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Innovations Classification Model in Online Sportsbook Betting

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Abstract – This paper examines the horizontal and vertical cuts of online bookmakers. On this basis, possible classes and subclasses of innovations in online sports betting are theoretically presented. To increase the accuracy of the model, the definition of the groups takes into account the analysis of multiple websites in the field. A classification model with classes, subclasses, and groups covering currently available innovations is proposed.

Keywords – classification model, innovations, sportsbook, sports betting.

1. Introduction

The first online bet was made in 1996. It was organized by Intertops, a licensed online betting company from the small Caribbean Island Antigua and Barbuda. Zion Market Research, a consulting company, has conducted a study that suggests the global online sports betting market could exceed $150 billion by 2024. It has also found that sports betting now covers more than 70% of the global gambling industry [1].

The growth of online sports betting is partly a consequence of the many innovations introduced during its evolutionary development, and partly an obligation to continue the flow of innovation. The challenge is to create both highly effective innovations and the ability to analyze existing and future innovations. This is made possible by a multi-level classification that describes all currently implemented innovations. Classification is a step towards digitalization and facilitates the management and control of innovation. Utilizing the Internet and big data technologies, sports enterprises can deliver intelligent and customized services through online platforms, thereby achieving more precise market positioning and optimized user experiences [2].

Adapting to the digital environment raises many issues [3]:

(1) Clarifying and systematizing terminology;
(2) Accurately classifying the data under consideration and identifying the peculiarities of their structure [4];
(3) Promoting adaptation to the digital environment;
(4) Identifying and analyzing risks as a consequence of digitalization.

This article aims to propose a method for classifying innovations in the field of online sports betting. No such method was found in the analyzed literature. An approach for decomposing the studied entities and conducting a structural analysis of existing objects for classification was employed.

The existence of a method for classifying innovations in online sports betting will help those interested in the field to assess what has been achieved, on the one hand, and to set development goals, on the other.

2. Innovations Classification

The bookmaker is a licensed company that accepts bets and pays out winnings when the events on which the bets are placed occur [5]. The types of bets, i.e. the types of products that the company offers, define the horizontal structure of the company [6]. It is basically divided into the following parts:

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(1) Betting on sports games (Sportsbook):
  (1.1) Real sports;
  (1.2) Electronic sports (eSports);
  (1.3) Virtual games – football, horse racing, etc. and any other games based on random number generation.
(2) Casino betting (Casino).
(3) Other (prediction of results of political elections or other social activities).

2.1. Creating Classes

The vertical structure of the company looks at the activities which the company carries out in order to be able to offer the products which define the horizontal structure. These are the functionalities that make up each horizontal element. The subject of this paper is sports betting. A decomposition of the vertical structure of this type of betting in a bookmaker is carried out in order to find several levels of depth of the structure and, consequently, all the functional elements that can be classes of the classification.

The functional diagram of the bookmaker's business (Decomposition Level 1) is shown in Figure 1 using a BPMN diagram.

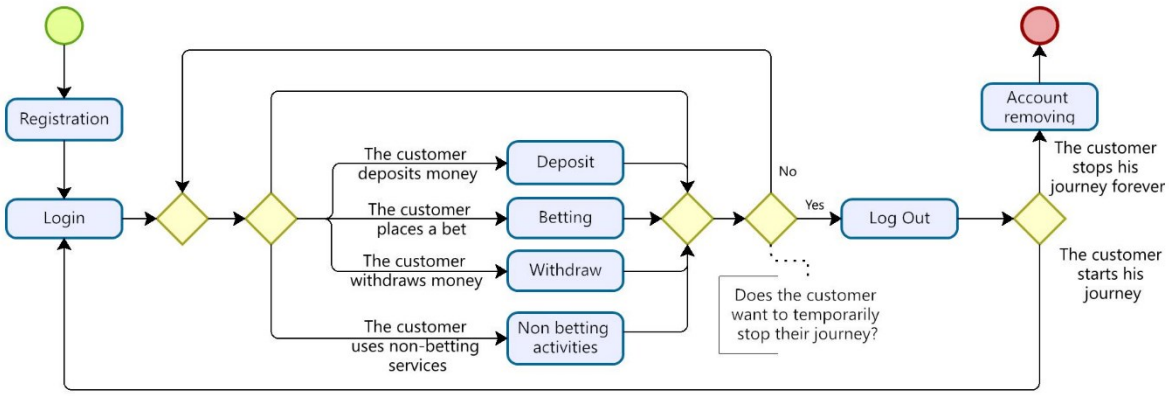


Figure 1. The details of the vertical structure of the horizontal element "Sportsbook" (Level 1)

In order for a person to become a customer of the bookmaker, they must first register and this is done in the "Registration" module. The next step is for the customer to access the bookmaker's online services and this is done via the "Log In" module. In order to be able to place a bet, the customer must deposit funds via the "Deposit" module. The actual betting takes place in the "Betting" module. After winning, the customer can withdraw funds via the "Withdraw" module. The "Non-Betting Activities" module includes activities for changing settings and participating in games that earn various bonuses, but the player is not involved in depositing and/or betting. If the customer no longer wishes to use the bookmaker's services, the "Log out" module will terminate the interaction with the website.

Betting innovations are usually promotions and bonuses designed to encourage activity around one or more features that generate positive results for the bookmaker. The only thing the bookmaker does not want is for the customer to stop betting forever. Withdrawals and stakes are neutral activities. Temporarily leaving the platform is undesirable but an unavoidable action. The other four functionalities ("Registration", "Login", "Deposit" and "Betting") are essential from a marketing and advertising perspective.

There are four classes defined on "Level 1": "Registration", "Log In", "Deposit" and "Betting".

2.2. Creating Subclasses

The decomposition of the Betting functionality is being deepened. "Level 2" is represented in Figure 2.

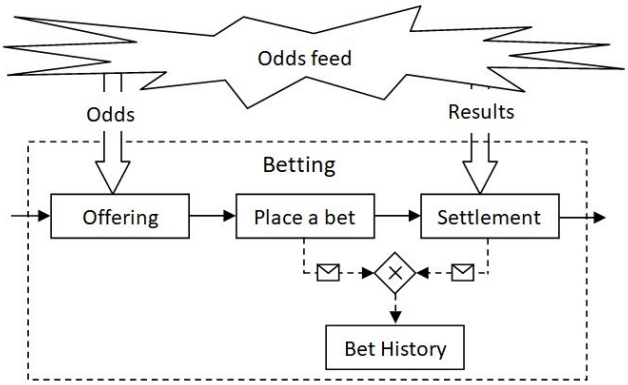


Figure 2."Betting" element functionalities (Level 2).

Odds are mostly fed into the online betting platform from an external source (Odds feed). If necessary, they are processed and offered to customers. This process is included in the “Offering” module. The functionality includes offering sports with all their markets and odds for each market outlet. Next is the actual betting process that is implemented in the “Place a Bet” module. Once the market is closed, bets are settled in the “Settlement” module. Each bet is checked after the market has closed. If it is profitable the payout amount is calculated and paid to the customer. “Bet History”

module stores detailed records of each bet, including all parameters and settlement information. This functionality offers limited potential for innovation.

Three subclasses of the Betting class are defined at level 2: “Offering”, “Placing bet” and “Settlement”. These are represented in Figure 3.

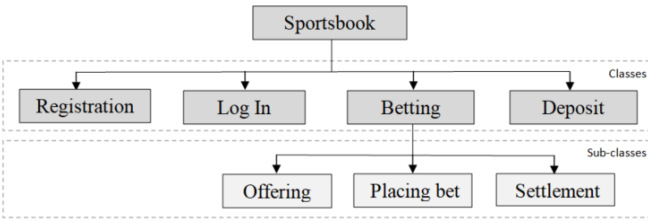


Figure 3. All classes and subclasses of sports betting.

2.3. Analysis of Existing Innovations and Creation of Groups

So far, the classes and subclasses for classification have been theoretically derived. In order to find all their possible groups to complete the classification model, a practical analysis of existing innovations in online sports betting websites will be carried out.

A search was conducted on Google using the keywords “top”, “bookmakers” and “online”. For analysis, the website top100bookmakers.com, which organically appeared in the first position, was selected [7]. From its Top 100 list, the 60 bookmakers with the highest number of daily visits were reviewed. These are listed below in alphabetical order: 8888, 10 Bet, 1xBet, 20 Bet, 22 Bet, Alpha Win, B Win, Batavia Bet, BC Game, Bet 365, Bet at Home, Bet Fair, Bet Fred, Bet Hard, Bet MGM, Bet Way, Bet Winner, Betano, Blue Chip, Borgata Online, Boyle Sports, Coral, Cash Point, Dafa Bet, Draft Kings, Ef Bet, Fan Duel, Fav Bet, Fon Bet, In Bet, KTO, Live Bet, Ladbrokes, Leon Bets, LV Bet, Mansion 88, Marathon Bet, Match Book, Mel Bet, Meridian Bet, Net Bet, Paddy Power, Palms Bet, Pari Match, Race Bet, Raja Bet, Rivalo, Sesame, Sky Bet, Sporting Index, Stake, TVG, Twin Spires, Unibet, V Bet, Virgin Bet, William Hill, Win Bet, Win Masters.

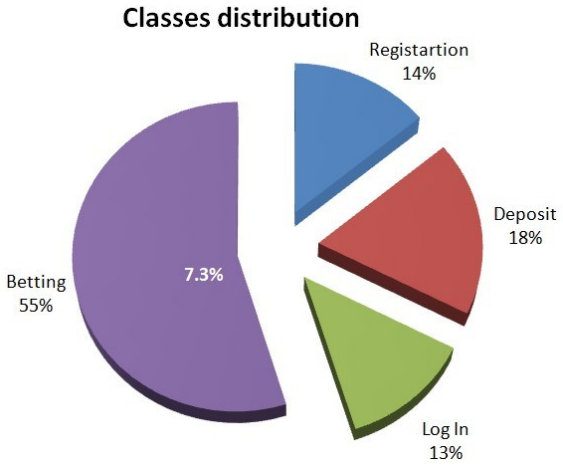


Figure 4. Distribution of innovations by class.

The distribution of innovations by class is shown in Figure 4. The absence of any class with zero innovations and the fact that all innovations are covered without the need for a new class ensures that the classes created are properly defined and sufficient.

The analysis found that the class "Registration" includes the actions "Welcome" and "Invite a friend". Two aspects can be considered in this class: the channel through which registration takes place and the fact of registration itself. There are no innovations related to the channel. Only the act of registration itself is relevant. This leads to this class having no groups.

All bonuses (free bet and lottery) that do not require a wager or deposit to receive can be classified as "Log In". There are two aspects that are the target of innovation: the channel used to log in and the frequency of use of the app. These create the two groups: the "Channel" and the "Sequence".

The Deposit class includes two types of bonuses: “Welcome”, which combines sign-up with a focus on the first deposit, and “Deposit”, which incentivizes each subsequent deposit as a consecutive one made on a day of the week or from a selected channel. These bonuses are categorized into three groups based on the focus of the innovation: “Amount” (deposit size), “Sequence” (frequency of deposits), and “Channel” (deposit method used).

The distribution of groups in the “Log In” and “Deposit” classes is highly imbalanced (Figure 5), but this does not change the fact that the groups are well defined and cover all innovations in a given class.

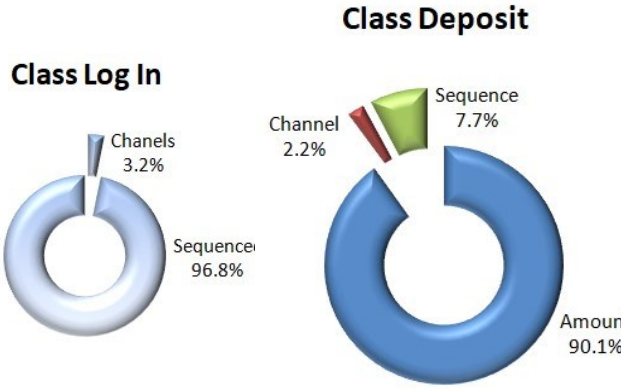


Figure 5. Distribution of the groups in the classes of the class "Log In" and "Deposit".

As expected, the class "Betting" attracts the most innovation and is therefore analyzed through its subclasses. The "Offering" subclass includes the "Bet Subjects" and "Odds" groups (Figure 6).

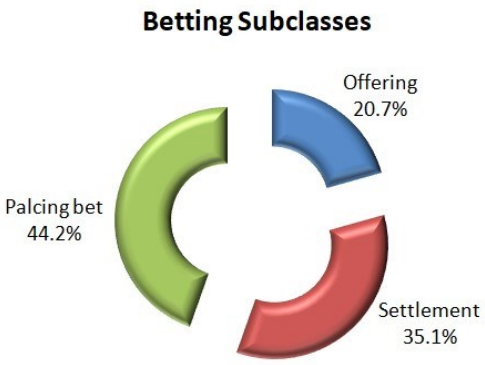


Figure 6. Distribution of innovations in the subclasses of the class "Betting".

Typically, when betting, the odds are offered by the bookmaker and used by the bookmaker's customer. With the development of the internet, person-to-person (P2P) betting has emerged. Here the odds are offered by the bookmaker's customers and used by other customers. The company only provides the technical support and charges accordingly. The first site to offer P2P betting was Flutter. It was followed by Bet Fair. Over time, Bet Fair absorbed Flutter and is now the most famous P2P betting site, but it is not the only one. The one who offers the odds and the one who uses them are the subjects of the transaction, and for this reason the group that classifies innovations that emphasize who is the subject of the bet is called "Bet Subjects".

The other subset is "Odds" and it includes all promotions that increase the odds of the bet. This can be a direct "Profit Boost" or by selecting leagues/games that increase the odds on markets offered by the bookmaker. Another approach involves lottery games in which one of the prizes is increased profit on a bet - effectively raising the odds. The "0% margin" promotion is relatively new and essentially increases the odds.

The largest number of groups is in the "Placing bet" subclass. The “Bet Type” group includes innovations that differentiate bets based on the number of markets and the number of games they involve One market from one game defines a "Single Bet". A bet with multiple markets and each from a different game is a "Multi Bet". A Bet Builder [8] is a bet on multiple markets from a single game. This is now offered as a promotion, but will probably soon become part of every bookmaker's standard. The same goes for the Multi Bet Bonus, which is now the most common bonus and almost every bookmaker offers it.It will likely soon become an integral part of the betting offer.

The "Kick-off" group includes all innovations relating to bet types according to when they were made relative to the start of the first game. If this happens before the start of the game (in the case of a single bet) or before the start of the first game (in the case of a multiple bet), the type is "Pre-match bet". If the bet involves only matches being played at the time of the bet, it is a “Live bet”. A multiple bet made during a match in progress but in combination with games not started defines a “Combined bet”. Currently, any promotions within this group are typically associated with “Live bets”

The "Channel" group includes innovations emphasizing the channel from which bets are made. These can be: “Website”, “Mobile Application”, “SMS”, “USSD” (Unstructured Supplementary Service Data). Currently, only innovations related to the mobile application are considered relevant [9].

The "Sports" group brings together all sports that are the target of promotions and bonuses.

The "Sequence" group was created to include innovations made to encourage more frequent betting. Typical examples include loyalty programs and various games linked to placing a bet. The group also covers bonuses awarded for specific betting actions.

The third subclass "Settlement" includes the "By Time", "Cash Back" and "Stake Refund" groups.

The "By Time" group combines "Usual payout", "Cash Out", and "Early payout". In "Usual payout", the payout occurs when the action in a market stops, i.e. the exits in the market are already known. This can be after the completion of a sports game, after the completion of a stage of the game or the occurrence of a market defining action. In a Cash out [10] where there is a multi-bet, there are completed sports games, the predictions are correct or there is a game in the bet (whether single or multiple) that is currently being played, the bookmaker may offer the option of prepaying some amount on the bet when the market is not closed. The customer decides whether to use the service, take the offered amount and risk no more, or not take it and risk waiting for the full bet amount, which they will take after the game is completed if the prediction is successful. Early payout [11] pays out the full amount as if the bet had won, but with the market not yet closed. This happens after certain conditions related to the game come true. The conditions may be different: reaching a certain goal (point) score or something else that classifies the game as very likely won by one player (team).

The "Cash Back" group includes innovations focusing on the return of an amount under certain circumstances. There are two cases: (1) where a percentage of the money lost is returned after a series of losses or over a period; (2) where a specific amount is returned when some event occurs that is part of the game but not directly related to the bet (e.g. every red card in the league on which the bets are placed).

The "Stake Refund" group is similar to the previous group, but returns the exact amount of the bet. This can happen (1) after a certain condition related to the game is met (for example, a 0:0 result) or (2) as a condition of an insurance-type promotion (for example, in the event of a failed pick on a single multiple bet game).

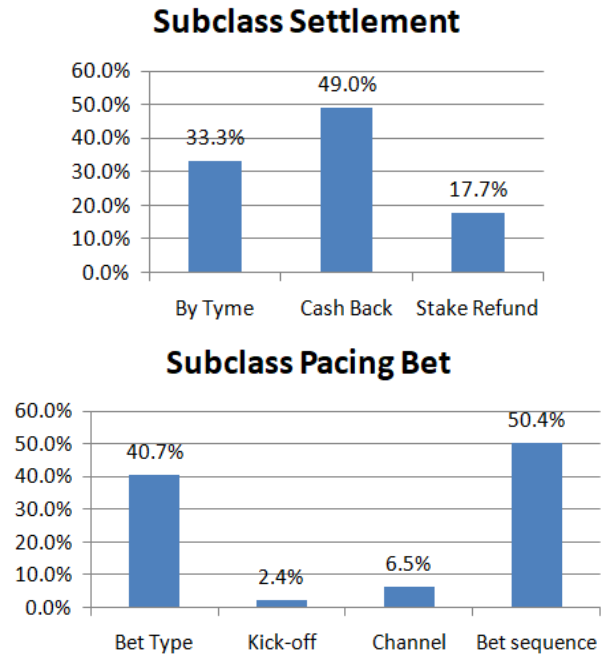


Figure 7. Distribution of groups in the subclasses "Settlement" and "Placing bet".

The final distribution of groups in the "Settlement" and "Placing bet" subclasses is shown in Figure 7. The "Offering" subclass groups are not shown because the innovations are almost 100% of the "Odds" group. The group "Bet Subjects" or the innovation "P2P" is present in only two websites. The group "Sport" is not included in the graph of the subclass "Placing bet" because it is a specific group that can be combined with the other groups of the same subclass. Almost always a promotion or bonus highlighting a "Bet Type", "Kick-off", "Channel" or "Bet Sequence" is associated with some type of sport.

3. The Result – Complete Classification Scheme

After the theoretical approach to create the classes and subclasses, and the practical analysis done to define the groups, the classification scheme can be considered complete. The effectiveness of the created classes and subclasses has been proven by the analysis of the innovations in place. The method used to create the groups inherently prevents redundancy or omissions. The model is open. If an innovation is created that is not classifiable with the existing classes, subclasses and groups, a new classification element can always be created to address the new requirement. This will enrich the proposed model. The final classification model is shown in Figure 8.

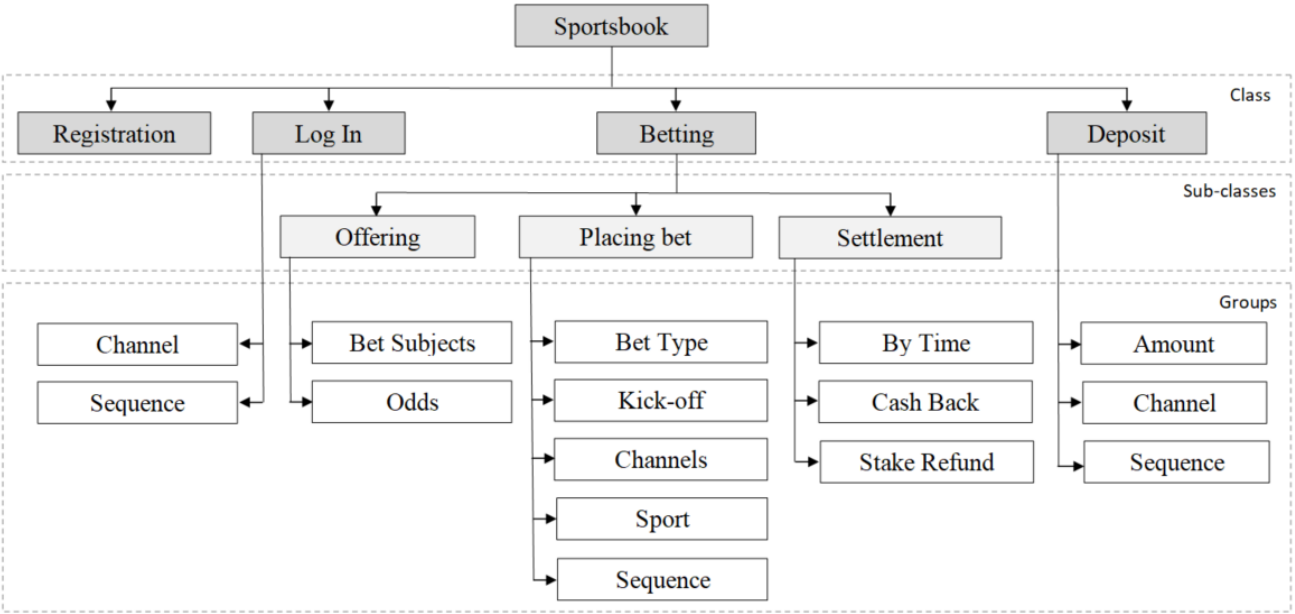


Figure 8. Classes, subclasses and groups in the classification scheme.

4. Conclusion

A model for classifying innovations in online sports betting is proposed. This helps each bookmaker to obtain an overview of the innovations they use to see which areas of potential they are covering and, if necessary, to build the right approach to increase the efficiency of their operations by incorporating new innovations.

Additionally, a weighting factor can be assigned to each group as part of a class or subclass, to each subclass as part of a class, and to each class. In this way, the proposed classification model can be

extended into a model for measuring the appropriateness of innovations. It will be based not on their outcomes, but on their necessity. The mathematical model should be developed using expert evaluation methods.

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