AI-driven risk prediction and RG interventions at Veikkaus

EASG Conference Rome 13.9.2024

Ville Mäkinen & Emmi Kankkunen

Our mission
Finnish gaming company
– all in for fair play

Safe and responsible gaming environment

Responsible market leader in Finland

Significant international business

Best place to work in the gaming industry

Our vision
Responsible trailblazer in player experience
- international successor story

Veikkaus' journey towards the RG vision

Compulsory authentication

Veikkaus.fi
One gaming account

Q4/2017

Mandatory deposit limits for online gambling and loss limits for online fast-paced games.

Self-exclusions for online gambling

Game history

Slot machines in shops and restaurants

Q1/2021

Self-exclusion on slot machines in shops and restaurants

Time Reminder for slot machines

Piloting the contact model

Betting

Q2/2021

Slotmachines and table games in arcades and casino

Q3/2021

Self-exclusion on slot machines and table games in own arcades

Q4/2021

Compulsory loss limits for online **fast-paced games** expands to slot machines and table games.

Self-exclusion and loss limits for slot machines and table games at casino

Coupon games in arcades and casino

Q1/2022

Model for identifying risky gambling behaviour: Gametest as a response

Q4/2022

Coupon games

Q2/2023

Self-exclusion to all gambling

(exl. scratch cards)

Scratch cards

Q1/2024

Self-exclusion to all gambling

Q2/2024

Model for identifying risky gambling behaviour: PGSI as a response

Preventing harmful gambling

Responsible player experience

- ✓ 100 % gambling authenticated
- ✓ Wide-ranging tools for self-exclusion and controlled gambling throughout the portfolio
- ✓ Models and methods for identifying and contacting customers with risky behaviour

AI driven risk prediction model

- In Veikkaus we have a business need and requirement by law to assess risky gambling in customers. We have conducted surveys with our client base and trained models using combined data from surveys and customer database.
- **Main purpose of the prediction model is to help target activities to customers with signs of risky behaviour** (RG content, messages, care calls) to prevent and reduce harmful gambling. This is done in cooperation with manual triggers defined by RG professionals.
- The gambling harm prediction model primarily predicts the probability of risky gambling. The definition of risk groups (R1-R6) were done in cooperation with different stakeholders utilizing different scenarios to help targeting right audiences with RG interventions.
- Model drift was prominent in our earlier machine learning model that predicts risky gambling in the latter half of 2023. We suspect that the mandatory authentication caused a major change in data profile and therefore we needed to update our model to reflect the changes in underlying data and get better predictions from the risk prediction model.
- We conducted PGSI survey for our customers between September 2023 and December 2023. We got approximately 53 000 participants to our PGSI survey, and we utilized this survey data in updated gambling harm prediction model.
- New version of gambling harm prediction model launched in July 2024.

Learnings from our unique data (1/2)

MODEL DEVELOPMENT

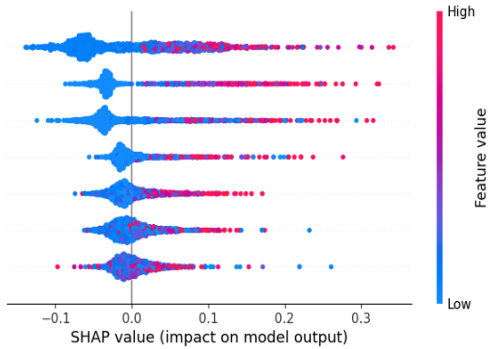
- **PGSI survey:** PGSI survey (sent to Veikkaus' customer base) was used as a response to the model (53,000 respondents, 9-12/2023).
- **Random forest model**: The results of the survey were used to train a classifier (random forest) that estimates the probability of risky gambling. Risky gambling definition for the model: 3 or more points from PGSI survey
- **60 features**: Approximately 60 features related to gaming and customer account behavior were calculated for customers in the 3 months prior to responding. Scratch card game data was excluded from the dataset. 6 features were selected to the final model after numerous iterations of different feature subsets for the model based on best model metrics. Almost all features were different compared to the previous model.
- **Experiences and gambling harm theory**: The formation of features was based on the previous Gambling Harm Prediction (2021), the experiences gained from its development and the general gambling harm theory.

FEATURES OF THE GAMBLING HARM PREDICTION

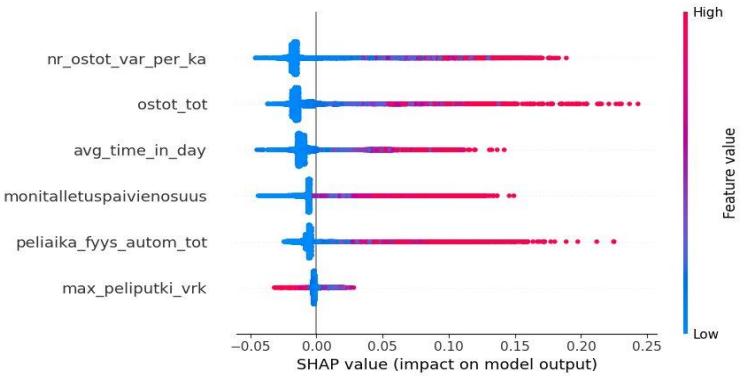
- **Variance of daily purchases of fast-paced games** divided by average (*nr_ostot_var_per_ka*)
- **All purchases** (€) on all games (*ostot_tot*)
- **Online play time**: Average playing time per game day online (*avg_time_in_day*)
- **Share of multiple deposit days**: The proportion of days of more than one deposit out of total deposit days; The only one of the features of the previous model that also worked well with the new data (*monitalletuspaivienosuus*)
- **Playing time on physical slot machines** (*peliaika_fyys_autom_tot*)
- **The length of the longest playing streak in days**; mode of action very nonlinear and dependent on other features (*max_peliputki_vrk*)

Risk prediction model 2022

1. Gross Gaming Revenue (GGR) of loss limit games per day
2. Number of multiple deposits/money transfers days
3. GGR of physical channel
4. GGR (betting, horses, online poker) of skill based games
5. The variance of time between deposits / the mean of time between deposits
6. Sum of money transfers (€)
7. Number of days played



Risk prediction model 2024



Learnings from our unique data (2/2)

- Check the data frequently: external changes (such as mandatory authentication) can cause big shifts in the data.
- Keep human in the loop: do not act solely on output provided by the model. Best results were achieved combining AI with human expertise.
- Listen to the stakeholders: they are the first ones to notice issues with the predictions. They also provide valuable insights on customer behaviour that we can utilize in the gambling harm prediction model.
- Most prominent game groups based on Gambling Harm Prediction model: Digital slots, physical slot machines, lottery games (digital).

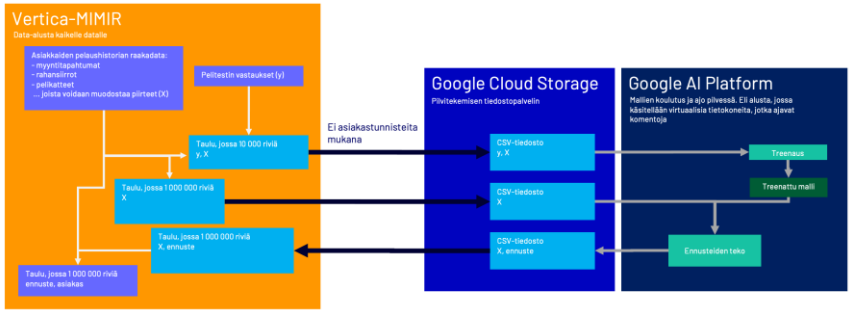
Automated process of prediction model utilization

Playing at Veikkaus

The prediction is rerun every week

Data

Gambling harm prediction infrastructure



Risk score and risk level

Customer

RG content and interventions

targeting

WEB

Customer communication (CRM)

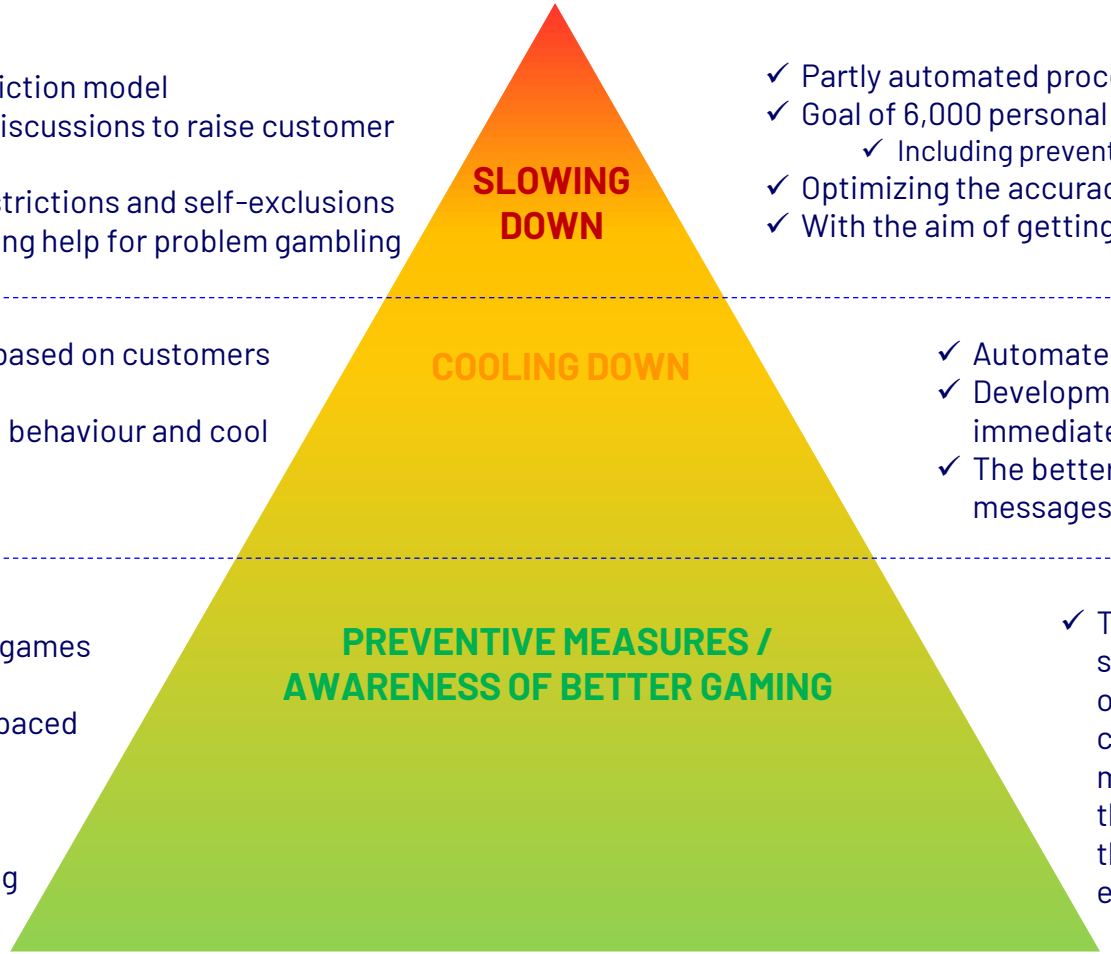
APP

Contact center

Risk prediction driven RG interventions

VEIKKAUS' COMPREHENSIVE RG FRAMEWORK

- ✓ Care calls based on AI-driven risk prediction model
  - ✓ Motivational interview -based discussions to raise customer awareness
- ✓ Guide customers to properly utilize restrictions and self-exclusions
- ✓ Provide information about those offering help for problem gambling



- ✓ Adjust communication and marketing based on customers risk level
- ✓ Increase awareness of customers' own behaviour and cool down
- ✓ Nudging based on markers of harm

- ✓ 100 % authentication
- ✓ Maximum annual loss limit covering all games
- ✓ Mandatory self-set deposit limits
- ✓ Mandatory self-set loss limits for fast-paced games
- ✓ Versatile selection of self-exclusions
- ✓ Easy access to other RG tools
- ✓ General understanding of better gaming
- ✓ Creating trust and customer loyalty

KEY FACTS

- ✓ Partly automated processes
- ✓ Goal of 6,000 personal calls in 2024
  - ✓ Including preventive and educational care calls, e.g. young players
- ✓ Optimizing the accuracy of calls
- ✓ With the aim of getting customers to change their gambling behavior

- ✓ Automated processes
- ✓ Development focus on identifying risk situations and immediate interventions
- ✓ The better we identify relevant situations and messages, the better we can get customers to react

- ✓ The earlier the customer is guided to act in a sustainable manner, the less expensive manual operations we must perform for high-risk customers and the more likely we are to maintain contact with the customer throughout the customer life cycle. The customer can trust that playing Veikkaus' games will remain fun entertainment.

Learnings of RG interventions

- We aim at getting high risk level customers to change their gambling behaviour
- It is challenging to measure and say with certainty that it was this measure that caused a change in the customer's gambling behaviour

- We have learned, that the better we identify relevant situations and messages, the better we can get customers to react
- Strong focus on developing event-based communication and interventions

❖ **Most of the customers appreciate care calls and think they are good customer care activity**

❖ Customers who are on the care call list are more likely to set a self-imposed game ban than those in the control group

❖ Customers who are on the care call list are more likely to lower their loss limit on the following day of the contact than those in the control group

❖ **We guide high risk level customers to answer Game test (self-evaluation)**

❖ The target group responds significantly more to the Game test than the control group

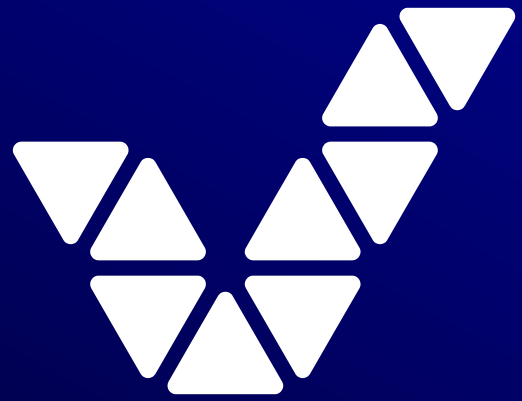
Questions and considerations about the future of AI in Gambling Harm Prediction

- How to choose correct dependent variable (DV) to model?
  - Is the PGSI the reliable DV to model? Contains considerable amount of noise as it is self-reported by the individuals. Underestimates the proportion of risky gamblers.
  - Are there better proxy DVs for harmful gambling?

- Boost the performance of gambling harm prediction model by building ensemble from different models.
  - Build models on different DVs and combine them in an ensemble model.

- Utilize markers of harm more efficiently.
  - Improve monitoring markers of harm and build baselines for markers of harm. Define the outlier thresholds and act if those thresholds are exceeded or brand these occurences as signs of risky gambling.

Questions & discussion



ville.makinen@veikkaus.fi

emmi.kankkunen@veikkaus.fi