



UX-Optimized Lottery Customer Acquisition Processes Through Automated Content Creation: Framework of an Industry-University Cooperation

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Abstract. Artificial intelligence (AI) and Machine Learning (ML) are rapidly turning from trending topics to requirement for competitiveness for enterprises. For marketing departments, AI and ML offer potential for improvement of their processes such as optimizing user experience and personalizing campaigns for selected audiences. Nevertheless, the integration of new technologies such as AI and ML into the existing marketing mix portfolio means a great challenge for marketing managers as their implementation requires new skills and knowledge which is not always already developed. The objective of the paper is to demonstrate how an industry-university cooperation (IUC) can enable the adaptation to new business contexts. Thus, this paper proposes a framework on IUC involving different project phases. It describes the process for placing AI-generated individual content, recommendations and references for specific interests.

Keywords: AI-Generated Content · AI-Implementation · Climate Lottery Marketing · Personalized Social Media Communication · Industry-University Collaboration

1 Customer Acquisition Processes in the German Social Lottery Market

Digitalization requires new skills such as expertise in the collection and evaluation of data, social media communication, user experience (UX) design and content production [1]. The promotion of lotteries on social media is a key trend in the gambling industry. Practices such as the posting of winning prizes on social network websites are becoming a popular instrument [2]. Nevertheless, German lotteries are lacking to attract younger audiences. Partly, this is due to the restrictions that mark the gambling law but on the other side there have been few innovations that might attract the younger clientele. In 2022, the first German climate lottery ClimaClic gGmbH was founded which has the focus to attract younger audiences through a digitalized product, means the ticket can

only be bought online, and social media communication. As the brand is relatively new, it has the aim to stabilize its position in the market through an enhanced customer acquisition process including personalization and automation. AI is becoming more and more prevalent in marketing activities and the administration of marketing resources. One key feature of AI that sets it apart from traditional advanced analytics is the automation of feedback loops and improvement, so-called machine learning (ML), the process by which a system learns how to operate better and then improves itself [3].

Recent investigations highlight to study topics such as social media marketing, personalization, AI, and ML conjointly [4]. The constraints to do so, are from industry-side the lack of knowledge in the implementation of AI or ML technologies and from university-side the access to information and databases. IUC is a popular instrument to overcome these barriers. In the specific case of a climate lottery (ClimaClic) and the Offenburg University (HSO), the collaboration through a postdoctoral tandem program on UX-Optimized Customer Acquisition Process through Automated Content Creation is exemplified.

Universities and businesses have different goals and face with different challenges; this difference may increase the benefits of cooperation, but it can also lead to difficulties [5]. Through IUCs, companies can benefit from highly qualified people resources, such as researchers or students [6]; they get access to technology and expertise [7]; and they can use expensive research infrastructure [8]. On the other hand, universities can benefit from improved access to industry equipment, patents and licenses [7]. Industrial partnerships have become an essential component of university funding, and contributions from businesses and international organizations for research and development in the higher education sector represent an important source [9]. Given these positive effects and their financial significance, it's critical to handle IUCs successfully to guarantee the benefits for both parties.

The present IUC has the objective to evaluate the potential of AI and ML in automated content creation to enable customer acquisition, retention and revitalization for the specific case of a climate lottery. As cold leads, these special-interest target groups generate extremely poor responses due to the inhomogeneous target groups. With the help of AI or ML, suitable customer profiles are to be identified, selected and customers contacted with personalized content. To be able to implement effective and efficient response – i.e. feedback from the target group – in a more targeted and cost-effective manner and thus to be able to offer content individually tailored to the expectations of the person, various tools and platforms are already being developed to support better automated dialogue marketing communication. However, these are usually tied to platforms, e.g. with a sub-function for target group selection, as is the case of Google, Facebook or Instagram and are not yet able to develop specific topics, such as climate protection, with machine-generated personalized content.

This paper aims to propose a framework which might be helpful in the implementation of AI projects. We propose a concept which includes the creation, testing and optimization of AI or ML-based algorithms, which are empirically and quantitatively evaluated in the context of representative UX and A/B testing. This requires the extensive iterative primary data collection of the selected target groups, which are supported

by quantitative multivariate analysis methods, such as analysis of variance, regression analysis, factor analysis and cluster analysis.

The remainder is as follows: first, the specific marketing challenges are discussed such as market conditions and specific requirements for climate lotteries. Afterwards, the channel and content needs are presented in order to highlight the need for the industry-university collaboration. Third, the framework for the collaboration with respect to the AI-based social media content automation is presented and lastly, some recommendations are given to further develop the thematic.

2 Chances and Risks (not only) for Starts-Ups in the German Gambling Market

2.1 The German Gambling Market

In Germany, the gambling market can be differentiated between the regulated market, i.e. games of chance such as lotteries or slot machines in gambling halls, and the non-regulated market, which includes online casinos or online poker. The regulated gambling market generated \$9.4 billion in gross gaming revenue in 2021 [10]. The state lotteries accounted with 43 percent the largest share in the regulated gambling market in Germany. Class, social, and savings lotteries only account a market share of 12%. Nevertheless, online lotteries are becoming increasingly popular among consumers [11].

Due to the federal structure of the country, the legislation on gambling law in Germany is a matter for the federal states. Each federal state has its own regulations and laws, nevertheless, these are based on the Interstate Treaty on Gambling (GlüStV) which was concluded between all 16 federal states and forms the legal basis for gambling in Germany [11].

Playing the lottery is especially popular among older generations; 60 percent of people over the age of 45 take part in the “6 out of 49” lottery at least once a year. Among 18- to 25-year-olds, the proportion of players in Lotto “6 aus 49” is only five percent [11]. Over the years, lotteries in Germany have been lacking in addressing generations under the age of 45 years.

Lotteries face important marketing challenges since the gambling market is highly regulated. For instance, advertising for gambling is subject to numerous restrictions to protect minors and vulnerable consumers. In Germany, the participation in games of chance is generally only permitted from the age of 18. Therefore, targeted advertising for gambling to minors is strictly prohibited. Personalized advertising on most German communication channels is subject to strict conditions based on the General Data Protection Regulation and the younger target groups in general are very hard to address.

Given this complexity, it is not surprising to find little scholarly research on gambling and advertising. This might be the result of the topic’s difficulty in finding trustworthy evidence to support academic standards or its sensitivity to governments (as many of the lotteries are state-owned) [12]. Lottery advertising is driven by the ethos of winning; according to [12], the words, signs, myths, and symbols surrounding lottery gambling create the expectation and desire of winning. Especially, young consumers are attracted by concrete and emotive aspects of winning in gambling advertisements. According

to [13], the chance of winning is an essential motive to gambling and there are four optional motives which depend on the personal dispositions and preferences of consumers, namely: (1) dream of hitting the jackpot; (2) intellectual challenge; (3) mood change; and (4) social rewards. The dream of hitting the jackpot is the principal motive for participating in games with a small chance of winning. The imagination of winning the jackpot is viewed as pleasant dream. Furthermore, gambling can be an intellectually stimulating hobby [14], although this specific motive tends to be more present in horse betting and poker games. Some gamers experience affective and emotional changes in their mood such as excitement or relaxation. Gambling can offer social rewards such as communion (socializing with other people), competition (competing with others) and ostentation (display conspicuous consumption and the opportunity to gain social recognition).

Digital, mobile, and website advertising are gradually replacing traditional physical media advertising due to its improved tracking and ROI evaluation [3]. According to a critical research review, the research of gambling advertising should take new forms of marketing, such as social media communication into consideration [14]. In fact, social media communication was named the industry trend for lotteries from 2018 to 2022 [2].

2.2 Challenges (not only) for a Climate Lottery Start-Up

In Germany, the market share of the climate lottery among social lotteries is currently less than 1%. ClimaClic is a social purpose lottery with focus on climate projects - a special form of classic lotteries - founded in 2022 by Burda Direct GmbH in conjunction with the non-profit ClimaClic gGmbH. To receive a non-profit status, the financial interest of the climate lottery must not be in the foreground. Thus, the economic interest must be subordinated, according to the Joint Gambling Authority, organizers (in this specific case the ClimaClic gGmbH) may only be non-profit organizations.

With respect to the product range, ClimaClic offers three different tickets which represent separate prize categories. Each prize tier offers the chance to win a weekly jackpot and daily prizes. The amount varies with the selected prize category. This allows ClimaClic as a lottery to address different target groups. Once lottery players have decided on a prize category, they select a funded climate project. ClimaClic supports climate projects which can be divided into three areas: (1) Nature & Landscape; (2) Environment & Resources; and (3) Education & Research. A particularity of ClimaClic is the specific focus on online operation which means that the complete customer onboarding and purchasing process has to be concluded online.

So far, ClimaClic has not been able to achieve high level of awareness. Accordingly, there is an important need to strengthen the brand communication through technologically supported communication campaigns. This is essential, not only to acquire new clients, but also to strengthen the existing customer base in the long term against competitive pressure within the media and entertainment industry where Burda Direct belongs to.

3 Potentials of Personalization and UX-Improvement for a Climate Lottery

Personalization is the process of designing an individualized interaction to enhance customer experience [15]. Unlike customization (which is customer-initiated), personalization is a company-initiated concept [16]. For personalization, insight based on personal and behavioral information is needed to tailor an individualized superior experience [4]. Personalization is conceptualized as the process of customer identification, need identification, customer interaction, and product personalization [17]. This conceptualization has been further developed by adding the measurement of the impact of personalization [18].

Recent literature identified a framework of six questions to be resolved in the personalization process: (1) what is personalized; (2) communication of personalization; (3) kinds of data (4) source of data; (5) type of personalization; and (6) responsible area [19]. Regarding the question on what is personalized, [20] differentiate between the categories of functionality, content, interface, and channel. Content (e.g. text, audio, image, and video) and the rise of channels in influencing and convincing consumers has gained importance, especially considering the ability to tailor any type of content to specific market niches [3]. Thus, the present study focuses on the personalization of content and channels, and this is where the first personalization potential derives from.

Potential 1: Generating unique content. As stated above, ClimaClic offers the opportunity to select between three categories of climate projects where the consumer can choose between several projects to be supported with the purchase of a ticket. In this sense, delivering differentiated content in distinct channels for individual customers can offer potential for personalized marketing.

With respect to the question on how the personalized design is communicated to the customer, three approaches can be differentiated: (1) the self-reference method can establish an interaction with the individual through more specific wording, e.g. [21]; (2) the anthropomorphism method uses a humanization approach for communication including mimics, gestures, voice, or emotional reactions, e.g. [22]; and (3) the system characteristics method where personalized information is presented through intelligent systems, e.g. [23].

When personalizing, the kinds of data can be summarized in three main categories of information: (1) individual-level such as past digital behavior, attitudes and preferences; (2) social-level such as family, friends, classmates and colleagues, and community; and (3) situation-based such as time-based or location-based [19].

The individual-level personalization approach includes data about e.g. purchases, online reviews, sites visited, posts, likes, comments, users' clickstreams or actions in a session. Personalized recommendations that address the decisions made by important social circles are provided to individuals through the recollection of data in online social groups (personalization based on social-level data) [24]. The second potential for the climate lottery is related to the situation-based approach which depends on details regarding the precise places individuals are, the characteristics and time frame of the situations they experience.

Potential 2: Referring to different situations. As the aim of the project is to attract a younger target, the personal information should not only be based on individual and

social-level characteristics. In the case of the climate lottery, there could be considered situation-based information such as the specific location or routines of the individuals, in this sense, there can be created a connection to local interests or concerns related to participating climate projects.

The source of data comes from customer and firm sources. One advantage of the creation of an algorithm is being more flexible and independent from third-party sources. Regarding the type of personalization, exposing the right content to the right target requires the management of several systems and constant personalization of content to the needs and use cases of individual scenarios. Since it takes more marketing resources to match the right content to the right client, enterprises intent to advance in the automation of the content management process [3]. Thus, the third potential originates from the idea to match the content to the customer needs through automation.

Potential 3: Delivering correspondent to customer needs. AI and ML approaches allow the automation using design text, images and videos which better suit to the market segments, channels and platforms and additionally accelerating the content delivery and optimization [3]. The principal goal of the project is the production of a functional AI- or ML-based algorithm, which is to be developed and evaluated in close cooperation at Burda Direct GmbH and in the UX laboratories of the HSO (responsible area). The intention of Burda Direct is to further develop aspects of AI or ML-based dialogue marketing automation and its fields of application and the HSO focuses more on the aspects of teaching and research and development in this specific area of interest.

4 A Framework for AI-Implementation

The framework for our research project with the aim of creating of a functional AI- or ML-based algorithm, proposes three stages: (1) basic research; (2) applied research; (3) algorithm development. The first stage comprises the development and testing of AI- or ML-based algorithms. Here, the user experience of the customer should be researched, whether and how machine-generated creative content is recognized as such and accepted as “genuine”, “credible” or “reliable”. The second stage, an investigation of whether and how an automated communication generates emotional and cognitive reactions in an inhomogeneous target group will be measured. The third stage, initially topic-specific algorithms can be further developed and tested with other content or campaign goals.

To better control the process of AI-implementation, ten work packages (WP) and four milestones were defined. In the first WP a comprehensive desk research is carried out to determine which technologies have already been identified for the implementation of AI or ML-based algorithms for dialogue marketing automation. This includes not only the well-known solutions for personalized content generation, but also competitor and benchmark approaches. The second WP has the objective to evaluate previous campaigns of the ClimaClic brand. In close cooperation with the brand’s marketing specialists, new approaches to dialogue marketing automation can be identified and analyzed regarding customer acceptance, implementation risks and market relevance. The focus of the third WP is on the evaluation of success-relevant parameters for automated dialogue marketing campaigns to create the optimal basis for the development and use of AI or ML. The aim of the fourth work package is to investigate the transferability to other applications. With

the conclusion of WP 4, the specification of the AI- or ML-based algorithm (Milestone 1) should be reached.

For further application-relevant research of the concepts identified in WP 3 and 4, a suitable research structure must be established in WP 5. This includes a research framework for iterative execution of UX and A/B testing. In WP 6, the personalized content is tested to determine how the automatically generated content is perceived and evaluated by the target group. Based on the results of WP 5 and WP 6, requirements for implementation in a possible AI or ML-based algorithm for dialogue marketing automation are defined and recorded in a specification (WP 7). After WP 7, the second milestone, the prototype generation, should be completed.

The core task of WP 8 is the evaluation of the first prototype by implementing a live campaign. The results can show whether the research activities carried out so far can be confirmed and which further research priorities need to be defined. In this work package, the content layouts of the algorithm from WP 7 will first be tested and evaluated in the UX-laboratory and then in the field. After WP 8, the concept will be evaluated by customers (Milestone 3).

Based on the findings from WP 8, research iterations are to be carried out in WP 9. In the last WP 10, the results are consolidated. Here the success goals are compared with previous campaigns. The algorithm is intended to continuously and independently develop itself on the topic of climate change and optimize it with new trends and insights. After the last WP is completed, the prototype should be evaluated and developed (Milestone 4).

5 Recommendations and Conclusions

AI and ML are becoming necessary in the daily business of nearly all industries. It is important for enterprises to quickly adapt and create skills and knowledge in their respective industries. AI can be effective in situations where the decisions are narrow, and the outcomes are observable and assessable promptly. However, the deployment of AI can be more challenging in situations where decisions are broader and need more time to implement [3]. It is not uncommon that companies face important obstacles in the implementation of new technologies and procedures, therefore, we proposed an IUC on UX-Optimized lottery customer acquisition processes through automated content creation.

With respect to the detected potentials on personalization and UX-improvement for the climate lottery, we propose the following recommendations:

Recommendation for Potential 1: About the generation of unique content, it is necessary to evaluate the perception of customers on different personalization dynamics and approaches to determine its value [24].

In this sense, the framework proposes the UX-testings which can propose valuable information on the distinct personalization dynamics. These insights can help afterwards in the decisions on the allocation of the marketing budget.

Recommendation for Potential 2: The inclusion of different situational factors can help to enhance the customer experience. As mentioned above, situation-based information is mainly related to time and location [19]. Information related to time such as

routines or location such as whereabouts (e.g. school, workplace) and features of the place can help to refine the information on the targets to define common patterns for personalization [24].

Recommendation for Potential 3: The delivery of correspondent to customer needs using AI and ML can have a positive impact on the customer experience. In line with [25], we argue that the implementation of AI technology can have an impact of marketing strategies and marketers can gain competitive advantage, deliver enhanced customer experiences, and foster corporate success by embracing and developing new capabilities. Nevertheless, it is necessary to consider the evaluation of the risks for marketers and consumers. Regarding the marketers, AI technology depends on the accuracy of the input information, therefore biased information can provide incorrect output [26]. acceptance of AI-generated content. Consumers might feel insecure or even reject AI in specific contexts. Furthermore, ethical considerations have to be analyzed as there Therefore, as proposed in the framework, it is necessary to apply an extensive prototype testing.

In line with the patterns of cooperation of [5], the success of an IUC can be enhanced through the factors of flexibility, honesty, clarity and awareness.

IU-Cooperation Recommendation 1: Flexibility is especially important in setting the priorities. For the present IUC the selection of the partner has been very important. Sharing the same visions and interests was an important prerequisite to establish the collaboration. Furthermore, the definition of common goals between Burda Direct and HSO helped to accelerate the process and not losing the vision when developing the joint project.

IU-Cooperation Recommendation 2: Honesty refers to open communication. The continuing interchange of information on current developments has been helpful. Furthermore, partners should be honest about their time and commitment to the project.

IU-Cooperation Recommendation 3: Clarity regarding the aims, planning, responsibilities and interests. The planning process is a crucial stage since the timeframe and the responsibilities are defined. This helps the partners to plan and organize themselves (e.g. involve additional personnel).

IU-Cooperation Recommendation 4: Awareness on current economic, legal, political and social developments has to be considered. Especially in the current economic situation, it is important to have scenarios when for example financial restrictions might occur.

This research has two central limitations. First, the postdoc tandem program still is in its initial stages. All recommendations can be given up to certain point and in future work there should be a retrospective of the whole process. Second, the AI implementation is exemplified on the automated content generation, Projects with other focuses will have the need to adapt the objectives, content and time frame to its specific requirements.

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