# The Implications of Programmatic Advertising on the Business Model of TV Broadcasters


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**Abstract** Technological changes produced by the digital convergence are driving a paradigm shift in advertising and mass communication, and resulting in the emergence of a new market. Programmatic advertising is, in this context, an emergent technology that has the potential to disrupt and change the business model of incumbent media companies, such as television broadcasters. As the technology is new, we know little about the effects it will have on actors in the sector, and the definition of the programmatic TV construct is still evolving. We present the results of a predictive study of the business model implications of this new technology. Based on a combination of interviews, documentary content analysis, and the Delphi method, involving a range of industry executives, we identify 13 implications for the business model of TV broadcasters. Our findings offer a way for academia and actors in the media industry to understand the coming disruption from programmatic TV.

## 1 Introduction

Programmatic advertising, defined generally as "an automated, technology-driven method of buying, selling or fulfilling advertising" (American Association of Advertising Agencies 2015, p. 6), is a relatively new instrument within media and advertising in general that has the potential to disrupt the business models of the various actors in the media industry (Busch 2015). Tasks traditionally performed by human actors can be automated using programmatic solutions, and in this sense, programmatic has the characteristics of a production technology that could alter the business models of actors in the industry. In the traditional business model, advertising space is bought and sold by human actors as insertions in a media (magazines, television, and so forth) that will reach and expose a given audience to a general message. With programmatic advertising, each individual in a

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given audience can be reached, bought, and sold independently and separately from other media users (Kosorin 2016). Advertisers can target each customer with a tailored sales message with minimal human overhead costs. This technology has created a new emergent media market, that some media players are adapting their existing business models, or inventing new ones, to enter, thereby leading to media entrepreneurship (Khajeheian 2017).

The literature on advertising agrees that a paradigm shift in advertising has occurred online (Campos-Freire 2013; Cappo 2003; Nail 2013; Perez-Latre 2007). For TV broadcasters, programmatic technology represents the next disruption with the potential to change the way advertisement space is sold to advertisers and is presented to the wider society. Traditional media, such as television broadcasters, will see their businesses affected by this new technology, but exactly how remains somewhat speculative in industry reports, and we have found no academic studies examining this question.

The business model construct can help us investigate how technological changes affect an industry and its actors (Lambert and Davidson 2013). A business model describes the key components of a business (Hedman and Kalling 2003), one of the most cited frameworks being the business model canvas suggested by Osterwalder and Pigneur (2010). Examining how a technological change affects each business model component separately yields a holistic picture of the impact of that change on the business. Although many media will be affected by programmatic advertising, and have the opportunity to enter this emerging market as buyers or sellers, each media is likely to act differently with respect to the programmatic construct (Mediacom 2015). In this paper we will focus primarily on television (TV), although we recognize that some findings and discussions could be applicable more broadly. One criticism of programmatic technology as applied to TV is the uncertainty surrounding the definition of the construct and its effects (DataXu 2015; Experian 2015; SpotXchange 2015; Tradedesk 2016). Here, a business model approach can help sharpen the definition.

In this paper, we therefore explore the construct of programmatic TV and propose a methodology for understanding how programmatic TV will affect the business model of TV broadcasters, based on the perceptions of experts. Using a combination of a content analysis of industry reports and a subsequent Delphi study of a group of six industry experts, we explore what programmatic TV is, some features of the emerging programmatic market, and how programmatic advertising will affect the business model of TV broadcasters. By applying such a mixed method we achieve some degree of triangulation, increasingly seen as a necessity for studies using managers as informants (Molina-Azorin et al. 2017; Hodgkinson et al. 2017). We find that the experts agree that the influence of media agencies will decrease, as new partnerships will emerge between TV broadcasters, technology partners, data suppliers, and TV platform owners. The value proposition for TV broadcasters will still be to deliver great content that can attract audiences, but the core proposition will be more screen agnostic, as content is delivered on multiple platforms such as streaming video.

## 2 Programmatic TV Technology and Business Model Change

Convergence in digital physical devices has changed media consumption patterns. For television, this means that audiences increasingly view TV programs and TV content on new and additional devices as a supplement to the traditional TV set (Jenkins 2008), such as mobile telephones, or tablets. A review of whitepapers reveals that the technology is still evolving, and that there is some confusion among industry actors as to the benefits and opportunities programmatic TV offers, but a new market is emerging around the technology (DataXu 2015, p. 2). According to Khajeheian (2017) new media markets typically emerge due to changes in technology, consumption habits, societal patterns, laws and regulations, social demands, or values. The programmatic technology offers researchers an opportunity to examine how such a technology shapes the emergence of such a new media market, and how existing players in parallel markets adapt their business models to meet the demands of the new market. It also offers the possibility to examine how new market players can emerge (Jensen and Sund 2017).

### *2.1 The Development of Programmatic*

The technology itself finds its roots in the 2000s in the lower end of the online display ad inventory (Gonzalvez-Cabañas and Mochón 2016) or what can be called lower value banner advertisement. Firms like Google and Facebook have been instrumental in creating this early disruption online (Klopfenstein 2011; Young 2014). Gradually, what was to become programmatic advertisement moved towards other types of display advertising, and around two-thirds of the online advertisement market was traded programmatically by 2016 (Wideorbit 2016). Programmatic advertising is now evolving into new formats and media, such as television broadcasting and streaming. The advertising expenditure on programmatic TV was nonexistent in 2014, but is estimated to reach 5% of the TV advertising expenditure globally by 2019, with the United States as the leading market (IDC 2015). This happens as TV broadcasters increasingly move their business from standard programming and broadcasting towards more program-centric and screen agnostic models, involving streaming via websites and apps.

TV viewing is traditionally measured as panel data, with a representative sample of the audience. TV advertising is then bought and sold based on age and gender demographics that are approximated for each program and time slot based on data from the sample. However, TV consumption is fragmenting and moving online, which is a challenge to the value of TV meter panel measurements (Napoli 2011). With this in mind, programmatic TV as a technology promises to deliver more advanced audience data than the traditional age and gender demographics (DataXu 2015; Doubleclick 2015; Experian 2015; IDC 2015; Ogilvy 2015; Tradedesk 2016; TubeMogul 2015; WideOrbit 2016). Table 1 provides a framework for programmatic

**Table 1** Typology of programmatic TV advertising

| Programmatic TV advertising framework | | How much additional audience data is available? | | | |
|---|---|---|---|---|---|
| | | Traditional TV | More automated TV | More targeted TV | Addressable TV |
| How is TV content viewed? | Traditional linear | Traditional TV advertising | | | |
| | Linear simulcast | | | | |
| | Non-linear short-form | | | | |
| | Non-linear long-form | | | | |

TV advertisement types or strategic positions. The first dimension in this framework is data availability. According to the data and analytics company DataXu (2015), there are three potential levels of availability:

1. *No additional audience data is available*. Measurement is based on age and gender from the TV panel. This cluster can be characterized as traditional TV advertising, where the same ad is shown to all viewers of the TV content. For this type, programmatic technology may help automate some previously manual tasks (DataXu 2015). We label this cluster "more Automated TV" advertising.
2. *Some additional audience data is available*. Internet-based devices and connected TVs add limited data on the specific viewer. Consequently, it is possible to show different ads to different groups of viewers of the same TV content. An example could be different types of travel advertisements depending on the weather conditions for the audience. We label this cluster "more Targeted TV".
3. *Advanced additional audience data is available*. In this cluster, more detailed data on the specific individual or household is available. Different ads for each individual or household become possible in this cluster. We label this cluster "Addressable TV".

The other dimension of the evolving programmatic TV definition is how viewers engage with television content. Previously, viewers watched programs at a specific time on a given TV set, which is referred to as linear viewing. The traditional viewing of television is linear but linear can also be transmitted as simulcast, i.e. the linear signal is transmitted to non-traditional devices. The consequence of digital convergence is the concept of "TV everywhere" (DataXu 2015, p. 8; Experian 2015, p. 5; TubeMogul 2015, p. 3). Viewers can now watch programs on demand, on multiple devices, which is referred to as non-linear or time-shifted viewing (DataXu 2015). Non-linear viewing can be divided into short-form or long-form. Table 1 provides a framework for programmatic TV advertising and identifies 15 new types of TV advertisements compared to traditional TV advertising. Each of the 15 new types of TV advertisements represents a strategic option for TV

broadcasters and their business model. Linear online TV viewing or simulcast is still limited, while non-linear (on demand) TV viewing is growing on devices such as computers, tablets, mobile phones, and so forth (IDC 2015). Consequently, targeted TV and addressable TV are, at this stage, an opportunity primarily within non-linear TV viewing. However, the increasing penetration of smart TVs and internet-based set-top boxes, such as Apple TV or Google Chromecast, will eventually add additional audience data to linear TV viewing.

## *2.2 Business Model as a Unit of Analysis*

A business model describes the key components of a business that form the recipe of how the business creates and appropriates value (Hedman and Kalling 2003). The most cited list of components comes from the business model canvas developed by Osterwalder and Pigneur (2010). They described nine components or building blocks: customer segments, value proposition, channels, customer relationships, revenue streams, key resources, key activities, key partnerships, and cost structure. While the canvas has mainly been very popular as a practical framework for managers to think about their business, it has also been used as a framework for describing business models in the media industry (Chesbrough 2010; Peters et al. 2013).

Successful firms adapt their business models over time in response to changes in the external environment, such as external technological developments (Giesen et al. 2010; Pohle and Chapman 2006). Such adaptations can be incremental or a more radical switch from one model to another (Santos et al. 2015). Similarly, programmatic advertising can result in both adaptations of the existing business models and the creation of new ones (de Reuver et al. 2009). A change in business model alters the core logic of the organization (Linder and Cantrell 2000). The literature suggests that this change can be a slow process (Kaplan 2012; Markides 2013; Sosna et al. 2010), which is theorized to consist of three stages: business model innovation awareness, business model exploration, and business model exploitation (Bogers et al. 2015; Jensen and Sund 2017; Sund et al. 2016). Experiments with programmatic TV started in the US in 2014 (IDC 2015). We are thus in the early stages of change, where various components of the business model may be the subject of change and innovation (Jensen and Sund 2017).

We can assume that programmatic TV will alter both the incumbent business models and the distribution of value creation and appropriation among the various actors in the TV industry. Furthermore, a new technology like programmatic TV is likely to affect actors such as TV broadcasters in more than one way. To provide a holistic view of the effects of such a technology, we can examine how it affects each component of the business model individually. Our central premise in this paper is therefore that the business model construct provides a useful unit of analysis to predict how a technological disruption will affect an industry and its actors.

## 3 Context and Methodology

Although this study does not rigorously examine the ecosystem, it is useful to comment on the TV ecosystem, as it is changing rapidly. Key actors within TV advertising are (1) the advertisers, who use (2) media agencies to do their planning and buying of audiences, from (3) TV broadcasters. The media agency is the buyer, while the advertiser is the user of the audience (Ots 2009). For TV broadcasters, viewers are at the heart of the business model, paying for subscriptions and creating an opportunity for broadcasters to sell access to an audience to advertisers (Küng 2008). Historically, private sector TV broadcasters have been mostly dependent on revenue from advertising (Picard 2011), but they now have to share the market with new entrants such as Google, YouTube, Facebook, and Netflix. The move from linear to non-linear TV consumption is allowing these and other technology players to enter the TV advertising sector, and many of them have experience in programmatic advertising from display advertising (Winslow 2014).

The emerging market for programmatic advertising consists of two sides: a buy side and a sell side. On the buying side are advertisers, and on the selling side are media owners. Buyers use demand-side platforms (DSPs), and sellers offer their inventory via supply-side platforms (SSPs). Technology and data are central for both types of platforms. A DSP is the gateway to the programmatic world for advertisers, and they can handle this programmatic advertising in-house, via media agencies, or via independent DSP providers. A SSP makes it possible to sell advertising inventory in a programmatic way. The SSP connects media owners to the potential buyers' demand platforms. SSPs are designed to maximize yield using more or less sophisticated rules and algorithms. Pricing is set via auction, direct deals, or other transaction methods. The third construct in the ecosystem is a Data Management Platform (DMP). It is a platform used to collect, store, classify, analyze, and manage large quantities of data from various sources. DMPs are used by publishers, advertisers, and agencies. For publishers, it makes data-enriched inventory more valuable. Agencies can use DMPs to manage data from client campaigns. For advertisers, DMPs can make data actionable across a wide range of channels. The industry consists of a long range of technology providers that previously specialized in one area of the ecosystem, but now increasingly provide services in more areas of the ecosystem (Busch 2015; Kosorin 2016).

### *3.1 Methodology*

We wanted to explore some features of the emerging programmatic market, with a focus on the future impact of programmatic technology on TV broadcasters. Given that this technology is still in its infancy, and that we need to make inferences about the future, we decided to adopt a modified Delphi method for a more systematic collection and aggregation of expert judgments (Armstrong 2001; Rowe and Wright 2001).

**Table 2** Research design

| Phase | What? | How? | Source? | When? |
|---|---|---|---|---|
| 1 | Available secondary data on programmatic TV advertising | Literature review | Whitepapers from technology companies and agencies. Trade magazine articles and consultancy reports | Q1 2016 |
| 2 | Expert interviews | Loosely structured personal and telephone interviews around programmatic TV as a disruption | Three from media agencies<br>Two from Discovery<br>One from technology company | Q2 2016 |
| 3 | Content analysis of 12 documents | Coding into the nine building blocks from the business model canvas | See Table 2 | Q3 2016 |
| 4 | Delphi round 1 Experts interviews | Semi-structured personal and telephone interviews based on the 16 implications identified in phase three | Two from media agencies<br>Two from Discovery<br>Two from technology companies | Q3 2016 |
| 5 | Delphi round 2 Expert interviews | Follow up survey based on the revised implications from phase four | Same respondents as phase four | Q3 2016 |

However, rather than ask very general questions, we used the business model components as a structuring framework. The research design involved five phases. Table 2 outlines them. The first was a general search for and review of the available articles from trade magazines, consultancy reports, and whitepapers (primarily from technology companies). This served to identify the relevant terminology to prepare for the subsequent phases.

The second phase was a series of exploratory expert interviews conducted in person or via telephone. Guidelines for the Delphi method include the usage of more than five heterogeneous experts with appropriate domain knowledge (Rowe and Wright 2001). There are few thought leaders with knowledge of the specific implications of programmatic TV. We managed to identify six initial experts in collaboration with the relevant managers at Discovery Networks, who supported this research. The experts were executives from media agencies (three), Discovery (two), and technology providers (one). The question asked was how programmatic advertising will affect the business model of the different TV actors. We also asked the experts to pinpoint further relevant industry reports for analysis. For this phase, the purpose was to ensure that we included the most relevant industry reports, as perceived by the experts, in our documentary analysis and to formulate the initial terminology and implications inductively. This helped us to conduct the subsequent content analysis.

In phase three, we conducted a more detailed content analysis on 12 industry reports identified in the previous phases, which are listed in Table 3. The majority of them came from the review in the first phase, but a few were chosen because the

**Table 3** Documents consulted in the analysis

| Publisher | Title | Data sources |
|---|---|---|
| IDC | Programmatic TV advertising: Bigger than RTB by 2019 | Interviews with 62 industry executives |
| DataXu | The rapid rise of programmatic television | Interviews with unknown number of thought leaders |
| WideOrbit | The power and potential of programmatic TV | Interviews with senior media decision makers |
| Experian | Addressable TV—harness the power of audience data for one-to-one targeting | Quotes from industry experts |
| Ogilvy | Programmatic TV: from linear to digital | Thirty references from articles in press and trade magazines, consultancy reports, whitepapers, blogposts |
| doubleclick | The promise of programmatic TV | Authored by two experts from Google and doubleclick |
| Mediacom | The programmatic future of TV | Authored by two experts from Mediacom (agency) |
| OOYOLA | State of the broadcast industry 2016 | Quotes from industry experts |
| TubeMogul | An advertisers guide to programmatic TV | Not known |
| Tradedesk | Programmatic: The future of television | Survey with 425 respondents from agencies, advertisers and media companies |
| spotXchange | A programmatic TV guide for sellers part 1–4 | Not known |
| RBC capital markets | Dynamic ad insertion and programmatic—thoughts from the channels | Interviews with "leading industry players" |

interviewees pointed to them. A content analysis depends largely on document selection (Bryman 2012). As programmatic TV is a recent and evolving construct, all 12 documents in the sample are from 2015 or 2016. Some of these documents were themselves reports of previous studies examining the impact of programmatic TV using surveys or interviews. As such, our content analysis of these documents provides a type of meta-analysis.

We conducted a deductive thematic content analysis of the 12 chosen documents, based on the nine building blocks in the business model canvas. We coded over a short period to ensure reliability (Bryman 2012). For each of the 12 documents, the relevant content was color coded into each of the nine building blocks, and excerpts were transferred to an Excel file. Figure 1 illustrates some examples. For each building block, we then clustered the implications based on the frequency of appearance. If an implication had a frequency of four or more (i.e., appeared in four or more reports), it was included in the results. The analysis identified 16 initial implications for the business model for TV broadcasters.

In phase four, we applied a modified Delphi method. We conducted semi-structured interviews with an expert panel. The panel consisted of six respondents from Discovery (2), agencies (2), and technology providers (2), three of whom were

| Case # | 1 |
|---|---|
| **Title** | Programmatic TV advertising: Bigger than RTB by 2019 |
| **Category** | Primary |
| **Document type** | Report |
| **Publisher** | IDC |
| **Publisher type** | Research company |
| **Launch date** | August 2015 |
| **Sources** | 62 interviews |
| **How will programmatic TV advertising affect the building blocks?** | |
| **Customer Segments** | Improves return on advertising spending for advertisers<br>• Better targeting opportunities<br>• Easy-to-use interface integrating and simplifying their workflow |
| **Value proposition** | TV is a multisided business model platform. Viewing will change. This will make TV advertising more effective<br>"Capabilities of traditional TV targeting as if it was the web in 1995"<br>"With programmatic TV it's a little like instead of your old glasses, you now have new glasses and see everything crisp and clear" (p. 17)<br>Reach viewers everywhere and create scale. Programmatic TV makes this job easier.<br>"No other media can offer the massive reach of TV". Lift KPIs four times that of other media |

**Fig. 1** Extract (example) from coding document

in the panel in phase one. We chose to replace one media agency expert with a technology provider in order to have a balanced view between the three types of actors. We changed two additional panel members because they became unavailable. These changes do not affect the methodology in any way. The basis for the selection of all members was their knowledge of programmatic TV and the TV business model, as well as their availability. We decided not to include advertisers. This decision was made because the experts in phase two indicated that advertisers have limited knowledge of programmatic TV and the TV business model. The respondents work out of London (2), Copenhagen (2), and Stockholm (2). The 16 initial implications were sent to the respondents prior to the interview with instructions to reflect on their agreement with each of them and their wording, and on whether any implications were missing. We then conducted, recorded, and transcribed structured interviews with each expert, half in person and half by telephone, following this structure.

Based on the interviews in phase four, we reviewed and altered the implications, taking account of the perceptions of our experts. Two implications were removed due to the experts' agreement that they were not relevant, and two new ones were added. In phase five, a revised version of the implications was sent to the respondents via an e-mail-based survey, prompting them for their level of agreement measured on a 5-point Likert scale and an assessment of whether the implications would occur in the short or long term. Again, there was the option of changing the wording or suggesting new implications. This time, the experts suggested no further changes. We therefore chose to stop the Delphi rounds at this stage, concluding that the primary implications would be those for which there was high agreement from all the experts. Implications with which only some experts agreed were labeled secondary implications.

# 4 Commented Results

The results section is divided into two parts. First, we present the expected effects on the TV broadcasters' business model as derived from the content analysis. In the second part, we present the revised implications derived from the Delphi method, indicating the perceptions of our panel of programmatic TV experts. We continue to use the business model components of Osterwalder and Pigneur (2010) to structure our presentation.

## *4.1 Implications from the Content Analysis*

Table 4 outlines the implications derived from our content analysis. They have been grouped according to the nine building blocks. We will comment on each building block individually. Next, we will address the business model change in more general terms and discuss the corresponding barriers identified in the content analysis.

### 4.1.1 Customer Segments

As the actual segmentation and decisions about what segments to serve are individual to each broadcaster, we focus here on the more general implications for customers that we could find in the documents analyzed. Programmatic TV has the potential to improve advertising effectiveness, and thus, the value creation and capturing for advertisers. According to two of the studies we examined, a range of cases on programmatic TV have shown positive results in terms of efficiency (DataXu 2015; WideOrbit 2016). Furthermore, surveys confirm a growing appetite for testing programmatic TV among advertisers (Tradedesk 2016). The single most important advantage for advertisers is the improvement in targeting opportunities. According to some of the documents, this will also make commercial messages more relevant for consumers. Better opportunities for analyzing and reporting advertising across multiple media insertions are also considered a significant advantage for advertisers. TV advertising today requires long-term planning. Programmatic TV improves the opportunity to act in the short term.

### 4.1.2 Value Proposition

As discussed previously in this paper, non-linear viewing is growing. Programmatic TV bridges digital and traditional TV, and is considered screen agnostic. One report quoted an executive as saying: "I don't care where you watch our shows. We just want

**Table 4** Implications derived from industry reports

| | Frequency |
|---|---|
| *Implications for customer segments* | |
| 1. The improved targeting opportunities are the most important advantage for advertisers | 12 |
| 2. Programmatic TV will give advertisers better opportunities for analyzing advertising across multiple media | 9 |
| 3. Programmatic TV will give advertisers better opportunities for planning advertising closer to real-time | 6 |
| 4. Programmatic TV will improve advertising effectiveness for advertisers | 4 |
| *Implications for value propositions* | |
| 5. Programmatic TV will redefine the value proposition for TV broadcasters into a more screen agnostic and video centric proposition | 8 |
| 6. Programmatic TV will secure TVs' position as the most effective media (*subsequently removed*) | 5 |
| *Implication for the customer relationship* | |
| 7. TV must reinvent itself to stay relevant in the programmatic ecosystem | 6 |
| *Implications for channels* | |
| 8. Selling and buying of TV advertising will be a more automated process | 8 |
| 9. Media agencies and programmatic TV technology specialists will capture more value | 4 |
| *Implications for revenue streams* | |
| 10. TV broadcasters will sell impressions instead of GRPs | 10 |
| 11. TV advertising will be sold and bought in the same way as any other programmatic inventory (*subsequently removed*) | 7 |
| *Implication for key resources* | |
| 12. TV advertising sales organizations will be restructured and have much more programmatic ecosystem capabilities | 5 |
| *Implication for key activities* | |
| 13. The key activity for TV broadcasters will be to sell screen agnostic and data-enriched audiences | 4 |
| *Implication for key partnerships* | |
| 14. The key partners for TV broadcasters will be programmatic technology partners and media agencies | 5 |
| *Implication for cost structure* | |
| 15. The cost structure for TV broadcasters will be less manual and more technology and data-driven | 4 |
| *Implication for the general business model* | |
| 16. Programmatic TV will fundamentally transform the business model for TV advertising | 4 |

it to get counted and we want to get paid appropriately" (SpotXchange 2015, p. 5, III). A number of the reports analyzed indicated a view that programmatic TV will be a way for TV broadcasters to secure a position as the most effective media, combining content creation and broadcasting.

### 4.1.3 Customer Relationship

The business model for TV advertising has not changed for several decades and is considered "old fashioned" in the reports examined. Despite the benefits of reach and scale, TV must reinvent itself to stay relevant in the ever-evolving programmatic ecosystem. From the content analysis, the perception that "everything eventually will be programmatic" arises. This was stated in several of the reports we analyzed, as well as by our initial interviewees, suggesting that TV broadcasters must reinvent themselves in terms of how they deal with advertisers.

### 4.1.4 Channels

Media agencies buy more than 95% of all TV advertising on behalf of advertisers (Experian 2015). Very little advertising space is sold directly to the advertisers. Advertisers need a data aggregator that can bring programmatic to life. The key role is to create "actionable insights at the transaction level" (IDC 2015, p. 17). As one report stated, "agencies continue to dominate when it comes to the primary responsibility for buying programmatic TV/video advertising, with 84% of agency respondents claiming this role" (Tradedesk 2016, p. 3). Agencies will continue to invest in technology and programmatic capabilities in order to capture more value. The investors behind the programmatic technology providers have the same ambition, i.e., to "look for increased consolidation in the advertising industry as a response to all this convergence" (OOYALA 2016, p.10).

### 4.1.5 Revenue Streams

The trading of TV airtime is based on the viewing measured in the TV meter panels. The currency is Gross Rating Points (GRPs). The increasing media fragmentation creates the need for more and more commercial breaks, with lower ratings in the existing currency. Broadcasters aim to capture value, and thus, to get the most value out of their inventory. However, some commercials may have a rating as low as zero percent, and thus, no commercial value for the broadcaster with the existing currency. Programmatic TV, with all its data enrichments, will create a more valuable inventory from advanced audience data compared to the existing TV meter. As one report stated, "you have to tap into inventory that's typically been deemed low value simply because it hasn't been measured" (Tradedesk 2016, p. 7).

The inventory will be more individually "addressable," and sales will become auction-based and closer to real-time.

### 4.1.6 Key Resources and Key Activities

TV broadcasters like Discovery sell their airtime inventory via manual sales forces. Broadcast selling will be a much more automated process, and thus, will create operational efficiency gains in the selling and buying interaction. The reports we examined held that all media will eventually be bought via the principles of programmatic (Mediacom 2015). On the other hand, producing premium TV content such as big sports events requires significant investments and will still include a significant amount of manual negotiations. One report stated that "the marketplace has shown that data is overwhelmingly the future" (OOYALA 2016, p. 9).

Broadcasters will have to develop their data capabilities. This means that more work flow automation capabilities need to be purchased or developed. As a consequence, the advertising sales organizations will undergo a restructuring. Joint ventures with and acquisitions of technology companies with programmatic capabilities are already taking place. The key activity for broadcasters will increasingly be to collect and sell screen agnostic data based on impressions. One report called this "big data comes to linear TV" (WideOrbit 2016, p. 4). The activity will not only be automated, but simplified as well; as one report stated: "If it is coming through the internet there is a way to stitch it together" (Tradedesk 2016, p. 8).

### 4.1.7 Key Partnerships

The various actors in the TV broadcaster business model will increasingly rely on programmatic technology partners. Vendors stand to gain by providing the infrastructure (IDC 2015). Media agencies are investing in programmatic capabilities, and the existing vendors of TV-meter data are also transforming more into programmatic technology partners. Mergers and acquisitions between vendors are predicted (Tradedesk 2016).

### 4.1.8 Cost Structure

The selling and buying of broadcasting is a manually consuming process. Broadcasters will experience cost reductions through a more automated and less manual workflow. Cost of sales in terms of labor will therefore decline compared to today. The investment in programmatic TV, however, requires some capital investments in data and data capabilities. Only 10% of the value capturing from programmatic is estimated to arise from cost reductions according to one report (IDC 2015).

### 4.1.9 The Business Model Overall

Finally, in a few of the reports we examined, we found a general statement that the business model of advertisement-funded TV broadcasters will transform. One report cited an expert as saying: "I am convinced that there is no path forward for TV that does not include the large scale-scale application of programmatic technology" (IDC 2015, p. 26). In fact, programmatic TV will transform the business model for all the actors in the TV industry.

## *4.2 Implications from the Expert Panel*

The content analysis identified 16 business model implications from programmatic TV. The results from the first Delphi round with six experts showed that the experts agreed fully with only six of the implications. Three of the implications required minor adjustments in the wording, while five of the implications needed a major adjustment of the wording. The experts disagreed with two of the implications, and two new implications were added to the list. The ones removed were implications 6 and 11, as indicated in Table 4. The two new implications address the role of content for a successful business model change and consolidation among the existing actors and the programmatic TV technology specialists. These new implications are found in Table 5. It was possible to identify common ground for agreement and disagreement across the six experts. However, the two experts with a background as TV broadcasters were the least convinced about an overall transformation in the short term, while the programmatic TV technology specialists were the most positive. The media agencies were in the middle of the two.

The results from the second round of the Delphi survey with the six programmatic TV experts are found in Table 6. This round revealed a high level of agreement about six of the implications, which we have labeled as the "primary" implications. These were the implications with which each expert either agreed or highly agreed. A further seven implications were labeled as "secondary". These were the implications with which all the experts either agreed or highly agreed, but with which one expert said they only somewhat agreed. The rest of the initial implications were entirely dropped, as it was deemed that the level of disagreement was high enough to suggest that they were not valid representations of the shared perceptions of this group of experts, and a consensus would be hard to reach. Table 6 also reports on whether each implication was seen to be a short-term (less than 3 years) or long-term (3 years or more) implication.

**Table 5** New implications added in the First Delphi round

| Additional implications | Frequency |
|---|---|
| Successful TV broadcasters will still be those who can attract audiences via great content | Mentioned by 2 out of 6 |
| Consolidation will happen, not only between programmatic TV technology specialists but also between programmatic TV technology specialists and TV broadcaster and agencies | Mentioned by 4 out of 6 |

**Table 6** Implications after second Delphi round

| | Short term (<3 years) (%) | Long term (3 years+) (%) | Don't know (%) |
|---|---|---|---|
| *Primary implications from Delphi* | | | |
| 1. Programmatic TV will transform the business model for TV advertising | 0 | 100 | |
| 2. Programmatic TV will improve advertising effectiveness for advertisers | 17 | 83 | |
| 3. The improved targeting opportunities are an important advantage for advertisers | 33 | 67 | |
| 4. TV broadcasters will continue to sell GRPs alongside impressions | 33 | 50 | 17 |
| 5. Successful TV broadcasters will still be the those who can attract audiences via great content | 50 | 33 | 17 |
| 6. An important activity for TV broadcasters will be to sell more screen agnostic and data enriched audiences | 33 | 67 | |
| *Secondary implications from Delphi* | | | |
| 7. Programmatic TV will give advertisers better opportunities for executing advertising closer to real-time | 17 | 83 | |
| 8. Programmatic TV will help TV broadcasters on the journey into a more screen agnostic and video centric value proposition | 50 | 50 | |
| 9. Selling and buying of TV advertising will be a more automated process | 0 | 100 | |
| 10. TV ad sales organisations will be restructured and have much more programmatic ecosystem capabilities | 17 | 83 | |
| 11. The key partners for ad sales organisations within TV broadcasters will be programmatic TV technology partners, data suppliers, TV platform owners and media agencies | 87 | 13 | |
| 12. Consolidation will happen. Not only between programmatic TV technology specialists but also between programmatic TV technology specialists and TV broadcaster and other actors | 67 | 33 | |
| 13. The cost structure for TV broadcasters will be less manual and more technology and data driven | 17 | 67 | 17 |

## 5 Discussion

Our results allow us to comment on how the nascent programmatic technology and market is likely to affect television broadcasters in the near future. In general terms, there was high agreement between our experts that programmatic TV will transform the business model for TV broadcasters in the long term. Five implications linked to the business model of TV broadcasters were identified as primary implications, while another seven still showed some disagreement after two rounds with our experts. Our experts' view that most of the implications will occur in the long term is consistent with the fact that the disruption is still in its early stages. The short-term implications focus on value proposition and key partnerships. The value proposition for TV broadcasters will still be to deliver great content that can attract audiences, but the core proposition will become more screen agnostic and video-centric.

In the short term, our experts saw a change in the external partnerships for TV broadcasters. For the advertisement sales activities within TV broadcasters, programmatic TV technology partners, data suppliers, TV platform owners, and media agencies will all be key partners. The first three partners are new compared to the existing business model for ad sales operations, while the fourth, media agencies, could well be challenged. According to our experts, industry consolidation centered on the new actor in the arena, the programmatic TV technology specialist, will start in the short term.

A positive interpretation of the long-term programmatic TV transformation is that viewers benefit from advertising that is more relevant; advertisers benefit from better advertising effectiveness; TV broadcasters benefit from an improved pricing of the inventory; and media agencies and technology providers benefit from making the transformation happen. A situation of improved value creation could be predicted for all involved. Our results suggest that TV broadcasters are concerned about whether this is the case. An area for future research would be the specific value capturing and value appropriation among the actors. Will new industry value be created, or will value (in terms of revenues and profits) simply be shifted from one actor to another?

Programmatic TV is, for now, an under-researched phenomenon. The programmatic technology in general is not limited to any particular geography, as the devices, software, apps, and databases that enable the collection and use of the big data underlying this technology are, by now, universally distributed around the world. Similarly, TV broadcasters funded by advertisement use a consistent business model globally. Thus, the results of our study could well be generalizable to all TV advertising markets worldwide. All media will eventually be part of the programmatic advertising ecosystem. Whether any of the findings can be transposed to other media, such as radio or newspapers, remains to be examined.

In this paper, we have documented how the Delphi method, combined with a content analysis with meta-analysis characteristics, can provide an assessment and predictions of the future implications for a given technological disruption. Instead

of looking backwards at a given technological disruption and the corresponding business model change process, in this paper, we have offered a method to look forward and predict the implications of a significant new technology. This technology gives the research community a unique opportunity to examine a technological and business model transformation as it is occurring.

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