Case Heureka

How Heureka could achieve better understanding of their performance and quality of their exhibitions and services?

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How Heureka would improve their overall service quality by customer satisfaction feedback and data they collect

Improving the Kävijäkysely_2023_kokemus -excel

Pvm	Hei, millainen Heureka-käyntisi oli tänään?	Pääsylipun ostamisen sujuvuus	Palvelu infopisteessä	Suosittelisitko Heurekaa
23.2.2023 15:48	Hyvä	5	5	2
23.2.2023 15:48	Erinomainen	5	5	5
23.2.2023 15:48	Hyvä	5	5	5
23.2.2023 15:52	Hyvä	5	5	5
23.2.2023 15:54	Hyvä	5	5	5
23.2.2023 15:55	OK	4	En osaa sanoa	3
23.2.2023 16:07	Hyvä	5	4	4
23.2.2023 16:20	Hyvä	5	En osaa sanoa	4
23.2.2023 16:24	OK	4	2	2
23.2.2023 16:37	Erinomainen	5	5	5
23.2.2023 16:37	Hyvä	5	5	5
23.2.2023 16:39	Erinomainen	4	4	5

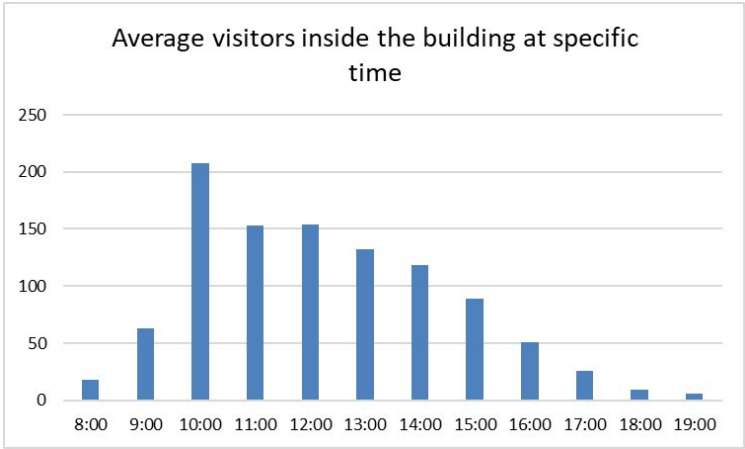
Heureka's visitor survey effectively gauges customer satisfaction. To enhance insights, we suggest the following improvements:

1. **NPS Classification:** Utilize a 1-5 scale, categorizing responses into promoters (4-5), passives (3), and detractors (1-2) for straightforward NPS calculation. This approach provides a clearer perspective on customer satisfaction and service quality.
2. **Additional Feedback Column:** Introduce an extra column post-recommendation question, specifically for respondents who rated 1-2. Include the prompt, *"If you answered the previous question 1-2, we would like to know why,"* along with predefined answer options for quick and meaningful insights.
3. **Proactive Detractor Conversion:** Focus on transforming detractors into promoters by addressing their feedback proactively.

Analysis of Hourly visitors -dataset

Analyzing an hourly visitors dataset is crucial for Heureka to understand customer behavior and improve their services.

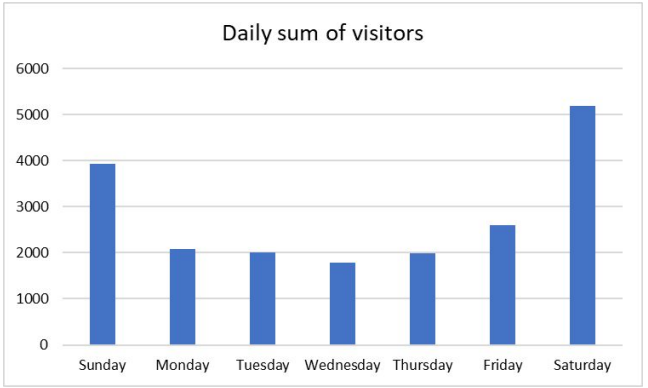
From the dataset, Heureka can analyze their most popular times. As we can see from the graph below, Heureka has a peak of visitors at 10 am, while the most popular times are between 10 am and 2 pm.



Analysis of Daily visitors -dataset

Heureka has the opportunity to analyze their daily trends with the data they collect. As we can see on the table below, there are notable variations between the days: weekends are significantly more popular than weekdays. This is an essential information for Heureka when thinking about their service quality and performance.

By combining this daily data and the hourly data from the previous slide, Heureka gets significant information about each day's peak times, which in turn helps Heureka develop its services and, for example, its opening hours to meet demand.



*While the total amount of visitors is 19 554.

How Heureka would measure visitors learning objectives and thus improve their performance

Collecting data on visitor learning

To assess visitor learning effectively, Heureka can employ a combination of methods:

1. **Surveys and Feedback:**
   - 1.1. General feedback
   - 1.2. Quantitative yes/no questions like "Did you learn something new?"
   - 1.3. Qualitative open questions such as "What did you learn about _____?" or "What was the most interesting thing you learned?"
2. **Pre- and Post-Visit Quizzes:**
   - 2.1. Voluntary, entertainment-centric quizzes before and after the Heureka visit, enhancing the overall experience while providing valuable insights into visitor learning.
   - 2.2. Segment quizzes for different exhibition sections to obtain precise data on areas that may require improvement.
3. **Observations:**
   - 3.1. Analyze the correlation between time spent at different exhibits and quiz answers.
   - 3.2. For instance, if the space exhibition receives significant interaction and time, but quizzes indicate limited learning, it signals potential areas for improvement in the exhibition

Educational impact score

To streamline monitoring and enhance learning outcomes, Heureka could consider:

1. **Educational Impact Score:**
   - 1.1. Combine collected data into a single metric, the Educational Impact Score, for a comprehensive assessment of learning effectiveness.
   - 1.2. This consolidated score simplifies the monitoring process and facilitates targeted improvements.
2. **Long-Term Metric Monitoring:**
   - 2.1. Extend the monitoring of the Educational Impact Score over a more extended period, especially during exhibition changes.
   - 2.2. This approach provides valuable insights into the quality of new exhibitions compared to previous ones, uncovering areas for development and continuous enhancement.

The 3 steps to enhance learning

Surveys and feedback

Pre- and post-visit quizzes

Observations

Educational impact score

Improved monitoring of visitor learning and the quality of the exhibition on different timespans

Adequate actions to refine the exhibition and foster visitor learning

Our proposals to improve exhibitions

Me, Myself & AI

Me, Myself, & AI Exhibition

Suggestions for this exhibition:

- To understand addictiveness, track restarts to see if visitors are replaying. For instance, incorporate a prompt like "Try again?" to gauge engagement.
- Modify the game for setting progressive target values for measurable progress and enhanced game completion rate by visitors.
- Identify useful metrics and develop methods for measurement and analysis. Utilize targets, such as game duration, during data analysis to assess completion rates effectively.

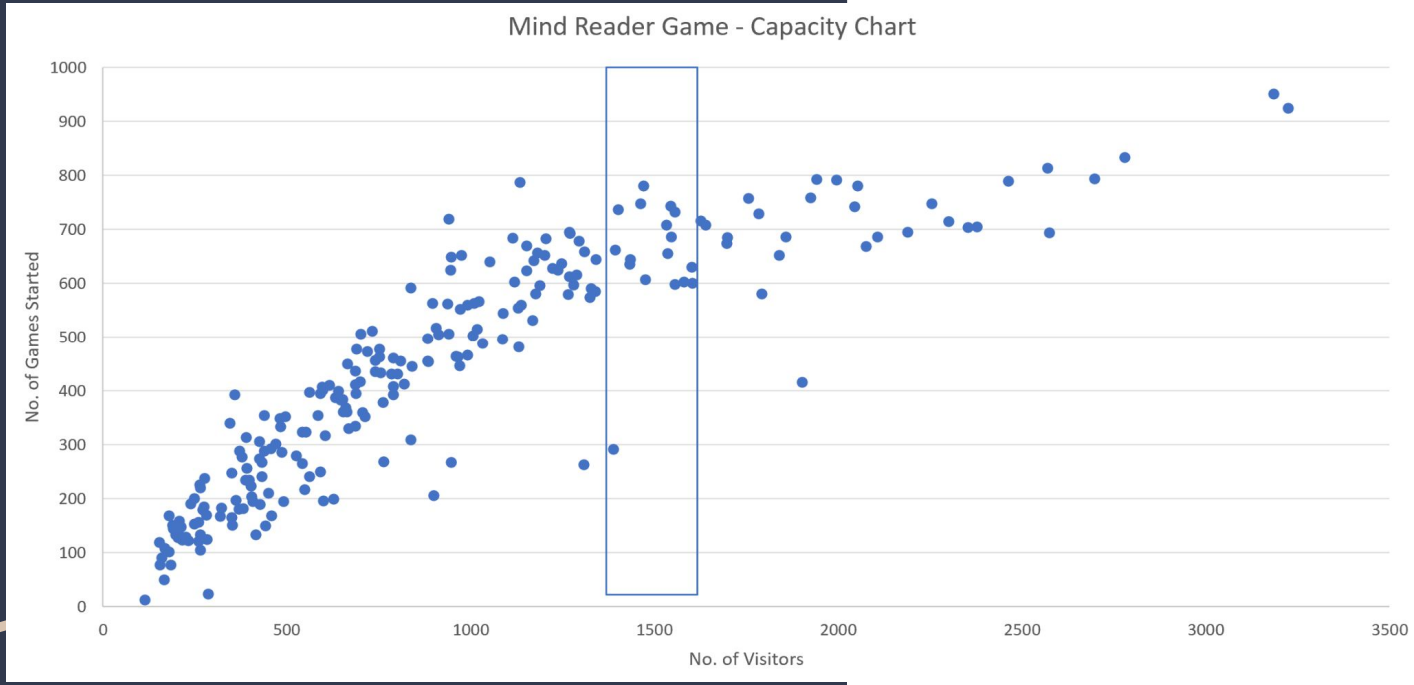
Mind Reader Game

~437

Game Starts Per Day (avg.)

~1500

Visitors Max Capacity



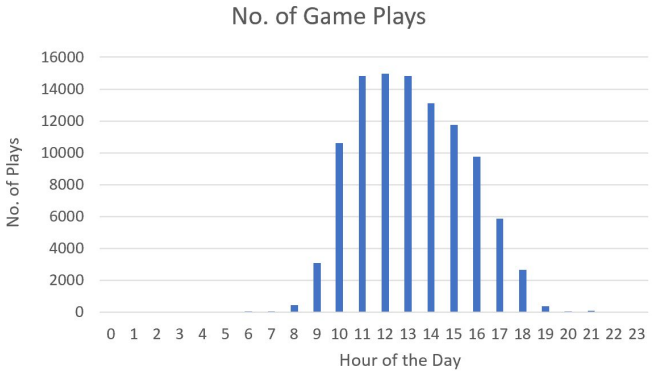
CONCERN:

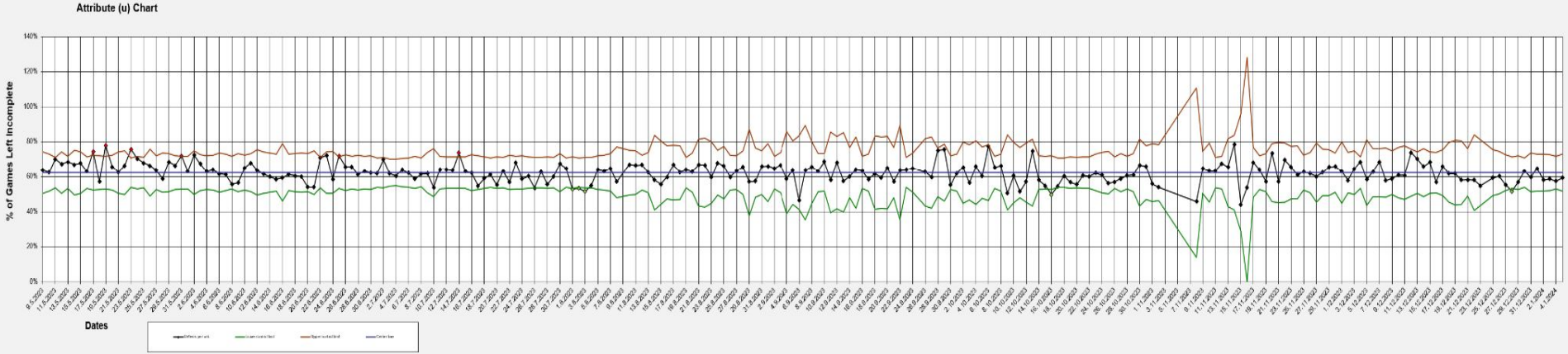
37.6%

Game Completion Rate

Mind Reader Game

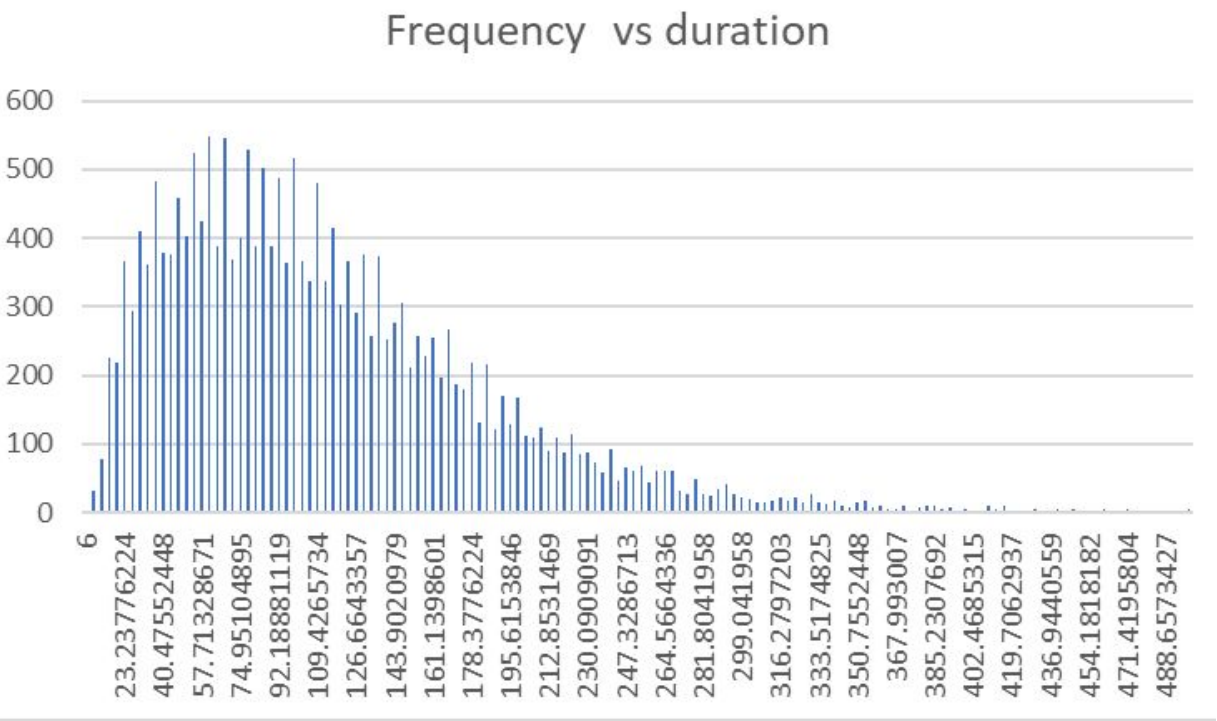
- **In-control random variations** on most days **except a few**.
- Few outliers with the following possible causes:
  - Those days exceeding upper limit (more abandonments of game than avg) have total visitors less than ~1500 people and those days subceeding lower limit (lesser abandonments of game than avg) have visitors above ~1500 total visitors.
  - Other reasons: special events, holidays, exceptional weather, strikes, etc.





The POET Game

Highest frequency	Duration	Lower bound	Upper bound
549	61.16084	57.71329	64.60839



The highest probability (~3%) is that a customer will play for around **61** seconds (in the range between 58 and 65 seconds).

Mean	MIN	MAX
112.5677	6	499

Our proposals to improve exhibitions

Classics

Classics

1 or 2 presses	>2 presses	Total interactions	Total presses	Kids' presses
8867	452	9319	11983	1670
Ratio				Ratio
0.9515	0.04850			0.1394

Approximately 5% of interactions are unintended, thus almost 14% of all presses are unintended.

1. **Enhancing Data Collection:**
   - 1.1. Use face recognition alongside button press data to distinguish intentional from unintentional use.
2. **Setting Target Values:**
   - 2.1. Determine the number of button presses to identify when a child is likely involved (e.g., more than 2 presses).
3. **Useful Insights for Analysis:**
   - 3.1. Explore face recognition to identify if customers use multiple languages, offering insights into bilingual/multilingual demographics.
   - 3.2. Differentiate customers for a more precise analysis of Classics usage, potentially leading to new services or exhibition opportunities.

Our proposals to improve exhibitions

Power of Play

Power of Play

Electric Roulette

Use:

From 22.6.2023 to 18.01.2024:

Total games played	111600
Number of days	210
Average games played per day	531

Capacity:

Maximum number of games played in a single day: 1377 (on August 1, 2023)

Metric: Games played per visitor

From 22.6.2023 to 31.12.2023:

Games played	103517
Visitors	184302
Games played per visitor	0.56 times

On average, each visitor will play this game 0.56 times.

Tail Skipping:

Total number of days	210
Total number of games started	43710
Average games started per day	208
Peak Days	402 (on 1.1.2024)
Timeout Rate	38%
Games played per visitor	0.24

More data to collect:

Participant's knowledge about the scientific principle behind it.(yes/ no)
Participant's emotion before and after the game. (Happy? Scared?Curious?)
Participant's pattern. (age, education..)

Metrics and development:

Games played per visitor: evaluate the ability to attract and retain participants. Compare this number to identify which exhibition is more attractive, and then further explore the reason behind it.

Timeout rate: For Tail Skipping. To explore the high timeout rate's group pattern. Also, does timeout rate influence their emotion?

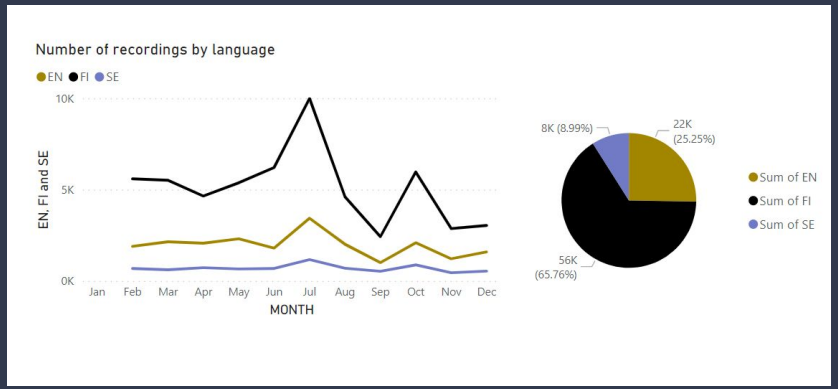
Safety and Incident Metric: Participant's discomfort rate related to the games. To identify potential safety hazards or design flaws in the exhibit that need attention.

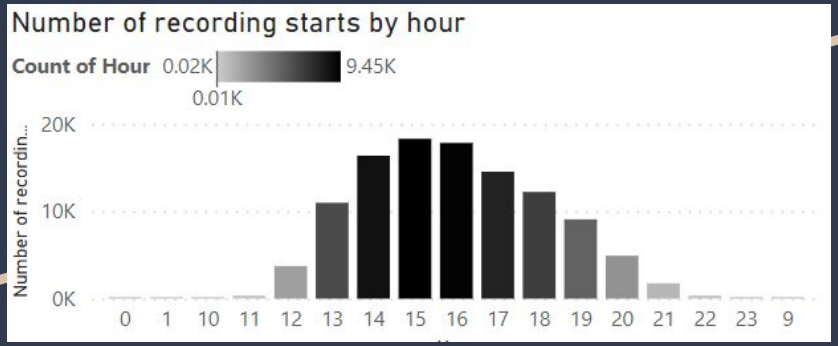
Emotion switching: The rate that they switched negative emotion to positive emotion after the game (e.g. scared->curious) Understanding how interactive experiences impact emotions helps in designing exhibits that evoke positive emotional responses and enhance engagement.

Our proposals to improve exhibitions

Natural Disasters

Natural Disasters





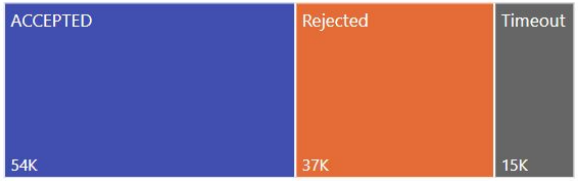
Current usage and capacity:

937
Max of Rec. per day

334
Avg of Rec. per day

23
Max of Rec. per Min

1.88
Avg. of Rec. per Min



At the moment, we have general data about the number of recordings, including:

- Whether the video is accepted, rejected, or got a time-out
- Number of recordings by languages
- The time of recording starts and end each day
- Number of recordings by minute

From this data we have have the overview of the game's usage and capacity:

- More than 65% of the users prefers FI language. This number increases especially during Finnish holiday (July and October)
- Peak hours for the game being used is actually early afternoon time.

However, the have a more detailed analysis, we need more data as proposed in the following slide.

Natural Disasters

Data to collect and metrics develop:

1. **Duration of Recordings:**
   - Examine how the length of recordings impacts timeout/reject rates.
   - Understand optimal recording durations for user participation.
2. **User Information:**
   - Collect demographic data (age group, gender, nationality) for user segmentation.
   - Explore if certain demographics engage more or less with the exhibition.
3. **Visitor Ratings and Feedback:**
   - Collect users' feedback on the game's user-friendliness.
   - Assess engagement patterns across different demographics.
   - Use insights to tailor future exhibitions to diverse audience preferences.
4. **Accepted Videos by Hour:**
   - Determine peak engagement times.
   - Analyze if there are specific periods of heightened interest.
5. **Language vs Timeout Rate:**
   - Assess the correlation between the language of recordings and timeout rates.
   - Identify potential language barriers affecting user engagement.

Target values should be set for:

1. **Percentage of visitor participate in the game**
   - Track the proportion of visitors engaging with the game.
   - Set targets to increase participation and measure success.
2. **Acceptance rate for the recordings**
   - Evaluate the efficiency of the acceptance process
   - Aim to improve the acceptance rate
3. **Average number of recordings started by one user**
   - Measure how smooth the recording process is.

By analyzing patterns, feedback, and user behavior, museums can establish metrics that measure engagement, identify areas for improvement, and inform strategic decisions for not only the current exhibition but also the future one.

Conclusion

Metrics that would be useful for Heureka and limitations of given information

Metrics that would be useful for Heureka

1. **Visitor engagement metrics:**
   - 1.1. **Attendance rates:** measure number of visitors for each exhibition to understand popularity
   - 1.2. **Usage time:** measure average amount of time visitors spend at each exhibition to gauge engagement levels
     → This requires e.g. tags for each wristbands and tags on the exhibition's entrance
   - 1.3. **Conversion Rates:** Track the order of participation, with Attribution Modeling, we can find the Game with highest conversion rate.
     → So that we can design the route of the exhibition, by placing the game with higher conversion rate closer to entrance.

2. **Feedback and satisfaction metrics:**
   - 2.1. **Visitor surveys:** collect feedback through different surveys to understand visitor satisfaction, preferences, and areas for improvement
   - 2.2. **Relevant metrics:** utilize metrics such as KPI, NPS, CSAT, CES to analyze customer satisfaction effectively
3. **Educational impact metrics:**
   - 3.1. **Learning outcomes:** analyze educational impact by measuring the extent to which visitors gain new knowledge or skills
4. **Revenue metrics:**
   - 4.1. **Merchandise and concession sales:** track sales from on-site shops and concessions for better knowledge of best-sellers

Limitations of the information

We had to make some general assumptions about the exhibitions and games in order to be able to analyze and make improvement suggestions for Heureka.

→ If Heureka wants to take advantage of our suggestions, they should interpret them critically and apply as needed before implementing them.

References

[1] Customer Satisfaction Metrics: 7 Best Metrics to Measure | QuestionPro

[2] More than numbers: how visitor engagement data can be captured and used to amplify your creativity – MW21