White Paper

Can Machines be Creative? How Technology is Transforming Marketing Personalization and Relevance

Sponsored by: Criteo

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IDC OPINION

The most important item on marketing leaders' digital advertising agendas both now and in the future is driving customer loyalty, according to a recent global IDC research study sponsored by Criteo. Marketers believe that a key enabler of customer loyalty is "support for a consistently high-quality brand experience" and they plan to deliver this using digital personalization to improve the relevance of their communications to their customers.

Marketers understand the value of digital personalization, using it broadly across all their marketing communications activity. In online advertising, marketers personalize advertising insertions to some degree across all stages of the buyer journey; these personalization activities are showing positive performance results, so marketers now intend to escalate their investments.

Marketers are moving away from creative content produced by humans toward content produced by machines.

Some 60% of marketers plan to do "significantly more" or "more" online advertising between now and 2020, making it a high investment growth area for enterprises.

Advertising personalization is complex and intricate, and requires real-time responsiveness to customer buying behaviors "in the moment" of consideration and buying to be effective. The speed and dexterity required to activate such real-time personalization can only in practice be achieved using machines.

As a result, marketers are moving away from creative content produced by humans toward content produced by machines, and plan to use machines to automate the personalized delivery of creative content, via online advertisements, for individual consumers. 64% of marketers believe optimized message targeting and real-time personalized advertising insertions are key areas where machines will deliver business benefits by 2020.

In this context, creative staff will continue to create the source content assets, and machine-learning technologies will combine even more creative variables into a compelling mix within an advertisement frame to maximize relevancy and encourage customer engagement. Marketers believe machine learning will be useful across the whole digital advertising supply chain.

This interest is reflected in IDC's market forecasts. IDC predicts that spending on AI software for marketing and related businesses will grow at a very fast cumulative average growth rate (CAGR) of 54% worldwide, from around $360 million in 2016 to over $2 billion in 2020.

Although marketers are aware of the value and benefits of machine learning within the context of personalization, few are currently using it in this way. This is due to a lack of internal expertise in

machine learning and trust in machine-learning technology to provide the required level of customer data privacy and brand control.

A perceived risk is that machine learning may not remain true to brand with respondents citing being "unsure we will be able to manage and control our brand and design" as a key reason limiting current machine-learning adoption.

IDC believes these brand concerns will gradually evaporate as machine learning becomes more established within online advertising operations, and forecasts that machine learning will become pervasive across all elements of the advertising technology industry supply chain over the next five years to 2022.

A perceived risk for marketers is that machine learning may not remain true to brand.

In particular, the availability of the next generation of advertising personalization technology that incorporates machine learning will be a catalyst for rapid market growth. Key guidance areas for marketers and agencies include:

- Make personalization a central over-arching business and marketing strategy to deliver superior customer experiences.
- Evaluate how machine learning might be applied to your online advertising personalization activities using this research report as a benchmark. Creative content personalization should be considered in the short to medium term as a major area of investment.
- Take your one-to-one personalization strategies to the next level by targeting different stages in the buyer journey with different creative elements within your advertisements. Machine learning is a key enabler of this.

METHODOLOGY

IDC interviewed 459 marketing executives in January and February 2017. Of these, 30% were chief marketing officers (CMOs), VPs of marketing, or marketing directors; 35% were in marketing management, and the remaining 35% were in digital or online advertising roles. 58% were senior decision makers in regards to online advertising investments, and 33% directly influenced decision making in online advertising.

There was a relatively even regional split of the interviews: 155 were conducted in Europe (France, Germany, the Netherlands, the U.K., Spain), 154 were conducted in Asia/Pacific (Australia, China, India, Indonesia, Japan, Singapore), and 150 were conducted in the U.S. All the companies interviewed had over 250 employees and over a third (34%) were conducted with very large companies with over 1,000 employees. All the companies interviewed were in the retail or travel sector.

IN THIS WHITE PAPER

This IDC and Criteo white paper examines the adoption of and potential uses for new machine-learning technologies in brands' online advertising operations, within the marketers' goal of creating more relevant and positive personalized customer experiences.

This study reveals how the largely manual process of advertising creative and design work will increasingly incorporate machine learning to automate the delivery of mass individualized and

personalized advertisements. Programmatic advertising has automated many of the transactional elements of the advertising supply chain, and IDC believes that the next bastion is the creative content and copy process.

This paper explores the current and future trends of using digital for advertising creativity and highlights the drivers and concerns of using programmatic advertising creative content, revealing how machine learning has the potential to transform future advertising and creative methods by delivering mass creative personalization.

Programmatic advertising has automated many of the transactional elements of the advertising supply chain, and IDC believes that the next bastion is the creative content and copy process.

HOW MARKETING COMMUNICATIONS ARE BEING PERSONALIZED

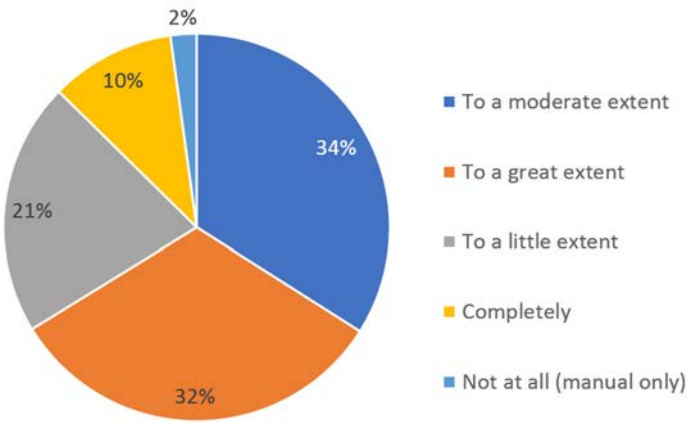
Personalization, or "a segment of one," has for long been the holy grail for marketers. Personalization has the power to increase the relevancy and potency of marketing communications, customer sentiment, and advocacy toward the brand, propensity for conversion, and brand loyalty. These attributes maximize the brand's opportunity for customer retention and life-time customer value (LTCV) to assure enterprise revenues and cash flow.

Personalization is therefore clearly critically important to most brands. The section below describes how the concept of personalization is being applied in digital marketing and advertising operations and the business benefits gained.

FIGURE 1

Digitizing Marketing Communications for Personalization is Now Table Stakes

Q. To what extent does your company currently use digital technologies to personalize its marketing communications?



n = 459

Source: IDC Online Marketing Survey, Criteo, February 2017

The largest segment of our sample, 34%, took the middle road of "to a moderate extent" to describe their efforts to personalize their marketing communications. This is perhaps understandable. Personalization is hard to implement and it is difficult to measure the relative success of personalization against industry norms and competitors.

Almost the same number (32%) of marketers took a more aggressive view of "to a great extent" and 10% took the extreme view of "completely." Typical examples of retail personalization include sending emails to customers with offers to celebrate their birthdays, and communicating the availability of new products that match customer preferences to encourage website visits. Retargeting is also a common retail application.

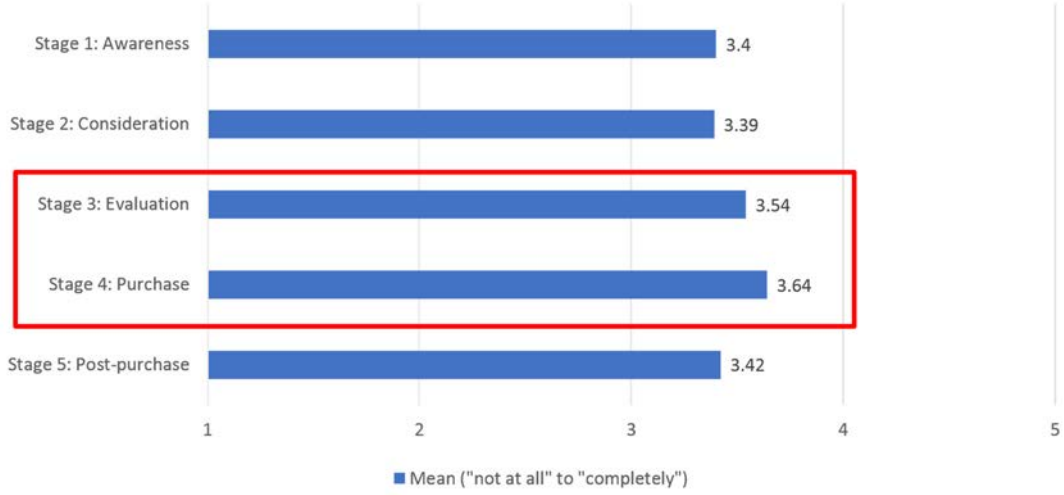
U.S. companies were almost twice as likely to respond "completely" (15%) than respondents in Asia/Pacific and EMEA (8%), which reflects a higher level of personalization maturity in the U.S. For most retail and travel brands personalization is a core business and marketing strategy.

However, nearly a quarter (23%) of brands globally have yet to take personalization seriously, saying they personalize their marketing communications only "to a little extent" or "not at all." This could be a dangerous road to take given the potential marketing competitive disadvantage in the longer term. Investment in personalization is "table stakes" for effective competition in the modern marketing environment.

FIGURE 2

Personalization of Ad Insertions is Currently Focused on Conversion

Q. To what extent does your company personalize its digital advertising insertions to drive the following five stages of the customer journey?



n = 459

Source: IDC Online Marketing Survey, Criteo, February 2017

We wanted to understand if brands are taking different approaches to online advertising personalization in different stages of the buyer journey using a traditional five-stage consumer buying model of awareness, consideration, evaluation, purchase, and post-purchase.

Most effort is currently placed at the end of the buyer journey to facilitate conversion. This often takes the form of an extra personalized communication touch, especially for high-value customers, to increase loyalty and push them over the conversion threshold. Similarly, personalized retargeting is particularly prevalent in a retail ecommerce transaction context of website cart abandonment.

However, marketers make little differentiation between the level of personalization applied for each of the five buying stages, with less than 10% difference between the highest level (stage 4: purchase) and the lowest level (stage 2: consideration). "Buyer journey" offers great opportunities for machine learning that can "learn" the content optimization required at each customer journey stage, so as to deliver personalized customer experiences and maximize purchase propensity.

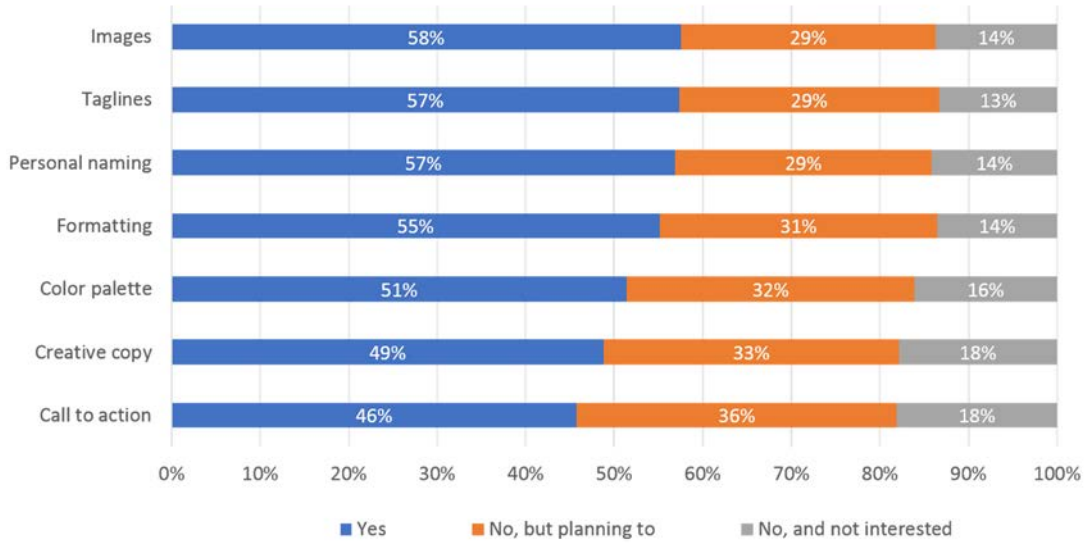
"Buyer journey" offers great opportunities for machine learning that can "learn" the content optimization required at each customer journey stage.

Asia/Pacific marketers are ahead in recognizing the value of personalization in the perception of the modern customer. Brands in Asia/Pacific rate their level of personalization as being higher than in the U.S. across four of five buying stages, while EMEA lags significantly across all stages. Market penetration of online advertising personalization is higher in Asia. Nearly all Asian brands use personalization in online advertising to a moderate extent or more, which is proportionately less likely in the U.S. or EMEA.

FIGURE 3

Digital Enables Automation of Creative Content Personalization

Q. Is your company currently using or planning to use digital technologies to automate the personalization of creative content in your marketing communications?



n = 459

Source: IDC Online Marketing Survey, Criteo, February 2017

A significant proportion, over 50%, of our sample uses digital technologies to automate the personalization of creative content in marketing communications and over 30% plan to use digital technologies to personalize creative content in the future.

There are seven creative elements that respondents either automated or planned to automate in their personalization activities. The most obvious of these "images" (for example, the picture of a car previously viewed on a website visit) came top. "Images" are perceived as the most effective personalization method across all stages of the five buyer journey stages, and had top usage for awareness, evaluation, and post-purchase, with stand-out usage for evaluation.

These overall results are like those of the five-stage buyer journey in Figure 2 in that only small differences in personalization are made across the seven creative elements. The marginal exception was "call to action," which lagged with 46% usage. However, this produced by far the highest level of satisfaction of respondents as it increased the likelihood of conversion. 36% plan to invest in call-to-action content personalization in the future and this was the largest planned percentage increase for any of the seven elements. To date, call-to-action personalization is used by more sophisticated larger companies with 1,000+ employees, rather than smaller companies.

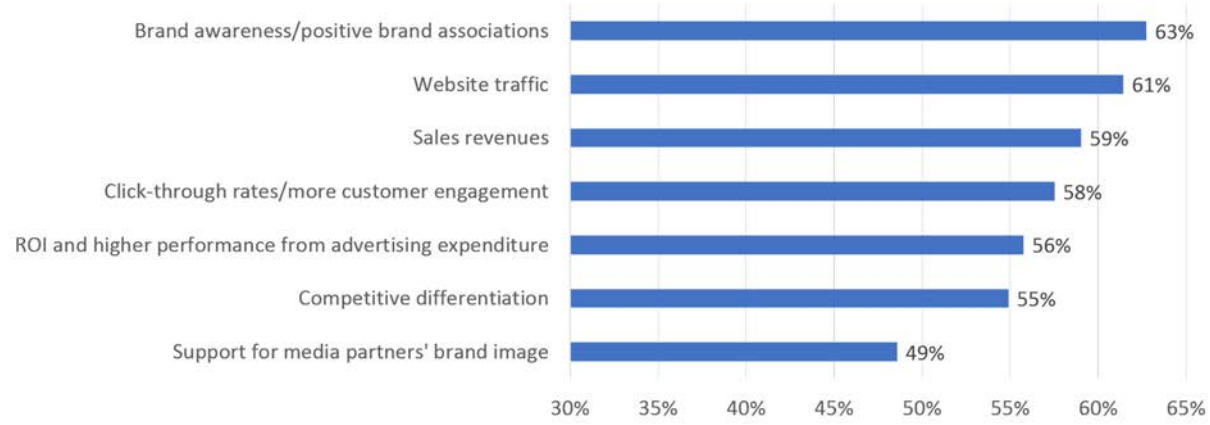
"Call to action" produced by far the highest level of satisfaction of respondents as it increased the likelihood of conversion.

Using contemporary technologies, it is difficult to identify and act in real time on the multitude of marketing communications creative content combinations available. Machine learning helps to continuously uncover the nuances of creative content performance across each of the seven elements above, so that optimized and personalized creative combinations can be delivered at each customer buying stage.

FIGURE 4

Many Business Benefits are Gained from Digital Personalization

Q. What benefits does your company receive or expect to receive from digital personalization?



n = 459

Source: IDC Online Marketing Survey, Criteo, February 2017

Brands are satisfied with the results of their personalization efforts to date, which will spur more future investment in personalization. Brand awareness/positive brand associations is the most important benefit brands receive or expect to receive from personalization. However, it is clear from the clustering of responses that many benefits are evident, with six items garnering over 50% response. For those that are still not invested in personalization, this graphic provides conclusive evidence that they risk being left behind in terms of their marketing, advertising, and overall business performance.

Those not invested in personalization risk being left behind.

Retailers benefit from all aspects of personalization, while travel companies are more likely to gain most benefit from brand awareness/positive brand associations and competitive differentiation, which reflects the more transactional real-time nature of the travel business.

CURRENT AND FUTURE USE OF MACHINE LEARNING FOR PERSONALIZATION

Previously we discussed the current digital personalization strategies being pursued and the need for an overarching personalization business strategy. In this section, we review the context and use of machine learning in digital personalization efforts.

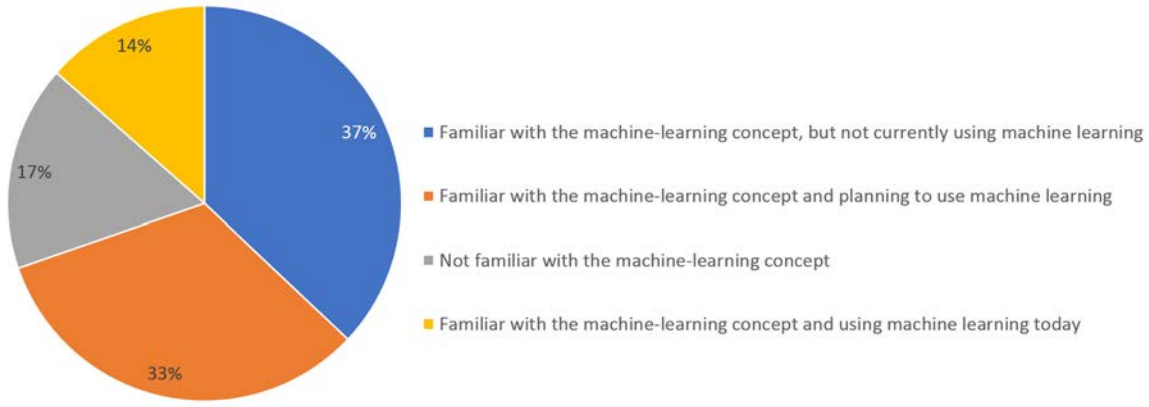
Machine learning is a form of artificial intelligence that enables computers to learn without explicit programming. Machine learning uses algorithms that learn from data, such as continuously improving the prediction of future consumer behavior, with increasing levels of forecast accuracy as the volumes of data increase. Therefore, machine-learning algorithms can learn, think, and iterate far beyond the scope and capabilities of traditional simplistic rules-based systems.

Machine learning opens up a completely new operating paradigm for advertisers and marketers, devoid of much of the time-consuming and painstaking administrative work that characterizes the back office of marketing. But machine learning also opens up opportunities to execute marketing activities that have not previously been practical. Personalization of marketing communications and advertising at scale, the core subject area of this paper, is one such application.

FIGURE 5

Familiarity with Machine-Learning Applications is High, but Usage is Low

Q. Which of the following best describes your familiarity with machine learning as a technology that could potentially be used for communications personalization?



n = 459

Source: IDC Online Marketing Survey, Criteo, February 2017

Although 83% of our sample are familiar with machine-learning applications for communications personalization, only 14% are using it today. Early machine-learning applications in retail include website applications and push notifications. Hence we are at the very early stages of "machine learning for personalization" market development. However, we will shortly enter a dramatic growth phase – 33% of marketers are planning to invest in machine-learning technology for communications personalization, which suggests that latent demand is strong and the market will grow significantly in the coming years.

Marketers believe that machine learning will have the highest usefulness in media planning and media execution, executing multichannel campaigns, and creating personalized advertisements. Many see opportunities for machine learning in churn predication and life-time value modelling. Most considered machine learning to be useful across all advertising activities, and U.S. respondents were more optimistic on this compared with respondents in EMEA and Asia/Pacific.

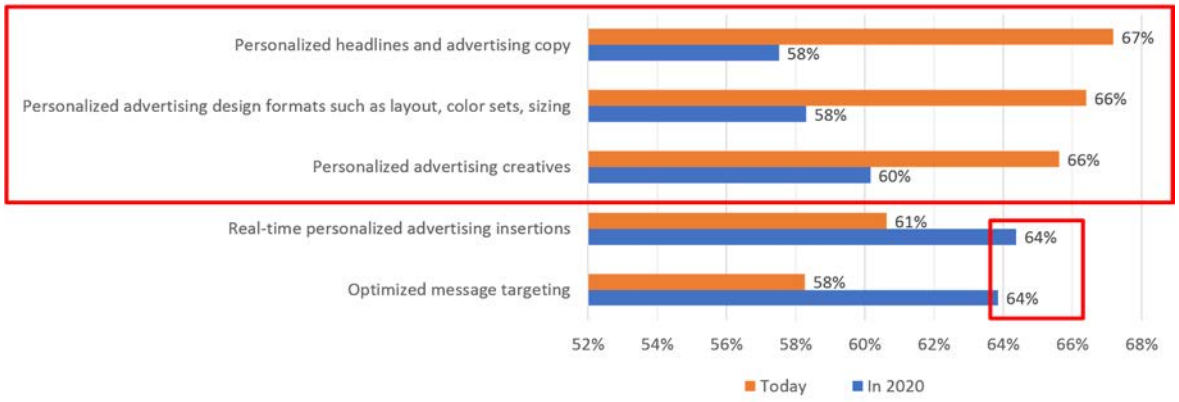
Asia/Pacific is likely to lead the way in market adoption of machine learning for personalization. 40% of Asia/Pacific respondents are in the category "familiar with the machine-learning concept and planning to use machine learning," which is significantly higher than in the U.S. and EMEA. Asian companies are also more likely to be familiar with machine learning than are other regions.

The U.S. is currently ahead in machine-learning adoption, with 21% believing themselves "familiar with the machine-learning concept and using machine learning today." EMEA is the laggard with only 5% of EMEA companies using machine learning for personalization today. Hence there is uneven regional familiarity and usage of machine learning within the marketing community, and current indications are that in future Asia/Pacific will lead, followed by the U.S., with EMEA being the late adopter. In regards to industry sectors, 15% of retailers are using machine learning today, versus 9% of travel companies. Plans for future adoption are virtually identical at 31%.

FIGURE 6

Machine Learning Delivers Applications Today, with More to Come by 2020

Q. What communications applications do you think machine-learning technologies can (1) deliver today or (2) will in addition be able to deliver in 2020?



n = 379-381. Note: Percentages do not add up to 100% as respondents could respond both to (1) today and (2) in 2020.

Source: IDC Online Marketing Survey, Criteo, February 2017

Two-thirds of respondents believe that machine-learning technologies for personalized headlines and advertising copy; personalized advertising design formats such as layout, color sets, and sizing; and personalized advertising creatives are deliverable today. The use of real-time personalized advertising insertions and optimized message targeting were perceived more as machine-learning technologies of tomorrow. Hence, machine-learning technologies are perceived to have wide applications in online marketing and personalization both today and in the future.

Machine learning is being applied across all areas of creative content production, with the delivery of images and formatting rated the strongest use cases. 46% were using machine learning "to a great extent" or "completely" in images, and 45% were using machine "to a great extent" or "completely" in formatting. "Color palette" and "taglines" were the least likely areas of use, and 30% of respondents used these little or not at all. The appetite for using machine learning for creative content is again strongest in Asia/Pacific, followed by the U.S., with EMEA a laggard.

FUTURE OUTLOOK

The advertising market is in a state of transformational flux where the role of advertising itself is moving from a standalone activity to becoming an integrated part of the customer experience through the entire purchase cycle. Advertising that isn't relevant or part of a broader customer experience, or is intrusively trying to create awareness, is no longer welcome in many households.

Consumers now have an increasing array of choices of ad-free environments like Netflix and other online services. It is estimated that there are 200 million users of ad-blocking software worldwide, which block out around 10% of all online advertising impressions. Given this context, it is little surprise that the intrusive and irrelevant advertising solutions are struggling to grow, in stark contrast with solution providers that enable personalized advertising formats that enhance the customer experience as opposed to disrupt it.

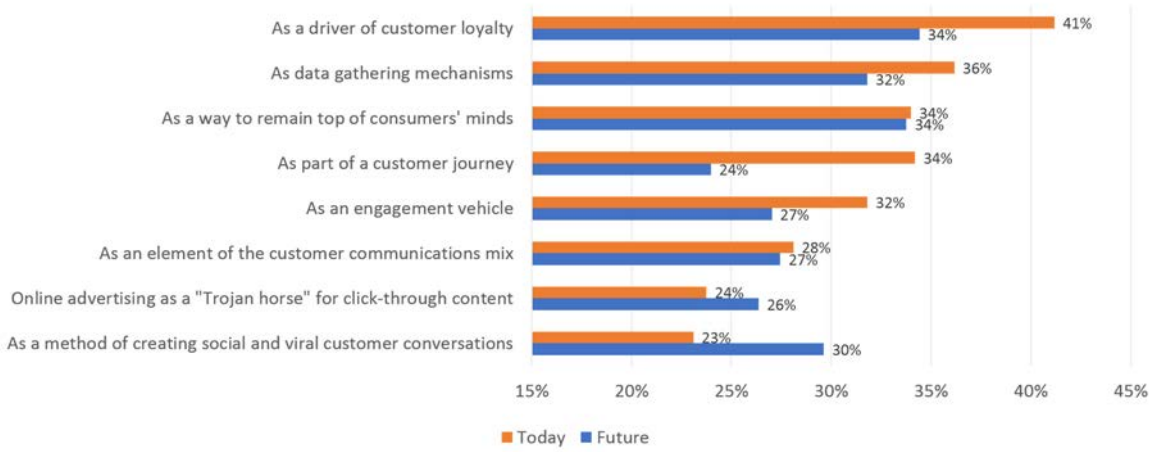
Technologies that facilitate relevance through personalization are high on the list of brands' future investment plans.

The advertising industry needs to change to regain its relevance and become a greater source of informative and entertainment value for individual consumers. Hence technologies that facilitate relevance through personalization are high on the list of brands' future investment plans, such as data management platforms (DMPs), integrating programmatic advertising with marketing automation, omni-channel development, and device profiling. The key shift from a brand perspective is to focus more toward customer and brand experience, using technology as a facilitator (see Figure 7).

FIGURE 7

Data-Driven Advertising Will Drive Customer Loyalty and Brand Relevance

Q. Which of these are part of your company's advertising agenda today? And which will be the most important to your company in the future? Choose the top 3.



n = 459

Source: IDC Online Marketing Survey, Criteo, February 2017

Today, brands' advertising agenda is focused on generating customer loyalty (cited by 41%), gathering customer data (36%), and remaining a relevant brand that is at the top of consumers' minds (34%). These will continue to be the most important aspects of advertising for retailers and travel companies. Interestingly, though using advertising "as a method of creating social and viral customer conversations" is of lower importance today, it will rise in importance as social continues to exert a greater influence over the marketing mix.

Regionally, EMEA companies consider advertising to be a more important part of the customer journey and customer loyalty than do other regions. The U.S. is more focused on using advertising "as a way to remain top of consumers' minds" and "as data gathering mechanisms."

Marketers now believe that advertising should drive customer loyalty and engagement, and staying relevant and creating conversations will supplement customer loyalty in the future. Personalization is the strategy to achieve this goal, and machine learning is a key technology enabler of "personalization at scale."

CHALLENGES/OPPORTUNITIES

The online advertising industry is a young industry, barely 10 years old in its current form, and it has changed beyond all recognition in that time. Real-time bidding (RTB) has transformed the industry, and indeed the whole advertising supply chain, and machine learning is set to transform the industry in a similar way yet again through the delivery of personalized advertisements.

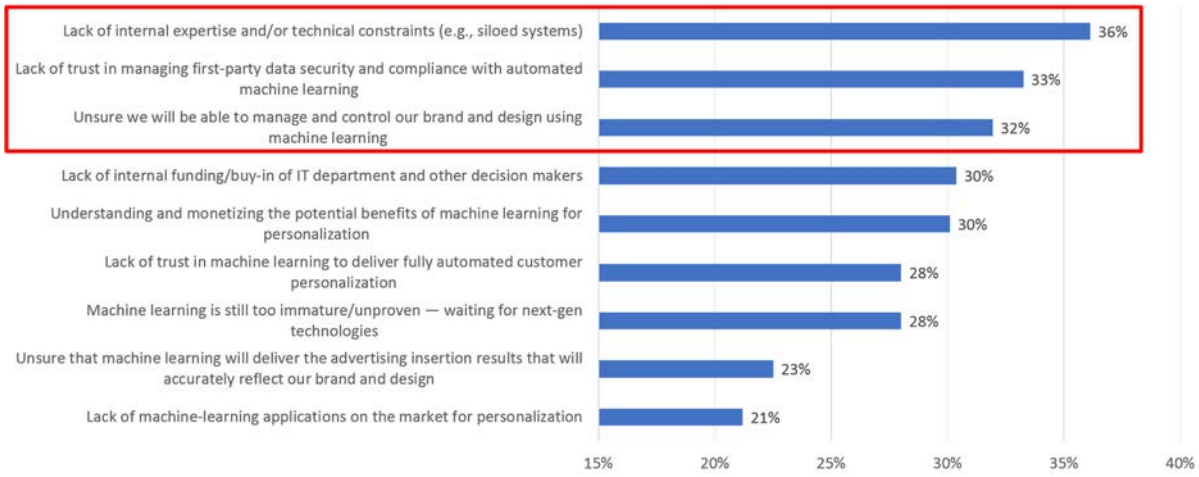
Although the growth and opportunity for both brands and suppliers is enormous, there are machine-learning challenges to be overcome. These include brand adoption of machine learning as an online advertising transactional mechanism and to deliver greater value exchange between the enterprise and its customers. The latter requires brands to shift their focus from digital delivery to customer experience and value-based marketing.

The top 3 online advertising operational challenges are targeting, performance measurement, and data privacy, which will all continue to challenge the industry. The fastest-growing challenge is "support for a consistently high-quality brand experience," which will drive future brand advertising investments in real-time personalized advertising insertions and optimized message targeting.

FIGURE 8

Machine Learning Has Yet to "Cross the Chasm" for Personalization

Q. Which of the following challenges might limit your company's adoption of machine-learning-based systems today, within the context of personalization? Choose the top 3.



n = 382

Source: IDC Online Marketing Survey, Criteo, February 2017

In regards to machine learning within the context of personalization, "lack of internal expertise and/or technical constraints," "lack of trust in managing first-party data security and compliance with automated machine learning," and "unsure we will be able to manage and control our brand and design using machine learning" are the top 3 challenges (each with over 30% of responses).

The biggest concern — "lack of internal expertise and/or technical constraints" — is a common concern for new technology adoption. Indeed, 30% also cited "a lack of internal funding/buy-in of the IT department and other decision makers" as a concern. Monetizing machine learning is also a concern for 30%, while 28% consider machine learning to be still too immature/unproven, and not trusted to deliver on its promise. These are educational and training challenges for suppliers that will likely disappear as the technology gains more widespread acceptance and crosses into mainstream early-majority market life-cycle adoption.

Machine learning for personalization is a subsegment of the online advertising technology category. The latter is itself complex and under-served in terms of resourcing due to the meteoric level of growth of the online advertising industry, and the specialist niche competencies required. Hence, outsourcing of advertising technology services provision to suppliers and agencies is often the norm due to a lack of skilled and specialized talent to resource in-house deployments.

"Lack of trust in managing first-party data security and compliance with automated machine learning" is the second most important machine-learning challenge for brands. Although data security and compliance is a top-rated concern across all industries, it is of particular significance for retailers. Well documented breaches of personal data privacy have been recorded resulting in brand damage for many leading retailers including Home Depot, Staples, Tesco, and Target.

In addition, some advertising technology providers have lacked transparency in the way they collect and use customer data. First-party data usage is under public and regulatory scrutiny, and the idea of potentially relinquishing data control to machine-learning technologies causes understandable brand safety concerns.

Brand marketers go to great lengths to protect the goodwill and customer loyalty that is invested in their brands. Controlling how, where, and in what form brands are presented is a central role of brand marketers. This concern surfaced in the recent case of YouTube and other Google platforms delivering online advertisements that appeared next to extremist content. AT&T, Johnson & Johnson, and many other large brands removed their advertising campaigns from these platforms. Somewhat worryingly for marketers, Google subsequently admitted that it was unable to guarantee the absence of future occurrences.

Such instances and admissions fuel brand risk concerns, which has resulted in a top 3 position for the response "unsure we will be able to manage and control our brand and design using machine learning." Machine learning therefore needs to prove that it can maintain brand integrity through control of online advertising placement, and deliver consistent corporate branding and design.

CONCLUSIONS

Marketers acknowledge that machine learning will be an increasingly important technology for use across the advertising supply chain. Marketers also appreciate that machine learning will improve customer experiences through the delivery of more timely, contextually relevant, personalized online advertisements that deliver more customer advocacy, loyalty, and customer life-time value.

There is a latent need for the automation of creative copy development using machine learning. Traditional creative methods using creative talent still have a strong hold over the advertising industry. However, as more obvious applications such as logistical advertising supply chain links are automated by machine learning and creative design and copy, machine automation will emerge as a source of improved advertising performance.

Machine learning improves the accuracy of targeting over time by learning from the responses to advertisements by individual consumers and by continuously monitoring their online behavior.

Machine learning therefore refines personalized advertising creative content delivered over time in a continuous performance optimization process. It also removes tedious data preparation and analysis work to free up creative staff to work on creative ideas, fueled by a flow of relevant, real-time behavioral data. Creative staff will continue to provide the "base" creative content, using machines to deliver relevant personalized communications at scale.

Currently marketers do not fully trust machines to manage creative content due to concerns over brand control, brand safety, and first-party customer data privacy.

Taking this into account, it could be said that machines cannot be creative. However, IDC believes that as machine learning continues to mature as a technology, it will become more trusted. Hence machine learning will play a larger and more pivotal role in advertising by augmenting human creativity and by providing marketing relevance through personalization at a scale that humans cannot achieve alone.

This will contribute to a more involved, one-on-one brand experience for consumers which will in turn help marketers reach their aims of providing a consistently high-quality brand experience and improving customer loyalty. To do this, however, and to realize the potential of machine learning for personalization, marketers will first need to overcome their current concerns in terms of brand control and data privacy.

RECOMMENDATIONS

The reported "lack of internal expertise and/or technical constraints" and "lack of trust in managing first-party data security" could be addressed by outsourcing machine-learning activities to trusted suppliers. For example, one retailer for whom personalization was critical, outsourced its machine-learning technology development to its most trusted online advertising providers. These providers have the global scale and resources to deliver leading-edge machine-learning technologies and service support, as well as online advertising operational execution, while guaranteeing data privacy. Criteo is one such provider.

The general availability of the next generation of online advertising technologies from suppliers will need to incorporate machine learning, support from advertising industry trade associations, and improved corporate data governance by brands to help to speed adoption. Suppliers will counter marketer concerns by providing the option for human input and intervention, together with predictive analytics, monitoring, and real-time reporting of machine activities.

Brand marketers should also collaborate with corporate IT management to ensure consumer data privacy, online advertising security, and accurate performance reporting. Consumer data privacy is now a key requirement, especially in light of the new EU General Data Protection Regulation (GDPR), which requires stringent data protection compliance, otherwise brands risk significant fines and punitive regulatory action.

Concerns surrounding brand control and brand safety will be harder to address, though not impossible; it will require marketers to relinquish some brand control by placing trust in machine learning. For this to happen, machines and machine-learning technology will need to prove themselves through adoption by brand leaders and tangible use cases and case studies that provide the ROI data, brand safety, and customer data privacy proof points that marketers require.

About IDC

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