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4 The planning and implementation process of Programmatic Advertising campaigns in emerging markets

Thanh Tiet and Heikki Karjaluoto

Introduction

Boston Consulting Group (2018 – see Further reading) projects that Programmatic Buying ad spend will account for 63% of global display advertising spend by 2020, leaving a 37% ad spend share for direct buying (i.e. when advertisers and/or agencies manually choose individual ad placements and book them directly with publishers). The rapid advancement of Programmatic Advertising has gained the attention of both the advertising industry and the academic community and spurred many research papers on the topic. Several popular research areas under this topic include Real-Time Bidding (RTB) optimisation algorithms, RTB advertising revenue maximisation for publishers and the impact of Programmatic Advertising on consumer data privacy. The articles related to RTB date to 2014 or earlier, while the other topics were not researched until 2017.

Despite the rich literature on Programmatic Advertising, there is a disciplinary gap between the advertising industry and academic research due to the technical nature of the subject (Li, 2017; Yang *et al.*, 2017). The field has been led by technology companies and computer scientists rather than advertising academia (Yang *et al.*, 2017). This explains why most related articles were published in computer science journals or software engineering proceedings, which caused a 'research gap in the social science of the subject' (Li, 2017, p. 4). Qin and Jiang (2019) complement this view by arguing that existing studies overemphasise the technologies of Programmatic Advertising itself and lack discussion on how these technologies affect and transform traditional advertising processes and practices.

The potential of emerging markets

Statistics show that emerging markets (e.g. China, India, Indonesia, and Brazil) make significant contributions to the global advertising landscape in terms of ad spend volume and growth rate. According to Zenith's advertising forecast, seven of the top ten contributors to global ad spend growth from 2017 to 2020 were emerging markets (Zenith, 2018 – see Further reading). Additionally, digital ad spends in emerging markets, especially Southeast Asia, are in double-digit growth (Digiday, 2017 – see Further reading). However, there are limited studies about online advertising and its dynamics in these markets. Hence, this chapter focuses on studying the Programmatic Advertising process in Vietnam, which is one of these emerging markets.

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Objective of this chapter

Based on the identified research gap regarding Programmatic Advertising and increased interest in digital advertising practices in emerging markets, namely Vietnam, this chapter will explore how Programmatic Advertising is planned and implemented in this market. The main Research Question this chapter seeks to answer is to what extent Programmatic Advertising is leveraged in online advertising campaigns in Vietnam? In addition, we look at the advantages/disadvantages of leveraging Programmatic Advertising. Our sub-research question is how Programmatic Advertising campaigns are planned and implemented. Programmatic Advertising involves automation and the integration of different technologies, which may require a different advertising process to ensure effectiveness.

This study makes two main contributions to the research and the practice of online advertising. In terms of theoretical contributions, it fills the disciplinary gap because it studies the Programmatic Advertising phenomenon from the perspective of marketing communications. The study also presents the findings from the perspective of an emerging market (Vietnam), which is currently missing in academic research. In terms of managerial contributions, the study discovers two distinctive planning and implementation processes of Programmatic Advertising campaigns, depending on the campaign's objectives. It also pinpoints both good and bad practices in Programmatic Advertising processes. These findings will help advertisers effectively and efficiently manage their programmatic ad campaigns.

Theoretical background

Defining Programmatic Advertising

Programmatic Advertising comprises two components: Programmatic Buying and Programmatic Creative (Chen *et al.*, 2019; Sven and Owens, 2016, pp. 123–130). Programmatic Buying refers to a range of technologies that automate the real-time buying and selling of ads. Programmatic Creative includes a range of technologies for optimising and generating ad content in real time so that ads are relevant (i.e. personalised) to users. While the two components have different functions, both rely on massive amounts of data (e.g. consumer data and ad inventory data), optimisation algorithms and intermediaries so that relevant ads can be delivered to the optimal target audience at scale (Li, 2017).

Programmatic Buying uses data and technologies to automate and optimise the real-time buying and selling of ads. Nevertheless, it is not a fully automatic process because human intervention is still required to guide the system, and research indicates that data and technologies are equally important to the success of Programmatic Buying (Chen *et al.*, 2019; Choi *et al.*, 2019; IAB, 2020 – see Further reading; Li, 2017; Qin and Jiang, 2019). Without data, there is no input for technologies to process and optimise. Similarly, without the relevant technologies, the automatic ad procuring process is not feasible, and advertisers cannot leverage the potential of data because human beings are not capable of analysing such a significant amount of data in real time.

If Programmatic Buying aims to *find* the right audience and, finally, person, then Programmatic Creative aims to *show* that audience or person individual personalised ads. According to Kumar and Gupta (2016), consumers increasingly expect to see personalised ads that are relevant to them and address their needs. The most important benefits of

personalised ads are 'accelerating a consumer's decision-making process and increasing the likelihood of response and purchase' (Kumar and Gupta, 2016, p. 303). Chen *et al.* (2019) define Programmatic Creative as a set of technologies and data that aim to generate personalised and contextualised ads automatically in real time and at scale. Similar to programmatic buying, Programmatic Creative is not a fully automatic process; thus, human intervention is required to ensure the appropriateness of system-generated ads (Li, 2019).

Intermediary platforms in the programmatic ecosystem

Programmatic Buying includes four main intermediary platforms: the Demand-Side Platform (DSP), the Data Management Platform (DMP), the Supply-Side Platform (SSP) and Ad Exchange.

The DSP assists advertisers or their agencies who buy ad inventories with managing Programmatic Buying campaigns. Examples of DSPs include MediaMath, AOL, Google Display and Video 360. The DMP is an important intermediary because it is layered atop the DSP to provide data for the system (Chen, 2020, pp. 299–308). The DMP collects and integrates data from different sources, analyses it to build comprehensive audience profiles and feeds it to DSPs. Examples of DMPs include Lotame and Nielsen. The SSP serves suppliers of advertising inventories. Examples of SSPs include PubMatic, AppNexus, OpenX and Google's AdX. The SSP helps publishers manage ad inventories, optimise the prices of an ad impression and receive revenue (Chen, 2020, pp. 299–308; Choi *et al.*, 2019). Ad exchange is a centralised platform where DSPs (buyer) and SSPs (sellers) buy and sell ad inventories in real time. Examples of ad exchanges include Google DV360 and AppN.

Programmatic Creative includes three main intermediary platforms: Programmatic Advertisement Creation (PAC), Dynamic Creative Optimisation (DCO) and the Content Management Platform (CMP) (Chen *et al.*, 2019).

Both the PAC and DCO belong to the Programmatic Creation Platform (PCP), which generates mass personalised and contextualised ads in real time. PAC creates multiple ad versions, and DCO is responsible for testing different creative versions with different audiences in different contexts to see which version works with whom and in which context. DCO then feeds back the real-time performance of these ad versions to the PAC for adjustment of the ad content accordingly. To a certain extent, DCO is similar to traditional A/B testing, but better in that it executes the testing process automatically, and it can test different ad versions at the same time and at scale (Chen *et al.*, 2019). The CMP is a stock photography database that can automatically recognise individual objects in a photo, decompose all the components and assign them tags. When the CMP is connected to the PCP, the PCP will rely on these tags to extract suitable components and create personalised ads automatically.

The online advertising planning and implementation process

Overall, the online advertising process comprises a series of eight steps: (1) setting campaign objectives and effectiveness metrics, (2) campaign insights discovery, (3) strategic advertising planning, (4) message strategy, (5) ad creation, (6) media planning, (7) media buying and (8) campaign optimisation and evaluation (Chaffey and Ellis-Chadwick, 2016, pp. 418–475; De Pelsmacker, Geuens, and Van den Bergh, 2017, pp. 125–199; Qin and Jiang, 2019). These steps comprise a linear online advertising process.

Empirical study

Methodology

This study uses case study research and abductive reasoning to answer the research questions (RQs). A case study is also suitable for answering 'how' and 'why' questions, especially when investigating contemporary phenomena that cannot be replicated in a lab environment (Yin, 2009, p. 18). Johnston, Leach, and Liu (1999) also argue for the strength of the case study approach to gather an in-depth understanding of the phenomenon of interest.

Case context: overview of the Vietnam market's Internet landscape

Vietnam's Internet penetration in January 2020 was 70% (the world average is 59%), and it is growing fast annually (WeAreSocial, 2020 – see Further reading). There was an increase of 10% in absolute Vietnamese Internet users compared to the same period in the previous year, making Vietnam one of the top ten markets with absolute growth in Internet users. Vietnamese Internet users spend an average of 6.5 hours per day on the Internet, which is on par with the worldwide average (WeAreSocial, 2020). Two-thirds of their total time spent is equally accounted for by social media activities and watching videos (WeAreSocial, 2020).

Google search, YouTube and Facebook are the three most visited websites in Vietnam (WeAreSocial, 2020). Facebook and YouTube are also the top two social media platforms, with penetration of 90% and 89%, respectively (WeAreSocial, 2020), making these platforms ideal for advertisers in this market. Therefore, both Google and Facebook position Vietnam as the most important market in Southeast Asia (The Information, 2019; Market Realist, 2019 – see Further reading).

Vietnam is also a mobile-centric market: 97% of Vietnamese Internet users access the Internet via a mobile device, and half of their daily Internet time is spent on a mobile device (WeAreSocial, 2020). Indeed, 70% of their YouTube watch time is from mobile phones (MMA, 2018 – see Further reading), and 79% of Internet users only access Facebook via a mobile device (WeAreSocial, 2020). Mobile-centric trends have fostered the growth of mobile advertising. While mobile advertising has many advantages, such as granular data and location-based targeting, it also faces several limitations, such as limited rich advertising formats, a high possibility of ad blockage and technological compatibility issues with different mobile operating systems (MMA, 2018).

According to WeAreSocial (2020), in terms of digital advertising spend, Vietnam's 2019 estimated expenditure was $306 million, which had increased by 9% compared to 2018. That digital spend was allocated for search ads, display ads (i.e. banners, videos and social ads) and classified ads at 38.5%, 44.2% and 17.3%, respectively. Display ads not only accounted for the highest digital spend but were also the only ad format with two-digit expenditure growth last year (WeAreSocial, 2020). The ad spend patterns of the Vietnamese market are also consistent with global ad spend.

Data collection

Interviews as a data collection method

Yin (2009, pp. 106–109) endorses interviews as the most important and essential source of data for a case study. Furthermore, interviews allow a researcher to interact with

the study subjects directly and ask open-ended questions to gain an understanding of a specific topic, especially when the topic is complex or sensitive (Hair *et al.*, 2016, pp. 200–208). Bloomberg and Volpe (2008, pp. 73–74) add that the interview is preferable to other methods when a researcher needs to obtain a person's experience or viewpoints. Semi-structured interviews were particularly suited to this study, which aimed to understand the digital specialists' perspective on Programmatic Advertising as well as their experience in utilising it in online advertising campaigns.

Recruiting study participants

The study participants were recruited using purposive sampling for their knowledge or relevant understanding of the topic of interest. In other words, participants should be recruited according to 'predefined criteria relevant to a particular research objective' (Guest, Bunce, and Johnson, 2006, p. 61). The respondents needed to satisfy the following criteria: (1) possess at least two to three years of experience in digital advertising for an adequate understanding of the online advertising process and (2) experience in planning and implementing programmatic ad campaigns within the past year. Because the digital advertising landscape keeps evolving, these criteria were used to ensure that participants' answers reflected the current market situation. This study aimed to complete 6–12 interviews to achieve theoretical saturation of 'the point at which no new information or themes are observed in the data' (Guest, Bunce, and Johnson, 2006, p. 59).

Conducting semi-structured interviews

The semi-structured interviews were conducted in the Vietnamese language in February and March 2020. The interview durations varied from 45 to 90 minutes. All interviews were conducted via Skype, audio recorded and transcribed. The interviewees were either from a client's in-house digital media team or from an agency's digital team. Seven of the eight people contacted participated in these interviews. The major themes emerged after five interviews, and no new significant themes appeared during the remaining interviews.

Data analysis

The study used thematic analysis due to its advantage of flexibility compared to other methods as well as its alignment with the abductive reasoning approach of the study. Braun and Clarke (2006) explain that thematic analysis includes six phases: (1) familiarisation with data; (2) generating initial codes; (3) searching for themes; (4) reviewing themes to ensure that they are meaningful, significant and not overlapping; (5) defining and naming themes and (6) producing a report. This study's data analysis process followed all six phases of thematic analysis. Initial codes were identified during the transcription process, while the others were generated after all transcriptions were completed. The coding process also involved the data reduction step to focus on the relevant data and make analysis feasible (Hair *et al.*, 2016, p. 303). Based on the codes, the main themes were identified, reviewed and defined. The coding process was also guided by the relevant literature. The codes were mapped and grouped into different themes to help answer the RQs. Finally, each theme was identified, and it was determined whether there were adequate supporting empirical data and whether the theme presented a critical contribution to the RQs.

Results and discussion

RQ1: How is Programmatic Advertising being used in online advertising campaigns in emerging markets?

Overall, programmatic ads are used in both long-term brand-building campaigns and short-term direct-response campaigns, even though the data suggest that Programmatic Advertising is being used more in long-term brand-building campaigns than it is in short-term direct-response campaigns. Different campaign objectives have distinctive effectiveness metrics. The effectiveness metrics of long-term brand-building campaigns are reach and frequency, while those of short-term direct-response campaigns are conversions. Different short-term direct-response campaigns would define conversions, such as website visits, form registrations or purchases, differently.

Programmatic Advertising offers several exclusive advantages, such as sophisticated and granular audience segmentation. This advantage stems from combining underlying programmatic technologies with holistic audience online profiles. Sophisticated audience segmentation implies that advertisers can segment the desired target audience into different subgroups and serve the relevant ad to each group. However, granular audience segmentation suggests that advertisers can layer various audience attributes to narrow the audience group and achieve precision targeting. Examples of audience attributes are demographics, location, interest, online behaviour, etc. The spectrum goes from broad demographic traits to specific online behaviours. Another advantage is lookalike audience targeting. When this option is employed in an online campaign, the DSP will automatically find a new audience with online profiles similar to those of the brand's existing target audience. This targeting technique not only extends the campaign's reach but also increases conversions for short-term direct-response campaigns. The final advantage is that Programmatic Buying can consolidate the performance of different channels and devices as well as report the Key Performance Indicators (KPIs) at the campaign level. This consolidation not only improves advertising efficiency (i.e. reduces the ad impression duplication across channels and devices) but also lets advertisers evaluate the campaign holistically (i.e. advertisers can evaluate advertising effectiveness at the campaign level instead of at the channel level).

Despite the obvious advantages, there are three challenges with Programmatic Advertising. The first is incurring additional fees, such as platform and data fees. Advertisers will be charged a platform fee when they implement programmatic ads via DSPs. Similarly, advertisers will be charged a data fee when they leverage the audience data in their targeting. The more the data layers involved, the higher the data fees. There were controversial opinions among the respondents regarding whether the incurred fees are reasonable (at least 10%–15% of the media budget). The next issue is that many advertisers do not understand the audience buying concept of Programmatic Advertising. Hence, they expect to see their own ads during the campaign period, and when they do not, they tend to conclude that Programmatic Advertising is ineffective. The third issue is related to ad inventories. The banner ad inventories that are available for Programmatic Buying are subject to limited sizes and formats (i.e. most programmatic banner ads are of Internactive Advertising Bureau (IAB) standard sizes); therefore, if a brand wants to convey its message through a rich format banner (e.g. an expandable non-IAB standard), there is a high chance that the brand can only deliver that message via direct buy. The next obstacle is that many local publishers who own premium ad inventories (i.e. ad

placements with high reach and high viewability) are reluctant to sell these ad impressions through programmatic channels. Instead, they prefer to sell through traditional direct contracts. If advertisers insist on buying these ad placements via programmatic buying, they can negotiate deals (e.g. programmatic guaranteed deals, preferred deals or private market deals), which are more expensive and time-consuming to implement. Nevertheless, the respondents shared that these deals are limited, and many premium ad placements are still inaccessible through programmatic buying. Lastly, ad inventories on YouTube and Facebook – the top two advertising platforms in Vietnam – are sold exclusively on two DSPs: Google DV360 and Facebook Ad Manager. This fragmentation deters the benefit of Programmatic Advertising consolidating ad performance across channels.

RQ2: What are the planning and implementation processes for Programmatic Advertising campaigns?

In general, the new planning and implementation process for Programmatic Advertising also includes eight steps: (1) setting campaign objectives and effectiveness metrics, (2) campaign insights discovery, (3) strategic advertising planning, (4) message strategy, (5) ad creation, (6) media planning, (7) media buying and (8) campaign optimisation and evaluation. However, there are three important points of discussion to consider.

1. **The Programmatic Advertising process is non-linear.** This is especially true for short-term direct-response campaigns. More than one step can happen simultaneously, thanks to the underlying programmatic technologies. The DSP can create ads with a personalised message and match the size of the ad placement simultaneously in real time, allowing ad creation and media buying steps to happen concurrently. The campaign evaluation step is then iterated periodically during the campaign period rather than post-campaign, which forms a constant loop from steps 2 to 6 throughout the campaign. At the tactical level, the DSPs evaluate the effectiveness of each ad version and ad placement based on the target audience's feedback on the ad. The systems then make necessary changes to improve the campaign's performance. At the planning level, digital specialists monitor the campaign's performance. If new learning or insights emerge from the evaluation process, the digital specialists will make necessary changes to the creative message, audience segmentation and budget allocation among audience subgroups, ad groups and media channels. From this perspective, the advertising process of short-term direct-response campaigns appears to be more flexible and adaptive than that of long-term brand-building campaigns because the planning and implementation steps interlace throughout the campaign. However, the planning and implementation stages of long-term brand-building campaigns are separate. It can be inferred from the interviews that the planning phase of brand-building campaigns happens before the campaigns begin and remains unchanged during the campaign period. The implementation phase of long-term brand-building campaigns is otherwise similar to that of short-term direct-response campaigns. Figures 4.1 and 4.2 outline the new advertising process for both campaign types.
2. **The Programmatic Advertising process is data driven.** All optimisation decisions that are made by the DSP are data driven. For example, Google DV360 and Facebook Ad Manager rely on either their built-in audience data or third-party data sources (e.g. DMPs and data provided by e-Commerce platforms) to decide

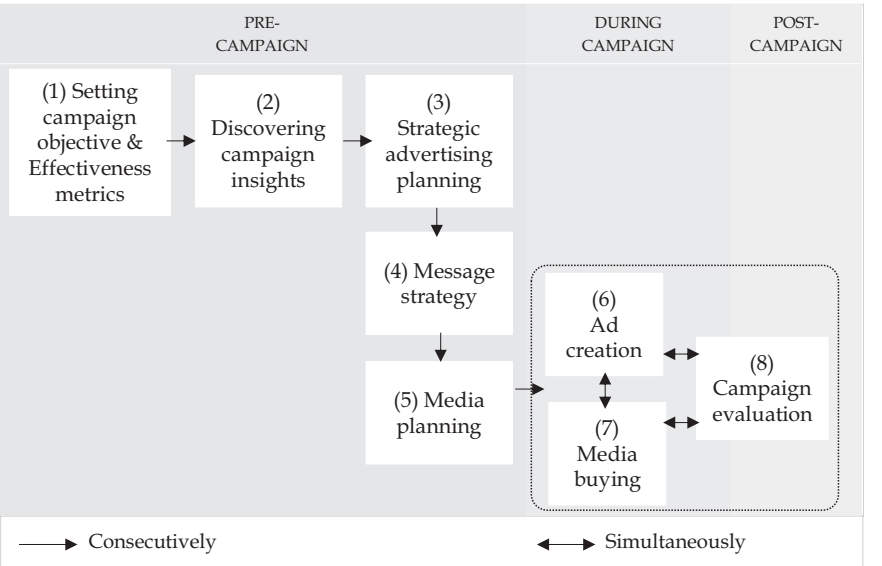

Figure 4.1 Programmatic Advertising process of long-term brand building campaign.
Source: Thanh Tiet (2020).

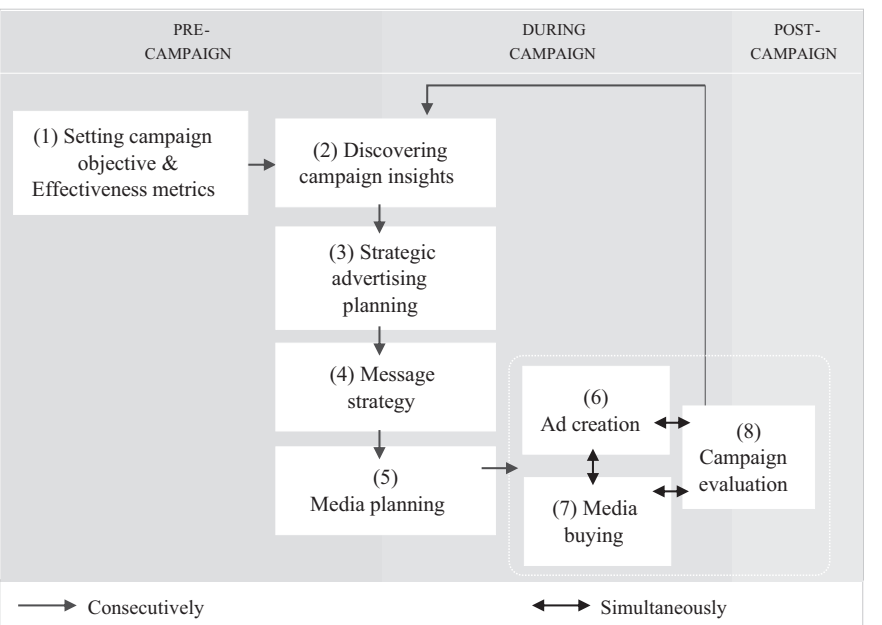

Figure 4.2 Programmatic Advertising process of short-term direct response campaign.
Source: Thanh Tiet (2020).

whether to show an ad to a specific audience, which ad message to utilise, etc. The systems rely on the audience's responses to the ad to evaluate whether that optimisation decision was effective. The DSPs also offer reporting dashboards (e.g. predictive metrics and historical data) so that digital specialists can quickly access the campaign's performance and make necessary interventions in the systems' optimisation processes. The data-driven approach reduces a significant amount of guesswork in the advertising process. Additionally, the post-campaign data goes beyond traditional digital metrics, such as impressions or clicks. Rather, the systems can track and report more comprehensive data, such as attribution reports and the campaign's audience data, which are valuable for deeper analysis of the campaign's performance.

3. **Programmatic Advertising has introduced automation into the advertising process**. Automation happens mostly during the optimisation steps (i.e. creative optimisation, bid optimisation and ad placement optimisation). Hence, the digital specialists' role during the implementation steps is to supervise the systems. Yet, the respondents shared that their intervention was still required; the systems were not yet perfect. Nevertheless, the role of digital specialists during an advertising campaign's planning phase remains significant and irreplaceable. Lastly, while Programmatic Advertising offers automation for several tasks, it also creates new tasks for the digital specialist. For instance, the specialists need to create more creative elements to feed the DSP systems so that the systems have more ad combination options for optimisation. Furthermore, because the programmatic ad buying ecosystem involves more parties than the traditional direct buy, the specialists need to spend time communicating with different parties and addressing the technical issues that emerge from initiating programmatic campaigns.

Discussion

Theoretical implications

The study findings support the model of Programmatic Advertising by Chen *et al.* (2019), which states that Programmatic Advertising has two components: Programmatic Buying and Programmatic Creative. While the former is fully developed, the latter is still under development. The development stage of the two components was reflected through the experience of the study participants. All participants had experience in implementing Programmatic Buying campaigns, but only a few had experience with Programmatic Creative. Furthermore, the discussion on Programmatic Buying was more thorough and in-depth than that on Programmatic Creative. For instance, Programmatic Buying was employed extensively in both long-term brand-building and short-term direct-response campaigns. The advanced deployment of Programmatic Buying was also manifested through sophisticated customer segmentation and utilisation of lookalike audience targeting to extend the campaign's reach and conversions while addressing the issues of brand safety and viewability.

By contrast, Programmatic Creative in the local market is still under development for two reasons: compared to Programmatic Buying, there are fewer campaigns implementing Programmatic Creative, and in terms of the platform infrastructure, Chen *et al.* (2019) state that creative programmatic platforms include PCP and CMP. While PCP was mentioned and discussed by the study participants, CMP was not mentioned at all.

This implies that CMP was not used in the market at the time of this study and likely was not available; all respondents implementing Programmatic Creative in their online campaigns had to manually design and upload the creative templates and components into the system. While the lack of CMP can indicate that the local market has not reached the technology's state-of-the-art stage, it seems that the model of Programmatic Advertising by Chen *et al.* (2019) needs modification to strengthen its explanatory power.

Managerial implications

The study identifies two different planning and implementation processes for Programmatic Advertising, depending on the campaign objectives. For campaigns aiming at long-term brand building, the advertising process is more straightforward because the planning and implementation phases are separate. That is, the campaign's overall strategies, including customer segments, targeting strategy, creative strategy and media mix, remain unchanged throughout the campaign. All decisions that are made during the implementation stage follow predefined strategies. By contrast, the processes for short-term direct-response campaigns are more adaptive in the sense that the planning and implementation phases are integrated. Furthermore, the study findings suggest that the strategies, especially customer groups, targeting and even the creative message, are subject to change during the campaign's implementation phase.

Regarding changes in the target groups, the study findings imply that advertisers want to prioritise ad spend on those who are more likely to make a conversion (e.g. make a purchase and register a form) soon to achieve the campaign's KPIs. Acknowledging the two processes helps advertisers manage the campaigns more effectively in terms of allocating reasonable time and resources at different stages of the processes. For instance, the process for long-term brand-building campaigns can require more time and effort during the planning phase than in the implementation phase. Moreover, short-term direct-response campaigns require continuous time and effort during both phases.

The differences between the two processes can be explained by the nature of the two campaign types. Short-term direct-response campaigns are performance driven and demand immediate results, while long-term brand-building campaigns aim for long-term impacts, such as changing consumers' perception or behaviour towards the brand. Therefore, even though Programmatic Advertising technologies have changed the advertising process, they are likely not the sole contributor. Advertisers also play a significant role in shaping the processes. For instance, the programmatic mechanism works the same in both processes; the audience and campaign performance data are also collected and available in real time in both processes. However, digital specialists must decide how to leverage the mechanism to meet the campaign's objective. In that sense, Programmatic Advertising can enhance the advertising campaign's performance and the efficiency of its advertising spend. Yet, the enhancement level essentially depends on the in-depth understanding and expertise of the digital specialists. In other words, adopting Programmatic Advertising (i.e. shifting the budget from traditional direct buy to Programmatic Buying and leveraging dynamic ads) because it has a promising advantage (i.e. it delivers the right message to the right person at the right time) without a thorough understanding of the technologies and careful preparation could result in a great expectation gap.

The study findings indicate two main reasons for this expectation gap. First is the justification of additional fees (e.g. platform fee, data fee and tech fee) when executing

Programmatic Advertising. These fees are costly and vary depending on the depth of the targeting layers, different DMPs and the sophistication of the technologies involved when integrating different intermediates in the programmatic ecosystem; advertisers and agencies must be aware of these fees while planning their campaigns. Additionally, as the data fees keep increasing with added targeting layers, the digital specialists need to justify the optimal point between the cost and the benefits for each layer. Furthermore, while the issue of non-transparency fees was not mentioned in the interviews, it was discussed in the research literature. Hence, advertisers and agencies should be aware of this issue. Secondly, programmatic technologies are complicated. The most common issue from the case study was incompatibility between platforms, which interrupted the delivery of ad impressions. Moreover, complicated technologies also require more time and technical expertise than simpler approaches when setting up programmatic campaigns. Thus, digital specialists must not only be skilful at operating the DSPs but must also have a systematic understanding of different platforms in the programmatic ecosystem and their working mechanisms so that they can execute their campaigns effectively and efficiently.

The study findings also point to a gap between practice and theory, which could potentially lead to ineffective implementation of Programmatic Advertising campaigns. Neumann, Tucker, and Whitfield (2019) and Sylvester and Spaeth (2019) highlight a potential problem in both the accuracy and the coverage of audience data: third-party audience data could lack accuracy and coverage due to self-reporting faults, data collection technique faults, etc. Additionally, the biased ad delivery and optimisation algorithms discussed by several researchers (i.e. Ali *et al.*, 2019; Gordon *et al.*, 2019; Lambrecht and Tucker, 2019; Lewis, Rao, and Reiley, 2015) are of concern. In one instance, the algorithms automatically prioritise showing information to one customer segment over others because of inherent algorithm biases. Those biased algorithms can cause misleading campaign results and evaluations. Moreover, the algorithms can display ads to buyers who would make a conversion regardless of whether they see the ads or not, which wastes the impressions because they do not earn additional advertiser conversions. However, the digital specialists in the market seem to be unaware of these issues, which is alarming because audience data and system algorithms are fundamental aspects of precision targeting of programmatic buying.

Hence, it is suggested that advertisers and agencies should first acknowledge these issues and take gradual actions to address them. Regarding the accuracy of audience data, advertisers and agencies should begin investigating the audience data collection and verification processes of data vendors. These insights will help them determine whether to pay data fees for new layers of audience data in their campaigns. Furthermore, systematic assessment of these third-party audience data sources should be conducted if possible. Regarding the biased algorithms, it seems that operating the algorithms is out of digital specialists' control, making it difficult for them to intervene in the systems and mitigate such biases. Despite that, digital specialists should still be mindful of the biased algorithms issue when interpreting the campaign's data, evaluating the campaign's performance and taking strategic actions based on those data. The respondents noted that the audience data results post-campaign could be used to redefine a brand's target audience, which underlines this suggestion.

Finally, the study findings suggest that even though Programmatic Advertising offers automation in the implementation steps (e.g. automatically chooses the right ad placement to serve ads and automatically generates personalised ads on a large scale), the

workload does not necessarily decrease. Digital specialists still need to supervise the system to intervene promptly, especially given that technologies are still developing and technical issues can occur during the campaign period. Nevertheless, too much human intervention is not encouraged. The literature and the case study findings imply that the algorithms of programmatic technology can operate and improve based on the feedback loop. Hence, the role of digital specialists should skew towards supervising and guiding the system instead of doing its job. Furthermore, there is an increase in workload concerns with generating the increased creative templates and components that are required in dynamic creative so that the systems have resources to create different combinations of ad templates and creative components. This is important because the core of Programmatic Creative is to create personalised ads at scale, implying that the system needs a significant amount of creative element input to customise ads that are relevant to different audiences in different contexts. In other words, the lack of creative component input hinders the strength of dynamic creative. In conclusion, the automation offered by programmatic technology should be viewed as an extension of digital specialists that helps them plan and implement online campaigns rather than replace them.

Key lessons for future research

- Programmatic Advertising research is still in its infancy; there are limited research papers on Programmatic Creatives, especially regarding the intermediaries and platforms of Programmatic Creatives and their working mechanisms. Further research on this component of Programmatic Advertising will aid in a holistic understanding of the topic.
- This research was conducted from the buy-side perspective as represented by digital specialists from advertisers and agencies; therefore, future research from the sell-side perspective (i.e. publishers) and intermediaries would give a more holistic understanding of the phenomenon.
- Due to its technically sophisticated nature, future Programmatic Advertising research should involve collaborations between marketing researchers and computer scientists for more meaningful results.

Disclaimer

The research presented in this chapter was collected for my thesis, Thanh Tiet, University of Jyväskylä Master's thesis *The planning and implementation process of programmatic advertising campaigns in emerging markets (2020)*. The copyright for this JYU thesis belongs to me as the Author. Research presented here has not been otherwise previously published.

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