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Breaking the chain of deception

A multi-stakeholder perspective on deceptive advertising and the potential of blockchain as a solution

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CHAPTER 6

Summary of Results & General Discussion

GENERAL DISCUSSION

The goals of this dissertation were to examine how the issue of deceptive advertising is perceived by consumers, the online advertising industry, and the news media – and to explore whether, and how, blockchain technology can be used as a solution. It aimed to achieve these goals by addressing three research questions: 1) To what extent is deceptive advertising perceived as a critical issue by consumers, the online advertising industry, and the news media? 2) What role can blockchain technology play in addressing the issue of deceptive online advertising? 3) How can blockchain-based solutions to deceptive online advertising be effectively communicated to consumers? Addressing these research questions resulted in seven conclusions, which are outlined below.

Multi-stakeholder perspectives on deceptive advertising as a critical issue

First, on average consumers perceive that the issue of deceptive advertising is severe, yet they do not believe themselves to be susceptible. However, on an individual level, these perceptions vary based on intrapersonal and environmental information sources. Consumers' motivation to cope with deceptive advertising by taking protective actions was investigated through the lens of the Protection Motivation Theory (PMT; Maddux & Rogers, 1983; Rogers, 1975). Overall, it seems that consumers do recognise deceptive advertising to be a severe threat: in Chapter 2, participants scored on average above the midpoint of the scale on severity perceptions. At the same time, and in line with the Impersonal Impact Hypothesis (Tyler & Cook, 1984), they do not believe they are susceptible (participants' scores were below the midpoint). However, these perceptions are not uniform and vary in response to intrapersonal and environmental sources of information. Having previous experience with deceptive advertising (intrapersonal information source) has a disempowering effect on consumers: they believe themselves to be more susceptible, and less confident that they are able to protect themselves, or that their actions will be effective at doing so. On the other hand, holding beliefs about deceptive advertising that align with media framing (environmental information source) empowers consumers, increasing their perceptions not only of the severity of the threat, but also of their ability to effectively cope with it.

Second, the online advertising industry is conflicted in its perspective on the severity of deceptive advertising: while some professionals believe deceptive advertising to be an issue of significance on par with disinformation, others dismiss it as simply a minor inconvenience. In Chapter 3, the in-depth interviews with professionals in the online advertising industry revealed some disagreement about the severity of deceptive advertising as a societal problem. For some, deceptive advertising is simply an inevitable aspect of the digital advertising landscape – an aspect that is annoying, but not necessarily a major issue. However, most professionals are concerned about the negative influences of deceptive advertising and recognise it to be an issue symptomatic of the broader resurgence of information disorders in the contemporary digital environment. In this regard, they raise concerns about the negative effects that deceptive advertising has not only on consumers and other stakeholders in the online advertising ecosystem, but also on how it contributes to the normalisation and proliferation of other information disorders in society.

Third, news media coverage acknowledges the negative impact of deceptive advertising on the consumer, while blaming digitalisation and digital media companies for not doing enough or exacerbating the problem. In relation to deceptive advertising, Chapter 2 demonstrates that the news media adopts a predominantly traditional perspective, viewing the consumer as the victim and the firm as the perpetrator. Historically, news media coverage of this issue has employed an episodic approach (Iyengar, 1996), concentrating on factual reporting of singular cases and lawsuits related to deceptive advertising. However, as evidence of the issues surrounding digitalisation and the rise in information disorders has come to light – particularly driven by several high-profile legal cases involving major digital media companies and prominent public figures – the media have started to adopt a broader critical perspective, scrutinising the impacts of relentless digitalisation on the emergence of such threats, as well as the role of digital media companies in facilitating their proliferation. This represents a shift to a more thematic approach (Iyengar, 1996) to framing of deceptive advertising. Overall, news media coverage of deceptive advertising has increased over time, serving as evidence of the growing salience of this issue. As coverage increases, so does the prominence of two types of framing – *technological blame* and *environmental greenwashing* – highlighting the significance of these issues in contemporary society: the role of digital media in exacerbating the problem of information disorders and the growing concerns surrounding climate change.

Potential of blockchain technology to address deceptive advertising

Fourth, industry professionals recognise two primary ways in which blockchain could in theory help to address the issue of deceptive advertising: recording advertising-related information in a secure, transparent, and trustworthy way, and establishing unique and stable digital identities for all stakeholders. Chapter 4 identifies that, for one, blockchain can be used to record all advertising-related information, such as the ad itself, the ad source, where the advertising had been displayed, and to whom. This would enhance transparency in the ad serving process in general, and in particular communicate to the consumer the genuine source behind the advertising. At the same time, blockchain can be used to provide unique and stable digital identities to all actors involved in the advertising serving process. These digital identities would be linked to a specific individual or company in the long term, and in turn can be used to sign off on individual ads. This would help address deceptive advertising by enabling law enforcement to trace any deceptive advertisements back to their original source, as well as allowing consumers to verify the integrity of the advertiser – thereby reducing incentives to engage in malpractice.

Fifth, in practice there are various technological and socio-structural challenges for implementing blockchain for addressing deceptive advertising. Chapter 4 furthermore shows that, while from a technological perspective blockchain offers features that can help address deceptive advertising by enhancing transparency, auditability, and reducing motivation for wrongdoing – it cannot, in itself, tackle deceptive advertising, as it is merely a tool that lacks the capacity to verify whether an advertisement is deceptive. Consequently, the involvement of third-party organisations remains necessary to determine advertising authenticity. As a result, many professionals have raised the question – given the challenges of scalability, adoption, implementation, and technical and environmental limitations associated with blockchain technology – whether blockchain truly represents the best technological solution to address this problem.

At the same time, there exists a significant socio-cultural challenge for addressing deceptive advertising, whether through blockchain or other means: a lack of incentive. While consumers and online advertising professionals acknowledge deceptive advertising as a serious problem, professionals believe that these stakeholders are also unwilling to address it.

From the consumer's perspective, professionals suggest that this reluctance arises from a lack of societal concern regarding this issue, although the findings of Chapter 2 suggest otherwise. From the industry's perspective, the lack of incentive appears to arise because addressing deceptive advertising incurs additional costs, while its presence benefits certain players within the ecosystem. Interestingly, the professionals did not consider whether the costs associated with adopting solutions to deceptive advertising outweighed the costs generated by the deceptive advertising itself. This could be because the costs that deceptive advertising generates (e.g., reputation damage) are not as easily quantifiable. Regardless of the reason, if there is no incentive to address the issue, there will be no adoption of tools that will help individuals to do so.

Communicating blockchain-based advertising authenticity solutions to consumers

Sixth, at present, consumers are not convinced by blockchain-based guarantees of advertising authenticity. The results of Chapter 5 demonstrate that pairing advertising with blockchain-based disclosures as a guarantee of their authenticity did not have the intended positive effects on consumers' perceptions of both ad and brand credibility, nor did it improve their attitudes. This indicates that consumers lack faith in blockchain's capacity to ensure advertising authenticity and suggests that it is not an effective means of tackling fake advertising at this moment.

On the other hand, when considering the understandability of disclosures, those that explained how blockchain ensures authenticity – or those that reaffirmed the ad source but did not mention blockchain – were most effective at positively influencing consumers' attitudes and perceptions of credibility. This suggests that the issue may not lie with blockchain itself, but is rather a question of effectively communicating to the consumer how the technology can ensure advertising authenticity. To this end, in Chapter 4 the professionals suggested that more education about blockchain's benefits is necessary before the technology becomes more familiar and, therefore, acceptable in society. As Chapter 2 demonstrates how influential media-based beliefs can be, the news media may be a good resource to utilise for this purpose. Furthermore, the findings of Chapter 2, concerning consumer intentions to protect themselves against deceptive advertising, indicate that favourable perceptions of response and self-efficacy are among the strongest

motivators of this type of behaviour. Consequently, regarding the design of blockchain-based disclosures of advertising authenticity, the findings of this dissertation lead to the following conclusion:

Seventh, disclosures of advertising authenticity are most effective when they reaffirm the source of the advertisement, refrain from mentioning blockchain, and highlight response and consumers' self-efficacy.

Theoretical implications

Based on the conclusions outlined above, this dissertation makes five theoretical contributions. First, this dissertation contributes to increasing our understanding regarding how deceptive advertising is perceived by multiple stakeholders. As the PMT (Maddux & Rogers, 1983; Rogers, 1975) theorises, individuals must perceive a threat as severe and likely to happen to them before they are motivated to undertake steps to protect themselves from it. Since deceptive advertising is an issue which affects all online advertising ecosystem stakeholders, it is crucial to understand how every stakeholder appraises deceptive advertising. However, previous academic research on various forms of deceptive advertising rarely adopted a multi-stakeholder perspective (e.g., Polonsky & Hyman, 2007), focusing instead solely on the consumer (e.g., Campbell et al., 2022; Costa Filho et al., 2023; Fernandes et al., 2020; Munzel, 2016; Van Berlo & Bock, 2023; Wilson et al., 2022; Zeng et al., 2021). Consequently, this dissertation contributes to a greater understanding of how each stakeholder in the ecosystem perceives this threat, and therefore facilitates future investigations of how the issue of addressing deceptive advertising should be approached in order to effectively motivate all stakeholders to do so.

Second, this dissertation takes the first steps in advancing the conceptualisation of deceptive advertising. Unlike in related research domains such as disinformation and fake news, where considerable attention has been devoted to conceptualising the subject (e.g., Bakir & McStay, 2018; Kapantai et al., 2021; Tandoc Jr. et al., 2018), such efforts are largely absent from literature on deceptive advertising (for an exception, see Ferreira et al., 2020; Zeng et al., 2021). Nevertheless, it is crucial to conceptualise and define the various forms and boundary conditions of deceptive advertising, in order to ascertain which types of advertising deception are most problematic and require urgent attention (Gardner, 1975). By differentiating between the

various manifestations of deceptive advertising, this dissertation advances the conceptual clarity of this concept (MacInnis, 2011). Without differentiation, the results of studies addressing different manifestations of deceptive advertising cannot be meaningfully compared (MacInnis, 2011), leading to uncertainty regarding which solutions may be applicable or transferable across different deceptive advertising contexts. Furthermore, by creating a framework of its causes, defining features, types and consequences for the various stakeholders in Chapter 3, it assists in guiding future research, enabling researchers to identify novel areas of investigation and new ways to address deceptive advertising.

Third, this dissertation adopts an integrative theoretical perspective by examining the issue of deceptive advertising and identifying potential measures to address it through the various frameworks of marketing and communication science theories. More specifically, Chapter 3 identifies the nature (its various manifestations), causes, and consequences of deceptive advertising through the framework of the grounded theory axial coding paradigm (Creswell, 2012); Chapter 5 examines the problem of information asymmetry in deceptive advertising, from a signalling theory perspective (Connelly et al., 2011); while Chapter 2 investigates how consumers perceive deceptive advertising as a threat, how capable they feel in coping with it, and how they intend to protect themselves, through the lens of the PMT (Maddux & Rogers, 1983; Rogers, 1975). This approach contributes to a more comprehensive understanding of the intricacies and nuances associated with deceptive advertising, which in turn facilitates the examination of more innovative, creative, and effective solutions to addressing this issue. In particular, it enables the investigation of how emerging technologies, such as blockchain, can be utilised in unconventional manners to address deceptive advertising.

Furthermore, this dissertation expands upon and empirically evaluates the applicability of communication science theories within novel technological contexts. For instance, Chapter 4 demonstrates the applicability of the Interactive Communication Technology Adoption Model (ICTAM; Lin, 2003) to the context of blockchain adoption, while Chapter 5 investigates whether signalling theory can help explain the effects of blockchain-based disclosures of advertising authenticity on ad- and brand-related outcomes. By doing so, it contributes to the existing body of theory by demonstrating the relevance

of these frameworks in analysing how emerging technologies can be utilised for communication purposes. This, in turn, paves the way for future research endeavours that seek to apply communication science theories in the context of new technologies.

Fourth, this dissertation contributes to theory by taking an inter-disciplinary approach to addressing the issue of deceptive advertising, by investigating the potential of one emerging technology to achieve this goal. Although some studies have explored technological solutions to deceptive advertising, they primarily focused on deceptive advertising identification (e.g., Alzghoul et al., 2024; Sharifi et al., 2011). However, due to the ephemeral nature of online advertising caused by the speed and automation in the programmatic advertising serving process (Braun, 2023), it can be challenging to accurately identify deceptive and malicious advertising and remove it before it causes harm (L. H. Newman, 2024). By adopting an inter-disciplinary approach, this dissertation integrates communication science theory with insights from computer science and literature on emerging technologies, to propose and investigate the potential of blockchain technology to mitigate the negative effects of deceptive advertising by communicating the authenticity of genuine advertisements. In doing so, it paves the way for future research to explore and uncover other innovative, and more effective solutions to complex societal problems.

Fifth, this dissertation contributes to existing literature by investigating a new alternative approach to addressing the issue of deceptive advertising. In related research domains, such as disinformation and fake news, research has focused on solutions that identify and label information that is untruthful or misleading (e.g., Ecker et al., 2020; Koch et al., 2023; Morrow et al., 2022; Spradling et al., 2021). However, some researchers have expressed concerns about such methods, illustrating how labelling false information can backfire, reinforcing belief in false information, increasing belief in potentially false but unlabelled information, and diminishing trust in accurate information, if implemented improperly (Clayton et al., 2020; Freeze et al., 2021; Morrow et al., 2022). In this dissertation, a labelling approach to addressing deceptive advertising is adopted in Chapter 5; however, unlike disinformation labelling, the focus is on labelling genuine advertising instead. This approach aims to circumvent the pitfalls identified in disinformation labelling and contributes not only to research on deceptive advertising but also to the information disorders literature by introducing a novel and alternative method for tackling

deceptive content. This, in turn, opens new avenues for future research into how deceptive advertising and other forms of deceptive content can be addressed.

Practical implications

The findings of this dissertation also have three significant implications for industry and practice. First, this dissertation exemplifies the detrimental impact that deceptive advertising has not only on consumers, but on all stakeholders in the online advertising ecosystem and society at large. By investigating the issue of deceptive advertising from multiple perspectives, it highlights how such practices contribute to increasing distrust not only in the advertising domain but also in society more generally. This further emphasises that it is an issue that urgently needs to be addressed. Furthermore, due to the design of the online advertising system, many stakeholders are involved in the process: the advertiser, the consumer, the regulators and legislative bodies, the publishers, the ad tech companies, and all the other intermediaries involved in the advertising serving process (Braun, 2023). This means that in order to effectively tackle the issue of deceptive advertising, all stakeholders must work together. The hope is that by highlighting how deceptive advertising has a negative impact at all levels of the online advertising ecosystem, each individual stakeholder will be motivated to address the problem. To further this cause, this dissertation provides a comprehensive framework of deceptive advertising in Chapter 3, outlining the causes of this issue, its characteristics and boundary conditions, as well as its impact on all stakeholders in the ecosystem (see Figure 3.2). Practitioners can utilise this framework to educate themselves about the detrimental consequences of deceptive advertising, and identify how and which types of deceptive advertising practices may be negatively affecting their business by, for instance, decreasing the trust of their consumers in their brand and damaging their reputation.

Second, this dissertation provides practitioners with valuable knowledge on how blockchain technology can be implemented to tackle one variant of deceptive advertising – fake advertising – by utilising the technology to communicate advertising authenticity. Drawing on the expertise of leading professionals in the online advertising, regulatory, and blockchain fields, two practical frameworks are presented on the opportunities and challenges of blockchain technology for the online advertising industry. The first framework (presented in Chapter 3, Figure 3.2) details how blockchain can be utilised

to record all advertising-related information, and establish blockchain-based digital identities for all stakeholders involved in online advertising. This can benefit advertisers and brands by protecting their reputation against malicious entities spreading deceptive advertising on their behalf. It can also enhance their accountability by eliminating the incentive to misrepresent the truth about their products and services within brand communications. Practitioners can use the framework to explore whether off-the-shelf blockchain-based solutions for communicating content authenticity (e.g., Aura Blockchain Consortium, 2023a; Provenance, n.d.-b; WordProof, n.d.-d) can be effectively leveraged for demonstrating authenticity of their advertising to consumers. They can also use the framework to prepare for the challenges that doing so may create, and effectively demonstrate to decision-makers and financial gatekeepers the strategic value of investing in such solutions.

The second framework (introduced in Chapter 4, Figure 4.1 and Table 4.2) presents the drivers and inhibitors of blockchain adoption in online advertising, more generally. Marketing practitioners can utilise this framework to educate themselves on the practical, societal, and legislative benefits and drawbacks of blockchain adoption in online advertising, thereby facilitating informed decision-making. Blockchain specialists can also utilise this framework to identify the pain points that prevent companies from adopting blockchain-based solutions in order to effectively address them in future blockchain implementations. Finally, regulatory bodies can use these insights to inform legislation on new technologies and aid companies in adopting new technologies while complying with existing regulations, such as laws on data protection.

Finally, this dissertation offers practitioners valuable guidance on how to design blockchain-based solutions from a consumer perspective, in order to effectively address deception in advertising and communicate advertising authenticity. The results of this dissertation indicate that consumers remain unconvinced of blockchain's capability to guarantee advertising authenticity at present. This scepticism may be partly attributed to a lack of understanding regarding how blockchain can achieve this. This sentiment was echoed by professionals in Chapter 4, who argued that until blockchain technology is familiar and perceived as trustworthy by all stakeholders in online advertising, its adoption and acceptance are unlikely. To this end, they recommended that more educational efforts from credible opinion leaders are necessary to increase societal understanding of blockchain technology. At the same time,

as the PMT (Maddux & Rogers, 1983; Rogers, 1975) illustrates, in order for consumers to adopt a protective behaviour, they must believe in its efficacy in protecting them from the threat, as well as in their ability to carry out the behaviour. Combined, these results suggest that in order for blockchain-based solutions to be perceived as effective by consumers in protecting them from deceptive advertising threats, regulators or practitioners hoping to leverage blockchain technology for communicating authenticity first need to educate consumers on how blockchain features can ensure advertising authenticity – and how they can personally use blockchain-based solutions to determine whether an ad or advertiser can be trusted. This can be accomplished through developing blockchain-based implementations that specifically address self- and response efficacy considerations within the implementation.

Alternatively, given that this dissertation demonstrates in Chapter 2 the positive influence of media-based beliefs on individuals' motivation to protect themselves against various threats, targeted news media campaigns can be implemented that demonstrate the capacity of blockchain technology to mitigate deceptive advertising. These findings are particularly relevant at a time when the EU has adopted DPPs for many consumer goods, which are reported to utilise blockchain technology to record and communicate trustworthy product-related information to consumers (Publications Office of the European Union, 2024; Vlachos & Damvakeraki, 2024). Both practitioners, who aim to use blockchain for communicating advertising authenticity, as well as those employing blockchain for DPPs, will derive benefits from these findings to effectively design their implementations.

Limitations & suggestions for future research

While this dissertation significantly contributes to deceptive advertising research and research on blockchain technology in advertising, it does have some limitations. Three of these limitations are outlined below.

Limitations concerning the conceptualisation of deceptive advertising

First, although this dissertation makes a substantial contribution to the conceptualisation of deceptive advertising, a systematic typology and conceptualisation of deceptive advertising is still missing from academic literature. With few outdated exceptions (e.g., Hyman, 1990), previous research has invested little effort in conceptualising deceptive advertising. This dissertation takes the first steps in addressing this theoretical gap across various chapters by defining the concept of deceptive advertising

based on academic and legal definitions, distinguishing the different forms that deceptive advertising can take (e.g., fake versus misleading advertising), and differentiating it from similar constructs, such as disinformation and other information disorders. Chapter 3, in particular, makes significant progress towards creating a typology of deceptive advertising and establishing its boundary conditions by identifying the various characteristics that define it, including the different forms it can take, its causes, and its potential impacts. These attempts illustrate that deceptive advertising practices are diverse, and thus, it is insufficient to categorise them solely under one umbrella of deceptive advertising. Nonetheless, the primary aim of this dissertation was never to thoroughly conceptualise deceptive advertising. Therefore, while this dissertation takes the first steps in doing so, further academic efforts are necessary to achieve this aim.

Limitations concerning the multi-stakeholder perspective

Second, even though this dissertation adopts a multi-stakeholder perspective on the issue of deceptive advertising and how it can be addressed using blockchain technology, it still lacks the perspective of several key stakeholders on various aspects of this topic. Most importantly, a comprehensive understanding of the reasons behind consumers' certain perceptions of deceptive advertising is still missing. Specifically, Chapter 2 reveals that although consumers view deceptive advertising as a serious threat, they do not see themselves as particularly vulnerable. These findings imply that the Impersonal Impact Hypothesis (Tyler & Cook, 1984) may be applicable here, as consumers regard deceptive advertising as a hypothetical threat – or one that impacts others – but do not believe it will personally affect them. While previous experience and media-based beliefs offer some clarity in this regard, some uncertainties remain about how consumer perceptions are formed. In this respect, the insights that can be gained from this dissertation are limited by the theoretical models and research methodologies adopted in its studies. Future research may benefit from exploring consumer perceptions of deceptive advertising using qualitative methods, such as in-depth interviews, which may help shed some light on why they perceive the threat of deceptive advertising in such contradictory ways.

Furthermore, this dissertation lacks a consumer perspective on the extent to which they trust blockchain technology to address deceptive advertising. While Chapter 5 demonstrates that blockchain-based disclosures do not improve perceptions of ad and brand credibility or foster positive attitudes,

the mechanisms underlying these findings remain unclear. The results indicate that blockchain-based disclosures lack understandability; however, it may also be that consumers simply do not trust the technology. Research has illustrated that trust is an essential component of acceptance of blockchain technology (Albayati et al., 2020). However, due to limitations in study design, it was impossible to compare disclosure trust perceptions between the experimental and control conditions. While in Chapter 5 the results of Study 2 may give credence to the theory that trust is essential for effectiveness of blockchain-based disclosures (disclosures that did not mention blockchain were perceived as more trustworthy), this result was not replicated in Study 1 of the same chapter. Consequently, further research is necessary to understand the extent to which consumers trust blockchain technology in general, and specifically, whether they trust it to communicate advertising authenticity.

Moreover, a news media perspective on the risks and benefits of blockchain technology is missing from this study. Since Chapter 2 highlights the significance of media-based beliefs in shaping consumer perceptions on the effectiveness of solutions for addressing deceptive advertising, it is essential to examine how the news media frames blockchain technology – in order to identify the potential effects of this framing on consumers' trust in the technology and their beliefs regarding its ability to address deceptive advertising.

Finally, although some legal experts were consulted on the potential of blockchain-based solutions to address deceptive advertising in Chapter 3, and regarding the drivers and inhibitors of blockchain adoption in the advertising industry in Chapter 4, questions remain about how blockchain-based solutions can be implemented within the confines of existing legal frameworks, particularly concerning data protection laws. Therefore, more research on using blockchain technology for addressing deceptive advertising is necessary from a legal standpoint.

Limitations concerning (the lack of) operationalisation of blockchain as a protective measure

Finally, this dissertation lacks insight into whether consumers would be motivated to utilise blockchain technology as a tool to protect themselves against deceptive or fake advertising. In Chapter 2, this dissertation examines whether consumers are motivated to take certain protective measures against deceptive advertising, as identified from online consumer protection

resources. Neither these sources, nor any of the media articles used in the automated content analysis, identified blockchain as a potential solution to the problem of deceptive advertising. This is hardly surprising, as there are currently no blockchain-based solutions available for advertising authenticity in practice, despite the existence of other blockchain solutions that verify content authenticity in different contexts (e.g., Aura Blockchain Consortium, 2023a; Herzberg, 2015; WordProof, n.d.-d). For this reason, blockchain-based disclosures of advertising authenticity were not included as a protective measure in this study. At the same time, although Chapter 5 indicates that blockchain-based disclosures do not appear to improve ad credibility perceptions or attitudes, this study did not examine the effects of these disclosures through the lens of the PMT (Maddux & Rogers, 1983; Rogers, 1975), resulting in outcome variables which are not fit for direct comparison. Therefore, future research is needed to determine whether consumers perceive blockchain-based disclosures of advertising authenticity as effective measures for protecting them against deceptive advertising threats, how competent they feel in using these disclosures, and, in turn, their motivation to do so.

Future research agenda

This dissertation represents the first attempt in investigating how consumers perceive and cope with deceptive advertising, as well as how blockchain technology can be used to address this issue. However, more research is necessary in order to advance our collective understanding in these areas.

First, it is essential that future research continues developing a conceptualisation and typology of deceptive advertising. Doing so will advance our understanding of this phenomenon and allow us to identify it in all of its manifestations, which in turn will allow for the development of more innovative and effective ways to address the problem. To this end, future research could engage in a meta-analytic review of academic studies on various forms of deceptive advertising, and draw on legal and industry literature in order to develop an up-to-date, comprehensive, and shared definition of this concept idiosyncratic to the contemporary digital landscape.

Second, future research should investigate whether consumers' intentions to take protective actions against deceptive advertising actually translate into protective behaviour. In this dissertation, consumers' protective intentions were on average above the mid-point of the scale. However,

the relationship between these intentions and actual behaviour were not investigated. Previous research applying the PMT has identified the presence of an intention-behaviour gap where despite being motivated to protect themselves from various threats, individuals still fail to take action (e.g., Davinson & Sillence, 2010). Therefore, it is necessary to examine whether those consumers who are motivated to protect themselves against deceptive advertising actually do so. Moreover, this dissertation demonstrates that in an experimental context, consumers do not perceive ads accompanied by blockchain-based disclosures of advertising authenticity to be more credible. However, the case may be different in naturalistic settings. When confronted with blockchain-disclosures during a natural online browsing and shopping experience, would consumers notice them and find them useful when making purchasing decisions? To address this question, future research could implement discrete choice experiments for ads with and without a blockchain-based disclosure of authenticity, with an additional option for the participant to purchase or receive a discount from the ad of their choice in order to simulate real decision-making and increase external validity.

Third, more research is needed on blockchain trust perceptions, especially from the perspective of the consumer. Previous research has demonstrated that blockchain trust is an essential component for blockchain technology acceptance (Albayati et al., 2020), while this dissertation shows that professionals believe negative public opinion to be a significant barrier to blockchain adoption in online advertising. Especially from the consumer perspective, the PMT (Maddux & Rogers, 1983; Rogers, 1975) hypothesises that a solution must be perceived as effective for individuals to adopt it to protect themselves from a threat. The findings of Chapter 2 confirm that this is also true in a deceptive advertising context. It could be argued that if individuals do not trust blockchain technology, they will be unlikely to adopt blockchain-based solutions to protect themselves from deceptive advertising threats. Therefore, it is crucial to examine consumers' trust in blockchain technology, how these trust perceptions affect their views on the effectiveness of blockchain-based solutions to deceptive advertising, and what needs to happen before such solutions can be widely adopted. At the same time, the findings of this dissertation suggest that how media frame certain topics and issues can influence individuals' beliefs about those topics. In the context of deceptive advertising, it may therefore be beneficial to investigate in more depth how media coverage of deceptive advertising might influence consumers' perceptions of this threat from the perspective

of the 'control paradox' (Brandimarte et al., 2013) and the Impersonal Impact Hypothesis (Tyler & Cook, 1984): for example, by examining how the news media might influence consumers' perceptions of control over this threat, and the susceptibility of themselves compared to others. Furthermore, since news media can influence individuals' acceptance and use of new technologies (Li et al., 2024; Scherrer, 2023), it is essential to investigate how news media frame blockchain technology, and how it can be used for educating consumers about the benefits of blockchain for communicating content authenticity.

Fourth, more research is necessary into how blockchain-based disclosures should be designed in order to be perceived by consumers as trustworthy communicators of advertising authenticity. The findings of Chapter 5 suggest that disclosures which do not mention blockchain, or which state to the consumer that the ad was verified using blockchain and therefore can be trusted, were perceived by participants as more understandable, leading to more positive ad and brand attitudes and credibility perceptions. In order to unpack these findings, more research is needed to investigate which factors influence how consumers perceive blockchain-based disclosures of advertising authenticity. For example, why are disclosures which do not mention blockchain more effective at raising consumer perceptions of ad credibility than blockchain-based disclosures? Is it because they are seen as more understandable, or is it because consumers do not trust the technology? Studies investigating consumers' trust perceptions of blockchain will shed some light on these findings. If consumers do indeed distrust blockchain technology, then more studies are needed on developing successful interventions to effectively educate consumers about the positive aspects of blockchain for establishing authenticity in advertising and other content. On the other hand, it may be more beneficial to approach the design of blockchain-based ad disclosures from a PMT perspective and investigate how incorporating concerns regarding self- and response efficacy into these disclosures could improve their effectiveness. For instance, future research could explore the effects of explaining why blockchain technology is so effective in ensuring advertising authenticity, and of illustrating how consumers can protect themselves against potentially deceptive advertising by only purchasing from ads that include a blockchain-based disclosure.

Finally, more research is necessary on how other technological solutions can be utilised to address the issue of deceptive advertising – or how they can be implemented in tandem with blockchain to achieve this aim. Blockchain technology is merely one of many technologies that can help combat deceptive advertising, and the technological advancements that are made daily means that many new technologies are being developed that can help in this regard. For instance, research may explore the integration of blockchain technology with artificial intelligence to facilitate the automatic identification and categorisation of fraudulent content (Sandner et al., 2020), such as deceptive advertisements. In the end, deceptive advertising and other information disorders are complex issues which may require creative and integrative approaches to effectively tackle them. It is, therefore, essential that scientists continue these interdisciplinary efforts in order to identify the most effective solutions.