

KI & Synthetische Befragte: Kann KI menschliches Konsumentenverhalten wirklich nachbilden?

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Generative AI in Market Research

Potential Applications

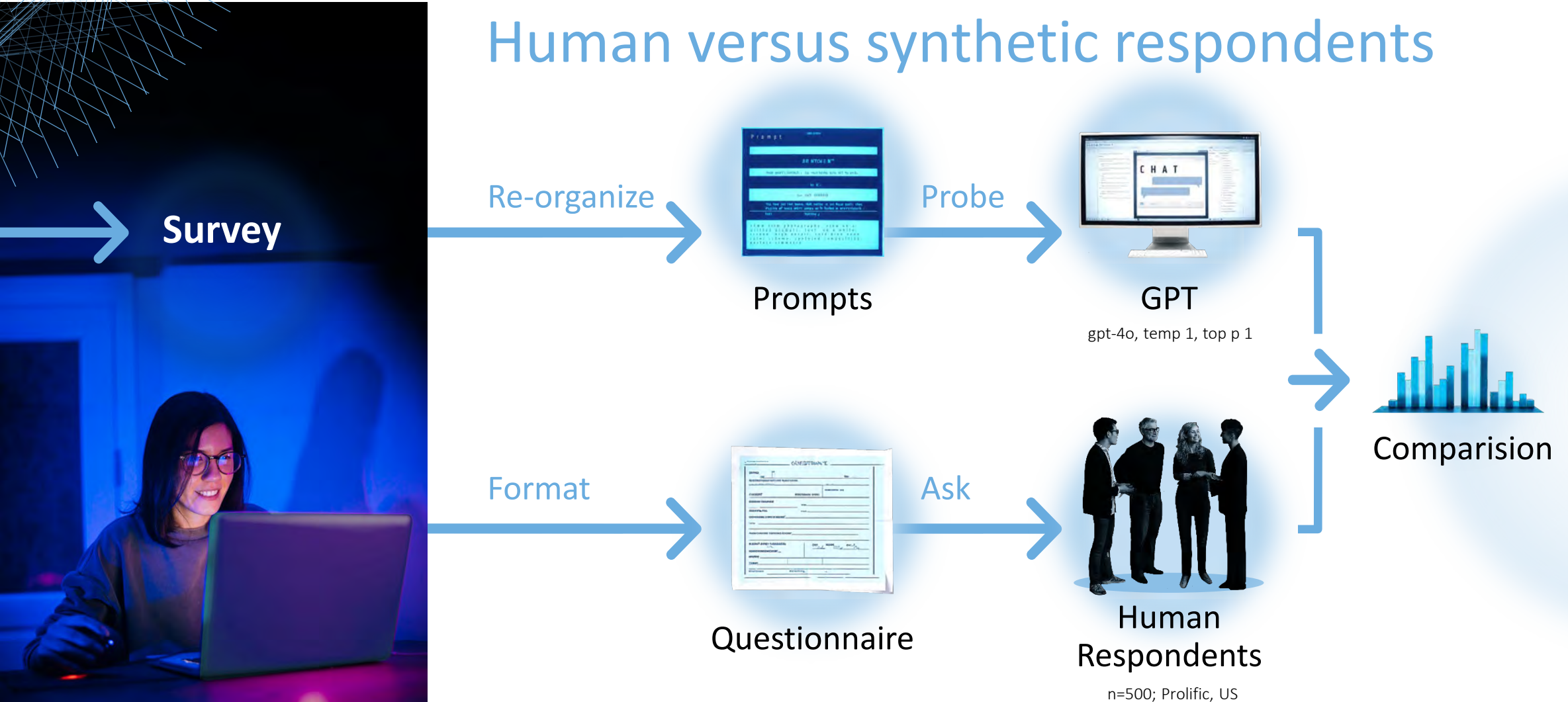
- Coding answers to open questions
- Sentiment analysis in social media
- Writing code for data analysis
- Creating surveys
- Performing interviews
- Simulating respondents



Synthetic Respondents

→ What if GenAI answers the questions of a survey instead of humans?

Human versus synthetic respondents



Creating Personas

For each human respondent
we create a demographic twin.

Human Respondent



Synthetic Respondent



Persona definition

You are a [ethnicity] [sex] living in [state]. You were born in the year [year] in [country of birth]. Your nationality is [nationality] and you speak [language] fluently. Your education level is: [education level] and your profession is: [profession]. You describe your financial situation with [financial situation].

Exemplary persona

You are a white Male living in Michigan. You were born in the year 1991 in the United States. Your nationality is United States and you speak English fluently. Your education level is Bachelor's degree and your profession is employee. You describe your financial situation with 'Overall I can manage'.

Prompting

Questions

Answer



Exemplary Case 1: Brand Funnel



Coca-Cola

Sprite

 **pepsi**

7UP

DRY

 **MOXIE**

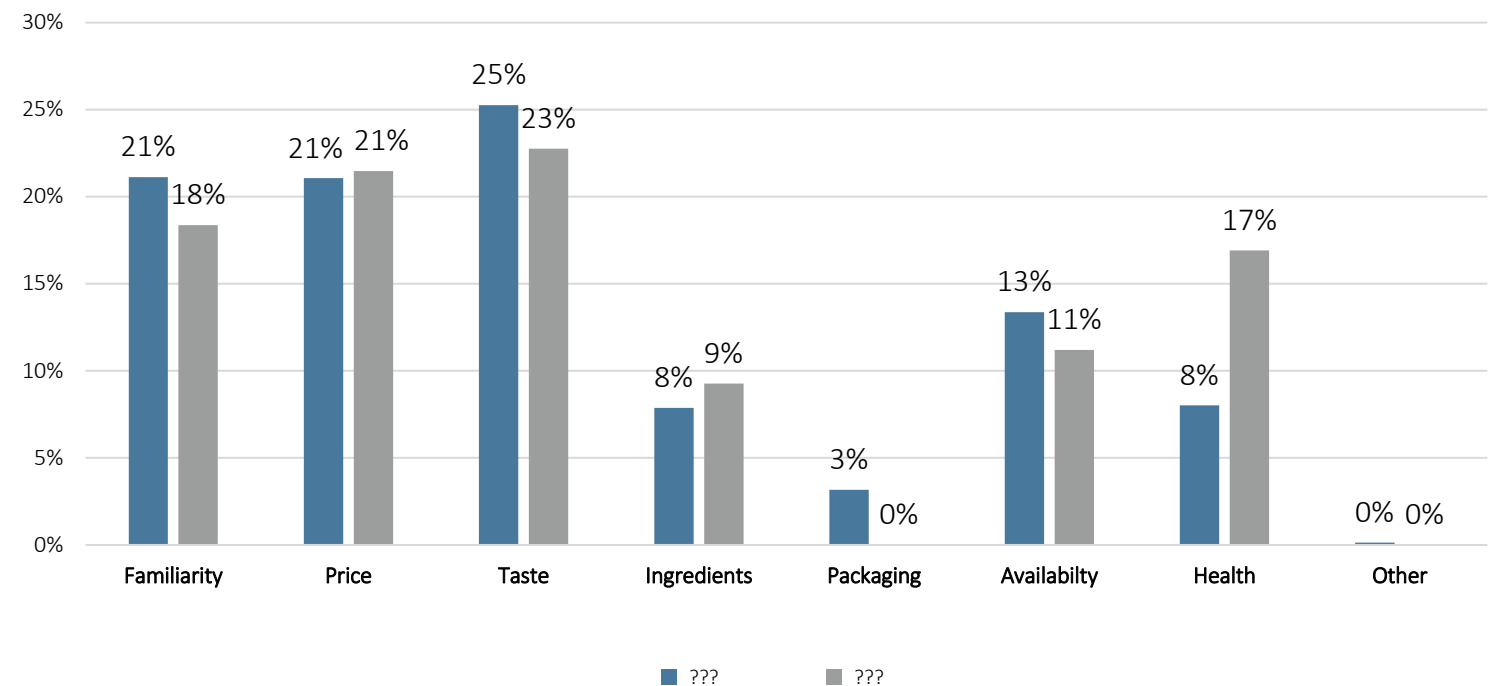
Blue Sky

ORANGINA
el sa pulpe!

Soft Drinks Face Validity

- > Which of these factors are important to you when you make the decision about which soft drink brand to purchase? (Please select all that apply)

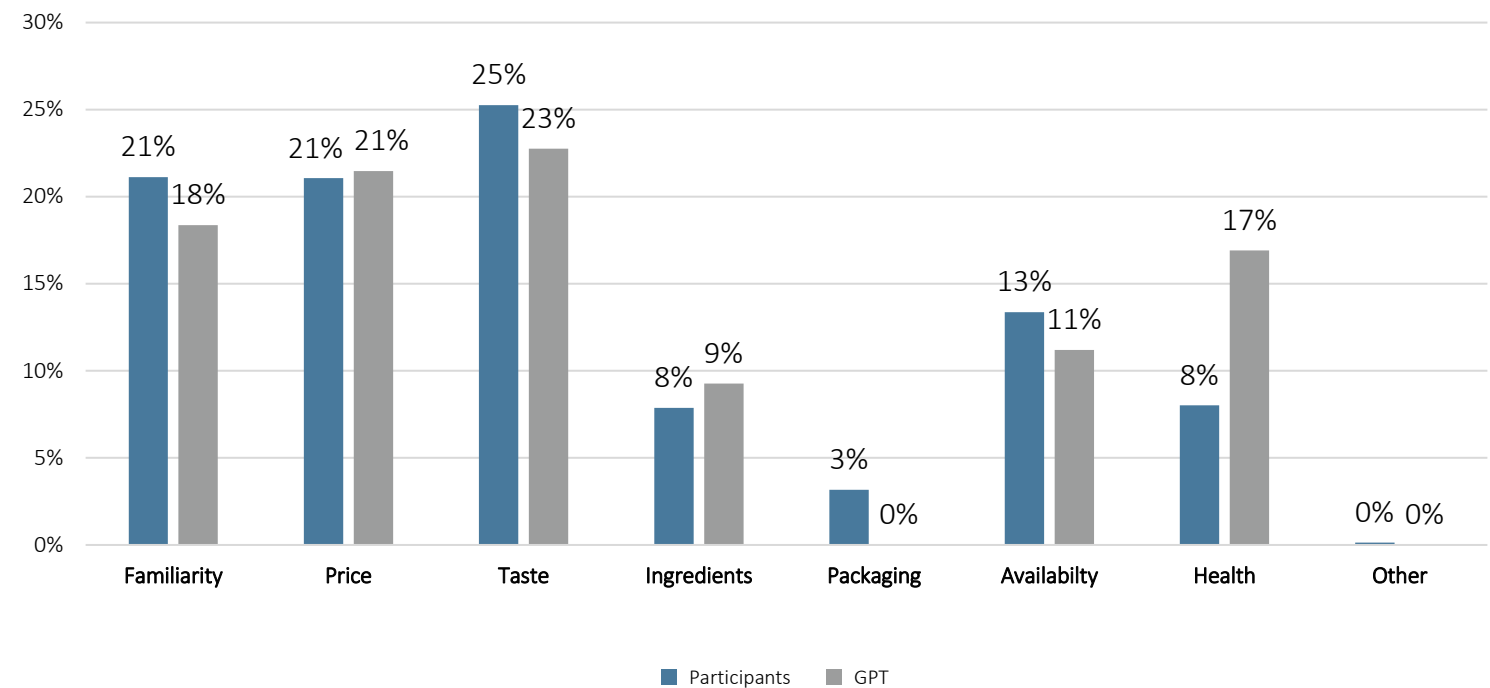
Factors in Purchase Decision



Soft Drinks Face Validity

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Factors in Purchase Decision

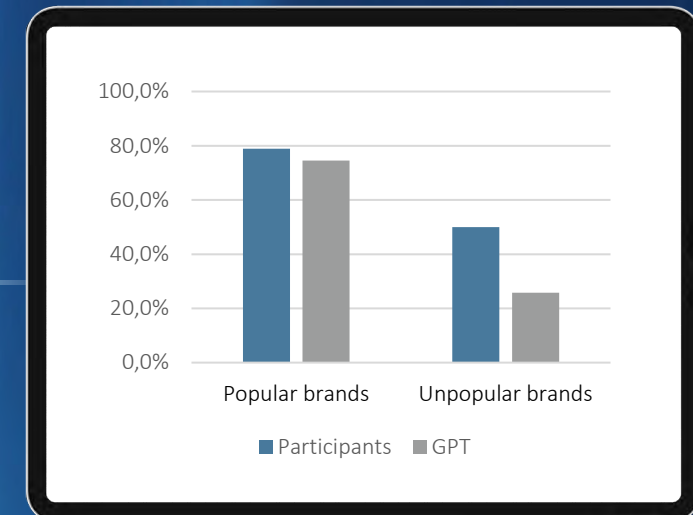
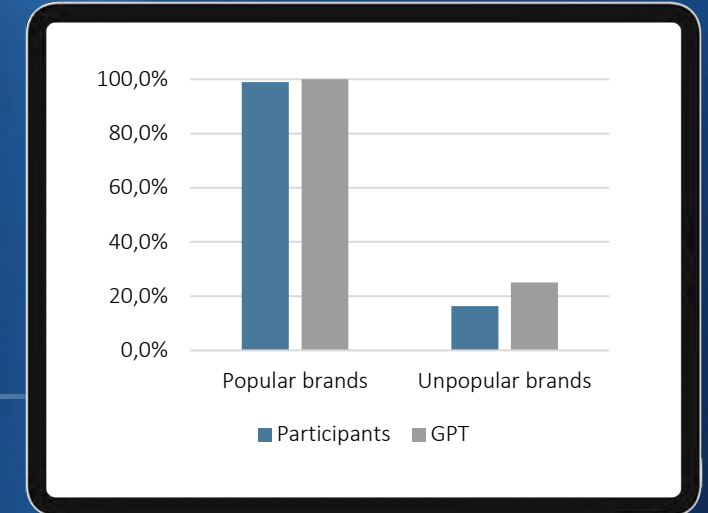
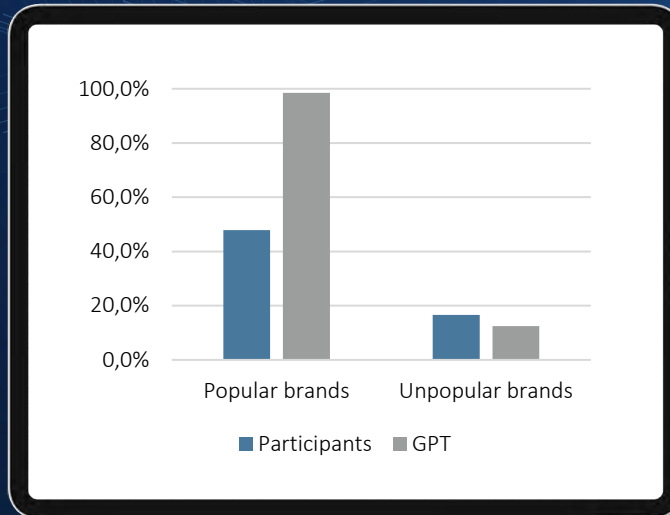
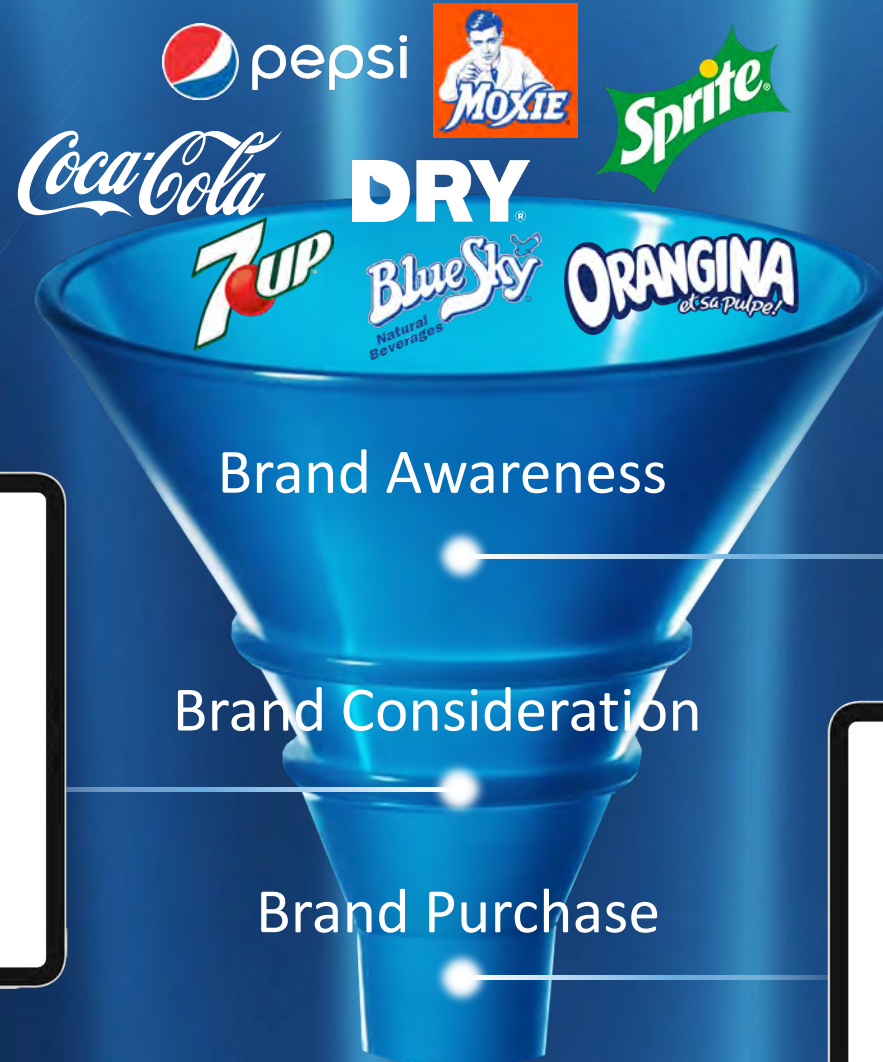


Brand Awareness

Brand Consideration

Brand Purchase

Soft Drinks Brand Funnel



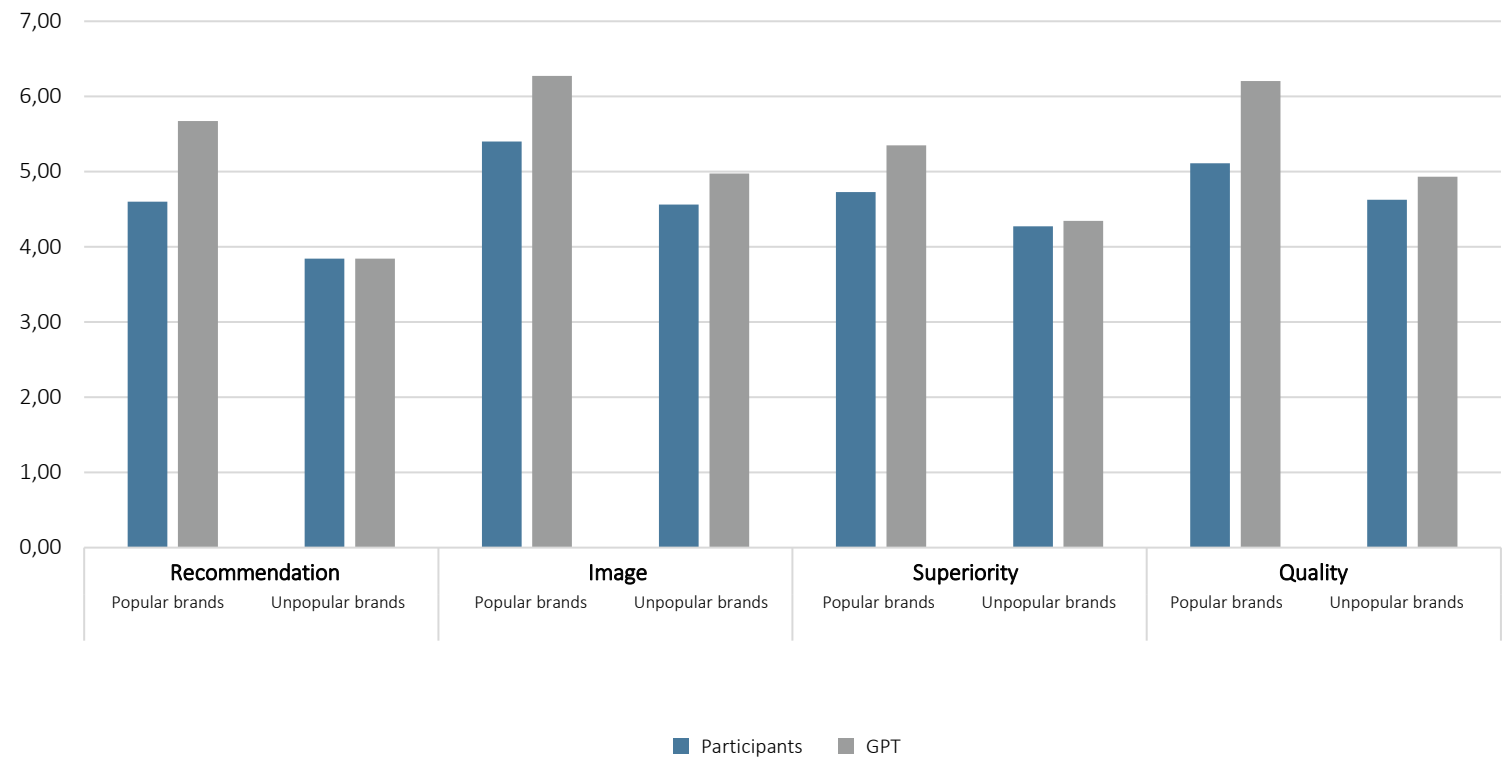
Soft drinks: Mean Values and Variance of Judgements

Brand Awareness

Brand Consideration

Brand Purchase

Mean Values



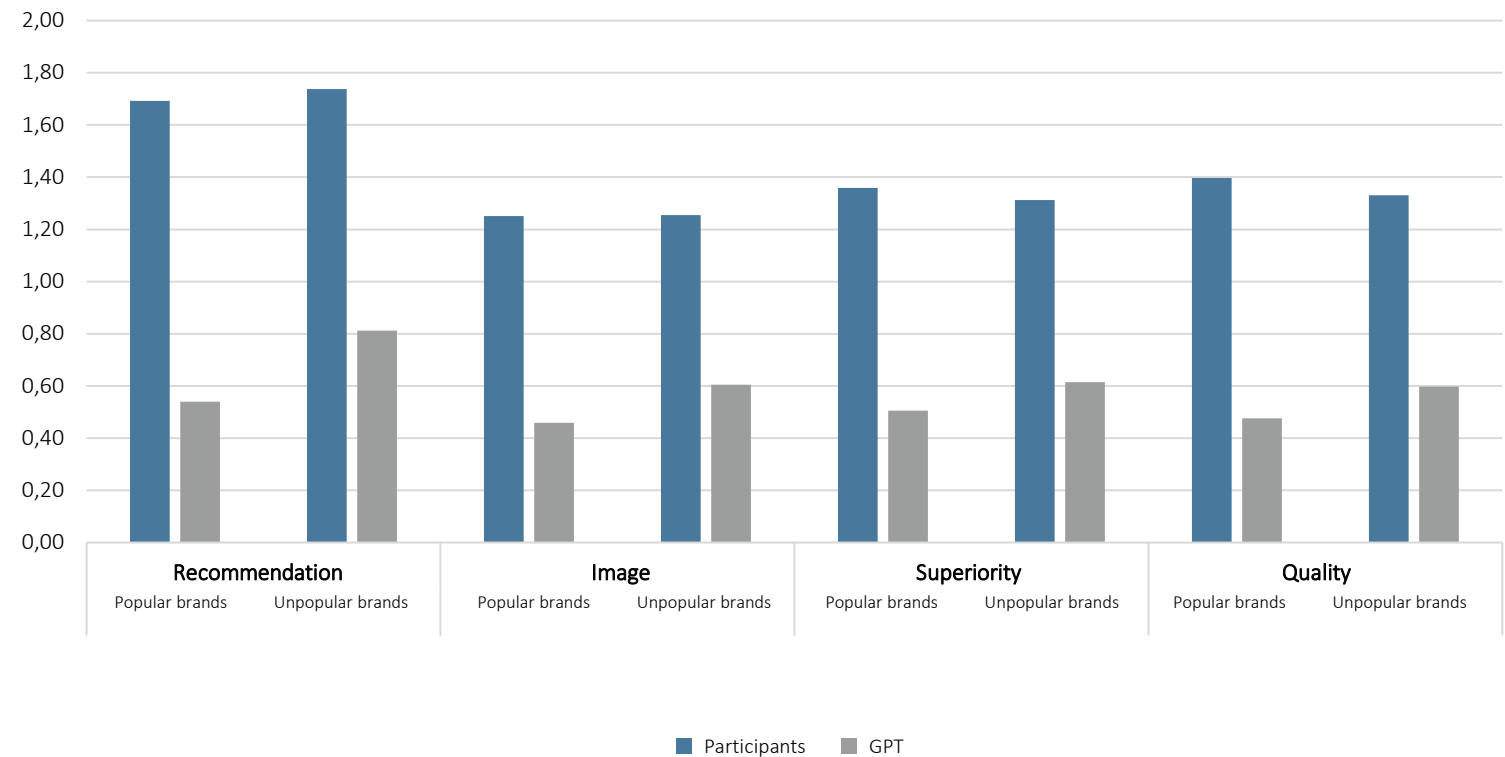
Soft drinks: Mean Values and Variance of Judgements

Brand Awareness

Brand Consideration

Brand Purchase

Standard Deviation



Soft drinks: Distribution of Answers



> Is the distribution of answers produced by GPT equal to the distribution of answers given by human respondents?



GPT



Comparison



Comparison

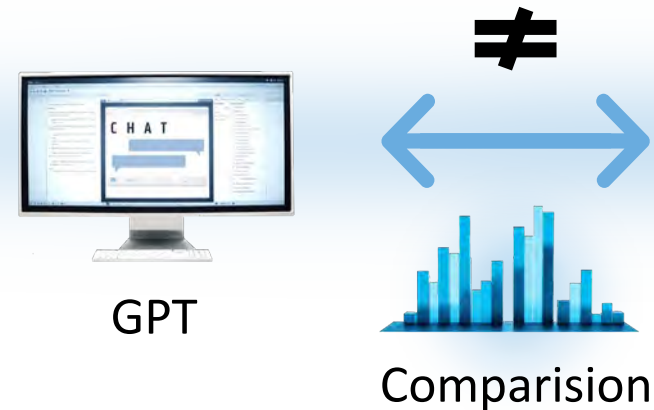
> Is the distribution of answers given by one human sample equal to the distribution of answers given by another human sample?



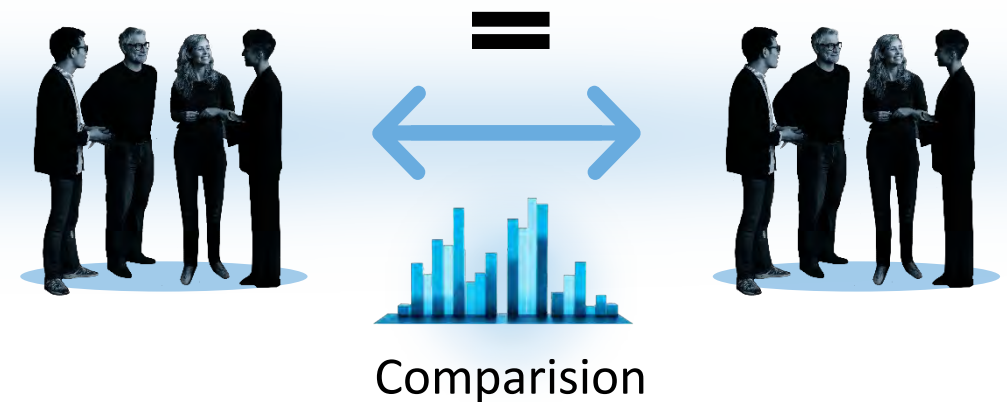
Soft drinks: Distribution of Answers



> Is the distribution of answers produced by GPT equal to the distribution of answers given by human respondents?



> Is the distribution of answers given by one human sample equal to the distribution of answers given by another human sample?



There is a significant different answer distribution between GPT and the human sample for most questions (**75%**). Only for some questions (**25%**) on unpopular brands there is no significant difference.

There is no significant difference in the answer distribution between both human samples for all questions.

Exemplary Case 2: Brand Funnel



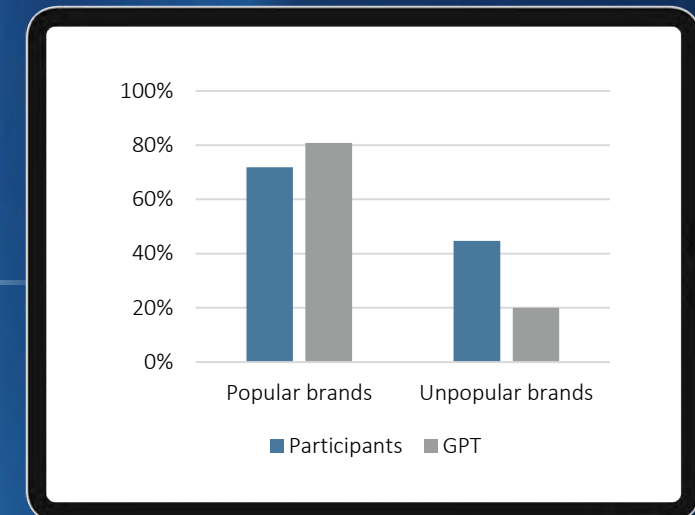
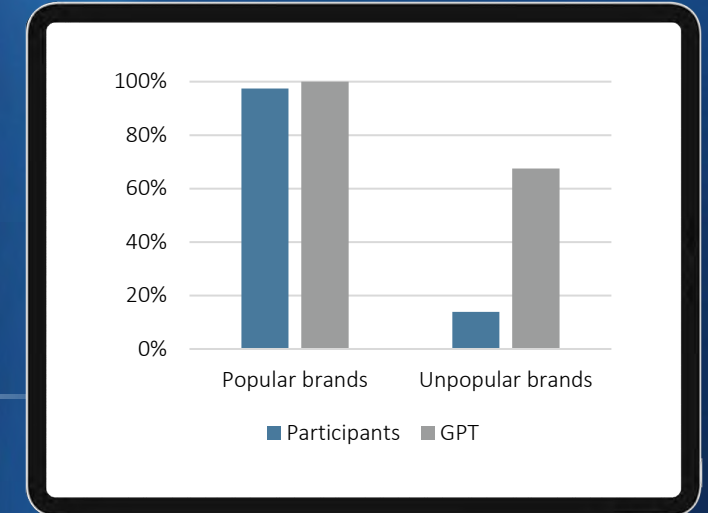
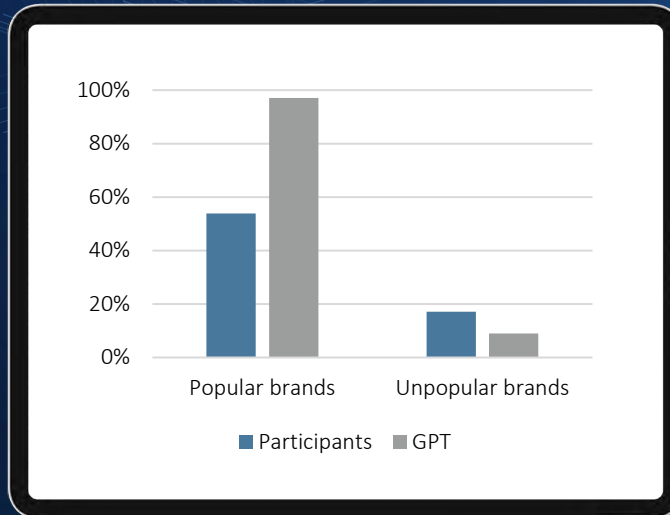
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DECATHLON



Sportswear Brand Funnel



Exemplary Case 3:

US 2024 Election

Questions:

- > Opinion towards Democratic vs Republican Party
- > 2024 Presidential Election
- > 2020 Presidential Election

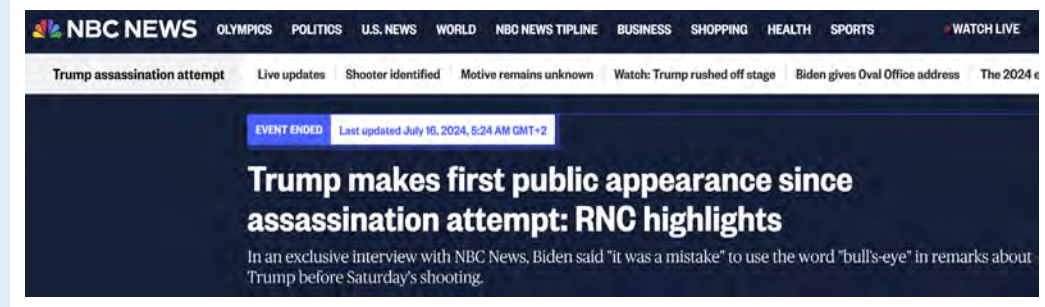
Political Opinions: Additional Context



Trump campaign rips 'fear-mongering' Dem strategy linking him to Project 2025 after Biden's disastrous debate

Democrats have launched a coordinated effort in recent weeks slamming the Heritage Foundation's Project 2025

By Andrew Mark Miller, Cameron Cawthorne Fox News



Trump makes first public appearance since assassination attempt: RNG highlights

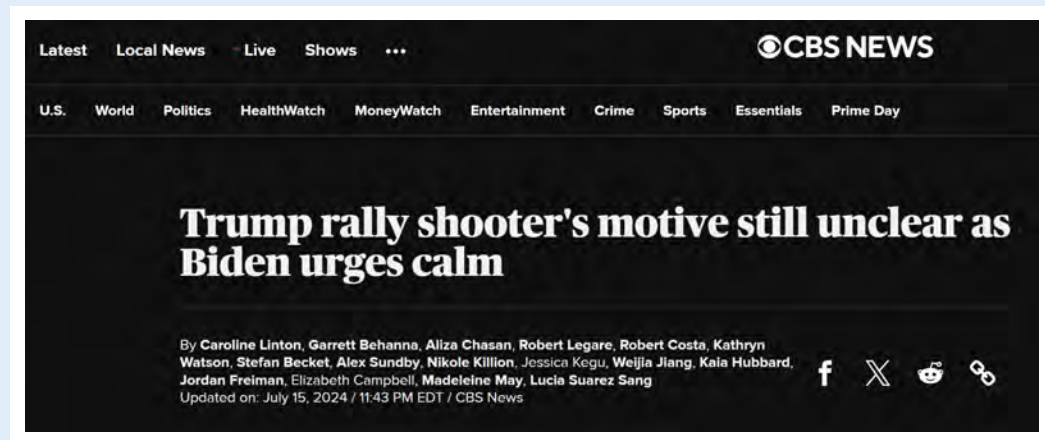
In an exclusive interview with NBC News, Biden said "it was a mistake" to use the word "bull's-eye" in remarks about Trump before Saturday's shooting.



Several top House Democrats say Biden should step aside during leadership call

By Dana Bash, Jeff Zeleny, Priscilla Alvarez, Mi Lee and Pamela Brown, CNN

4 minute read · Updated 7:53 PM EDT, Sun July 7, 2024



Trump rally shooter's motive still unclear as Biden urges calm

By Caroline Linton, Garrett Behanna, Aliza Chasan, Robert Legare, Robert Costa, Kathryn Watson, Stefan Becket, Alex Sundby, Nikole Kilgion, Jessica Kegu, Weijia Jiang, Kala Hubbard, Jordan Freiman, Elizabeth Campbell, Madeleine May, Lucia Suarez Sang

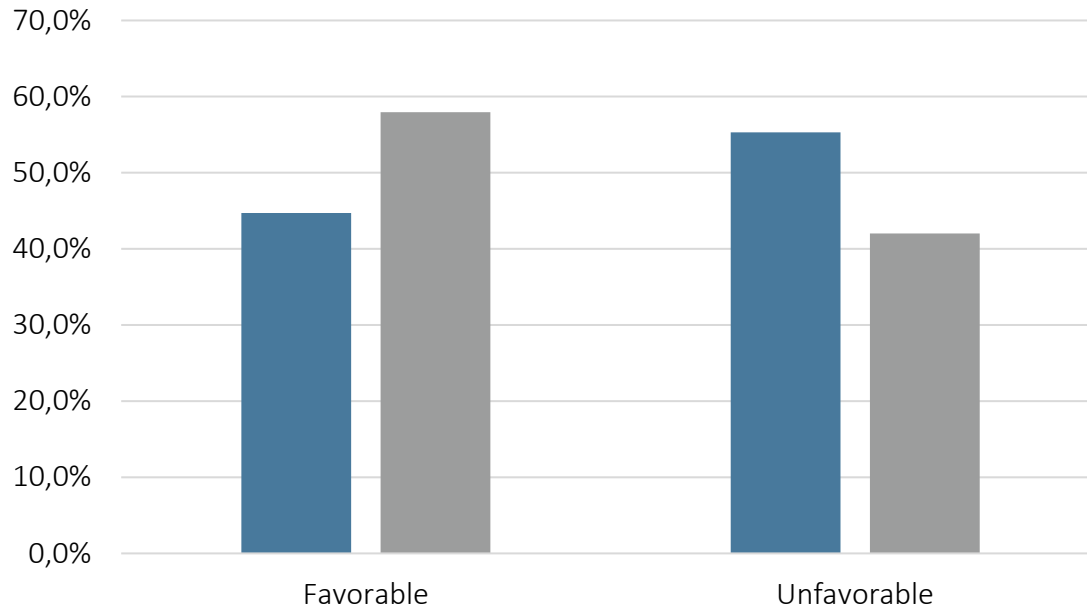
Updated on: July 15, 2024 / 11:43 PM EDT / CBS News

Recent Political News from Fox News, CNN, NBC and CBS due to GPT-4o Cutoff Date October 2023

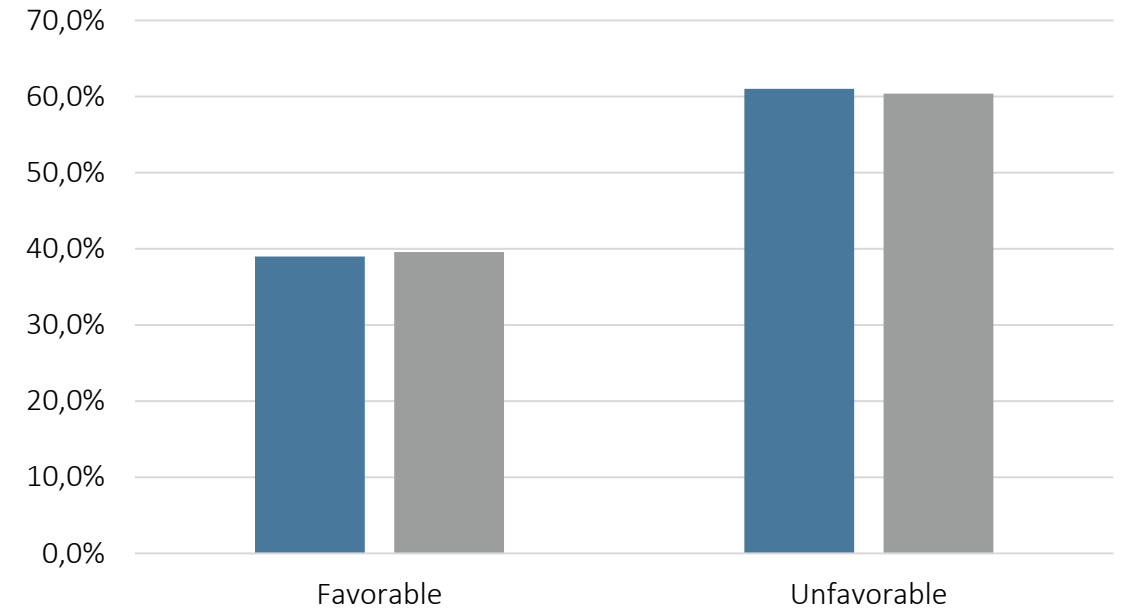
Political Opinions

> To what extent, if at all, do you have a favorable or unfavorable opinion of the following political party?

Opinion of the Democratic Party



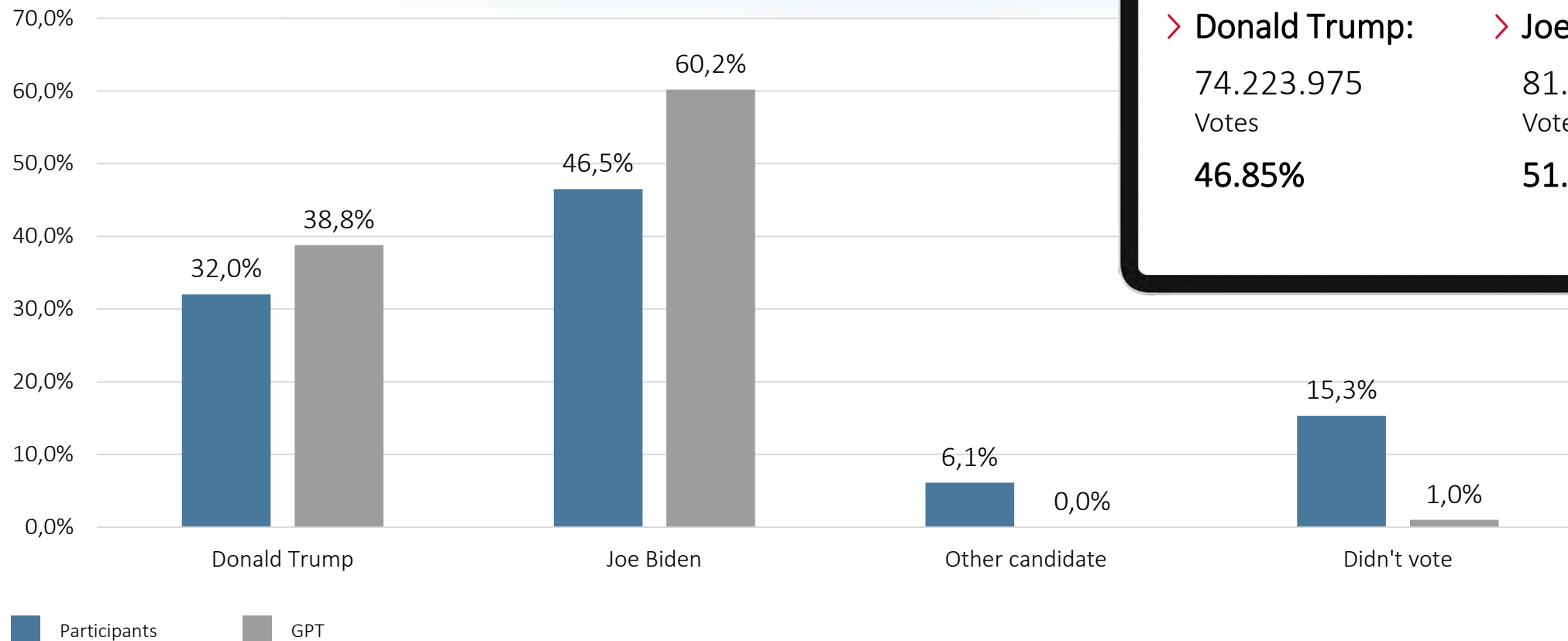
Opinion of the Republican Party



■ Participants ■ GPT

Presidential Election 2020

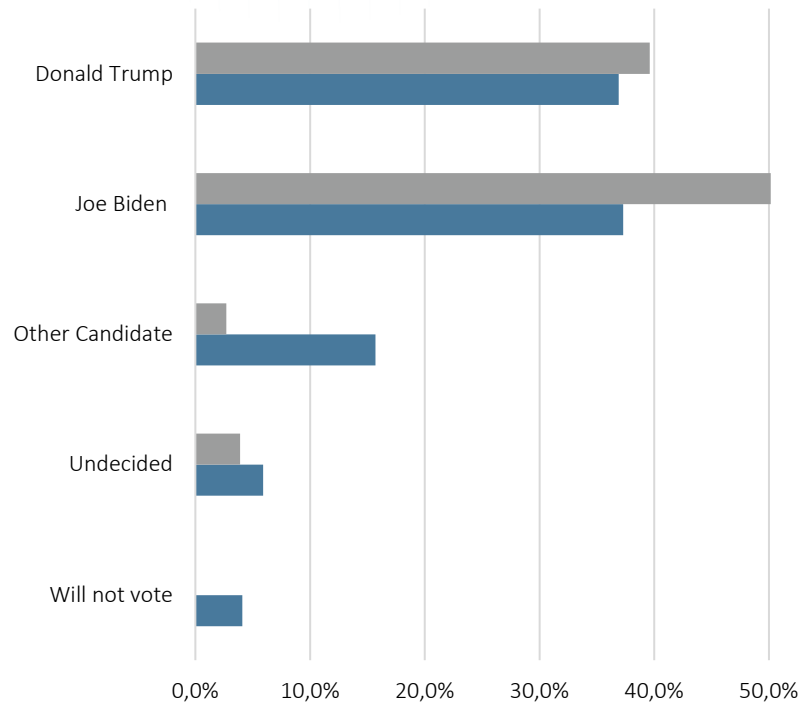
> Who did you vote for in 2020's election?



 Federal Election Commission UNITED STATES - of - AMERICA	
> Donald Trump:	> Joe Biden:
74.223.975	81.283.501
Votes	Votes
46.85%	51.31%

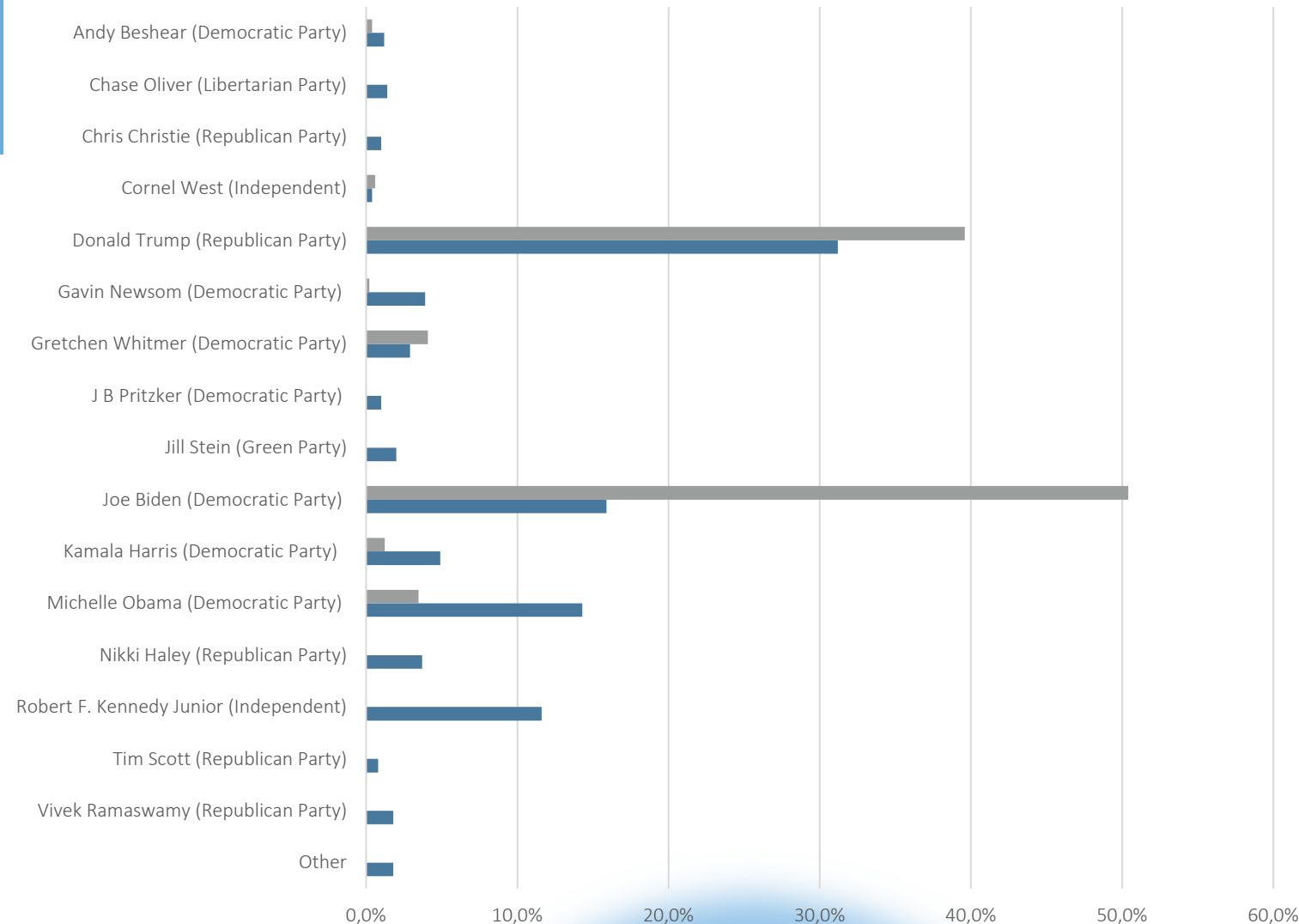
> If the election for president were held today and the candidates were ...

For whom would you vote?



Participants GPT

For whom would you vote?



Presidential election 2020 and 2024

> Is there a coherence
between the election
behavior in 2020 and
the election intent
in 2024?

?

Human Respondent

Who did you vote
for in 2020's
election?

Whom would you support in 2024's election?

	Donald Trump	Joe Biden	Other candidate	Undecided	Will not vote
Donald Trump	86%	1%	8%	4%	2%
Joe Biden	8%	73%	13%	5%	1%
Other candidate	23%	13%	50%	10%	3%
Didn't vote	27%	16%	28%	11%	19%

GPT

Who did you vote
for in 2020's
election?

Whom would you support in 2024's election?

	Donald Trump	Joe Biden	Other candidate	Undecided	Will not vote
Donald Trump	100%	0%	0%	0%	0%
Joe Biden	0%	89%	4%	0%	6%
Other candidate	0%	0%	0%	0%	0%
Didn't vote	80%	20%	0%	0%	0%

Discussion

Synthesized Respondents with GPT

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- > High face validity
- > Coherent answering of subsequent questions
- > Reduced time and cost
- > Rough estimator for the relative importance of statements

—

- > Significant different answer distribution than human sample
- > Not reliable in measuring absolute importance of statements
- > Smaller variance
- > Bias towards positive/most frequent statements
- > Higher mean values
- > Better for past topics than recent topics
- > Caution in US election: bias toward democratic party

Limitations

Preliminary results

- One shot prompting
- Limited topics
- One country

Future work

- Testing of different promptings
- Different models and parameters
- Using additional data sources



Conclusion

Synthesized respondents

... produce significant different answers than human respondents and cannot replicate human respondents

... but may be a cheap and fast way to get a rough first impression of the relative meaning of non-recent common marketing topics from the US American point-of-view.



Thank you for your attention!

Dr. Carolin Kaiser