vol. 68 No. 11, pp. 2395-2403.

Pera, R. and Viglia, G. (2016), “Exploring how video digital storytelling builds relationship experiences”, *Psychology and Marketing*, Vol. 33 No. 12, pp. 1142-1150.

Risius, M. and Spohrer, K. (2017), "A blockchain research framework", *Business and Information Systems Engineering*, Vol. 59 No. 6, pp. 385-409.

Scholz, J. and Duffy, K. (2018), "We ARe at home: How augmented reality reshapes mobile marketing and consumer-brand relationships", *Journal of Retailing and Consumer Services*, Vol. 44 Vol. 3, pp. 11-23.

Seebacher, S. and Schüritz, R. (2017), "Blockchain technology as an enabler of service systems: A structured literature review", In *International Conference on Exploring Services Science*, pp. 12-23. Springer, Cham.

Soppe, A., Schauten, M., Soppe, J. and Kaymak, U. (2011), "Corporate social responsibility reputation (CSRR): do companies comply with their raised CSR expectations?", *Corporate Reputation Review*, Vol. 14 No. 4, pp. 300-323.

Subramanian, H. (2018), "Decentralized blockchain-based electronic marketplaces", *Communications of the ACM*, Vol. 61 No 1, pp.78-84.

Swaminathan, V. (2016), "Branding in the digital era: new directions for research on customer-based brand equity", *AMS Review*, Vol. 6 No 1-2, pp. 33-38.

Tapscott, D. and Tapscott, A. (2016), "*Blockchain revolution: how the technology behind bitcoin is changing money, business, and the world*", Penguin.

Tapscott, D. and Tapscott, A. (2017), "How blockchain will change organizations". *MIT Sloan Management Review*, Vol. 58 No. 2, pp. 10.

Tarhini, A., Arachchilage, N.A.G. and Abbasi, M.S. (2015), "A critical review of theories and models of technology adoption and acceptance in information system research". *International Journal of Technology Diffusion (IJTD)*, Vol. 6 No. 4, pp. 58-77.

Veloutsou, C. (2015), “Brand evaluation, satisfaction and trust as predictors of brand loyalty: the mediator-moderator effect of brand relationships”, *Journal of Consumer Marketing*, Vol. 32 No. 6, pp. 405-421.

Veloutsou, C. and Guzman, F. (2017). “The evolution of brand management thinking over the last 25 years as recorded in the Journal of Product and Brand Management, *Journal of Product and Brand Management*, Vol. 26 No. 1, pp. 2-12.

Veloutsou, C. and Moutinho, L. (2009), “Brand relationships through brand reputation and brand tribalism”, *Journal of Business Research*, Vol. 62 No .3, pp. 314-322.

Venkatesh, V., Thong, J.Y. and Xu, X. (2012), “Consumer acceptance and use of information technology: extending the unified theory of acceptance and use of technology”, *MIS Quarterly*, Vol. 36 No. 1, pp. 157-178.

Wendlandt, M. and Schrader, U. (2007), “Consumer reactance against loyalty programs”, *Journal of Consumer Marketing*, Vol. 24 No. 5, pp. 293-304.

WFA report, 2017, <https://www.wfanet.org/>

Wu, K.W., Huang, S.Y., Yen, D.C. and Popova, I. (2012), “The effect of online privacy policy on consumer privacy concern and trust”, *Computers in Human Behavior*, Vol. 28 No. 3, pp. 889-897.

Zyskind, G. and Nathan, O. (2015), “Decentralizing privacy: Using blockchain to protect personal data”, In *Security and Privacy Workshops (SPW)*, (May), *IEEE*, pp. 180-184.