HSLU Lucerne University of Applied Sciences and Arts

University of St.Gallen

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Better Tourism Through Data?
Privacy, Well-being, and Geo-tracking



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FH Zentralschweiz

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Introduction

How many visitors from the US are in our destination?

We don’t know, we could estimate based on arrivals at the end of the month.

Would your estimation include US residents that travel around Europe, and visit our city for 4 hours on their way from Stuttgart to Milan?

No, we only know overnights and arrivals.

So if we do not know how many there are, we are far away from managing visitor flows for the well-being of the tourists. Right?

Unfortunately yes, right.

- How can we incentify visitors so that we know better where they are, how they move and guide them according to their needs?
- Are there differences from country to country when it comes to
  - Geo-tracking acceptance
  - Notification acceptance
  - Incentives to share geo-location

Literature and hypothesis 1

For the well-being of the guests, the supply side should only do what guests accept

Taken together, the privacy-calculus literature and the converging country-level patterns identified by Hofstede and GLOBE provide a theoretical basis for expecting not only differences between the three country-of-residence groups, but also a specific direction of difference.

Privacy Calculus Theory

Source: Balabanis et al., 2025

Approaches of cultural differences

Source: Hofstede et al., 2010, GLOBE study by Sully de Luque & Javidan 2004

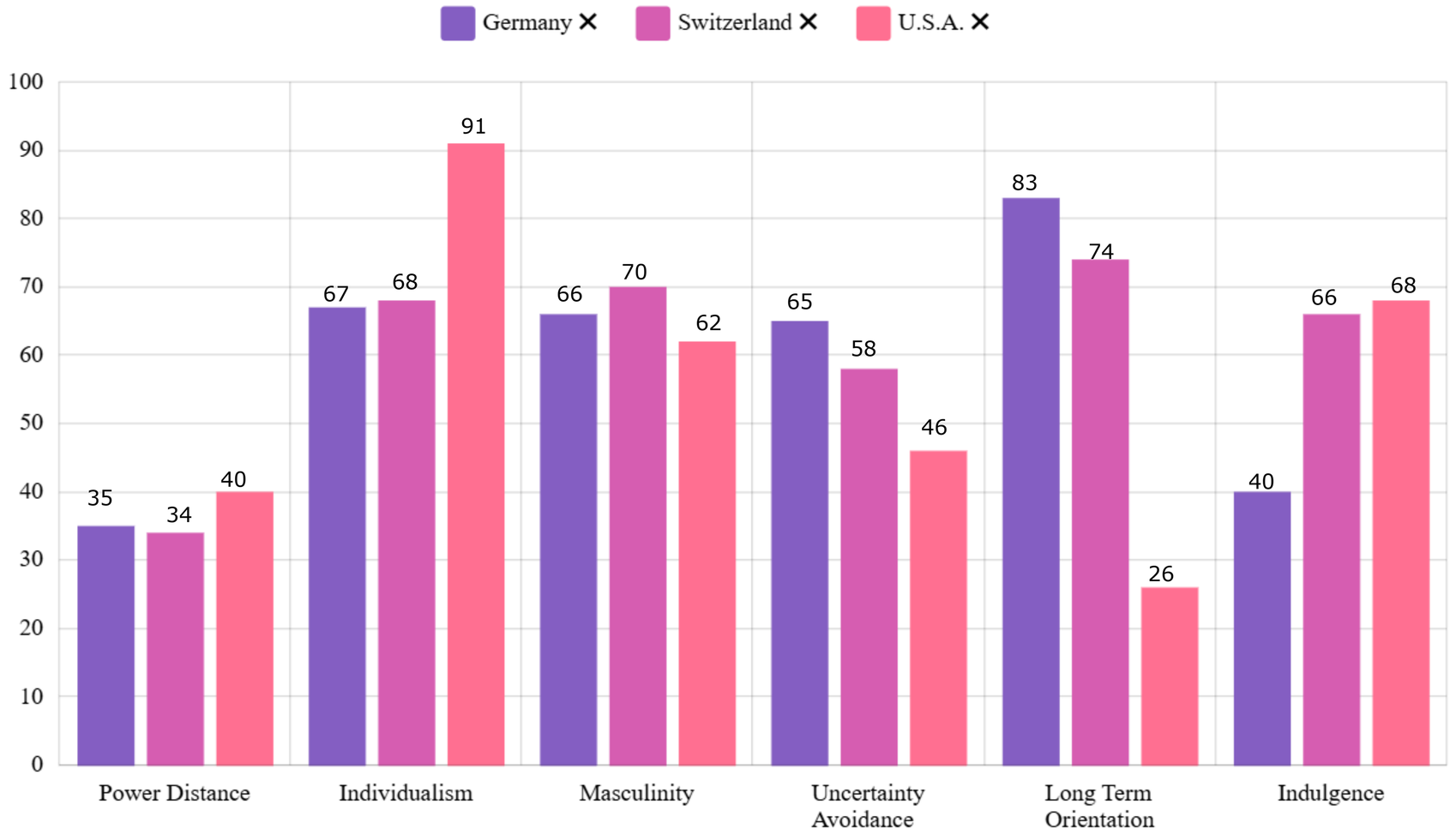
H1: US-residents report a higher level of acceptance of geo-tracking for an application for visitors of Switzerland than respondents residing in Germany and Switzerland.

Literature: Potential incentives to share geo-location

UT - Utilitarian		HE - Hedonic
UT-INFO - Location Based Information		**HE-AWA - Awards / Premiums**
UT-INFO Public-transport departures nearby		HE-AWA Spin a wheel for nearby discounts
UT-INFO Upcoming events nearby		HE-AWA Monthly prize draw (e.g. luxury watch)
UT-INFO Hidden attractions nearby		HE-AWA Points for travel activity
UT-INFO Photo spots nearby		HE-AWA Virtual badge for reaching points
UT-INFO Facilities nearby (toilets, defibrillator …)		HE-AWA Leaderboard
UT-INFO Virtual travel assistant (chatbot		**HE-GAME – Gamified / Play**
UT-INFO Local hazards (e.g. weather)		HE-GAME Answer market research questions
UT-INFO Shared mobility nearby (bikes, scooters)		HE-GAME Quiz about the visited country
UT-INFO Analytics of own trip		HE-GAME Quiz about current region
UT-MON/TI – Money / Time		HE-GAME Augmented-reality info at location
UT-MON/TI Skip-the-line for sights/transport		**SO-Social / Ecological**
UT-MON/TI Free fast Internet access		**SO-SH Sharing**
UT-MON/TI Redeem coupons/vouchers nearby		SO-SH Share visited places
UT-MON/TI Shops nearby giving gift		**SO-ECO Ecological / Societal**
UT-MON/TI Discounts local attractions/events		SO-ECO Minimize negative social impacts (donations …)
UT-MON/TI Discounts local transport		SO-ECO Ecological-impact counterpart item

Based on: Camilleri, Troise, and Kozak (2023); Yawised, Apasrawirote, Chatrangsan, and Muneesawang (2022), Wörndl and Herzog (2020)

Comparing Hofstede’s Cultural Dimensions: Germany, Switzerland, and the United States



Source
Geert Hofstede. (n.d.). Country comparison bar charts. Retrieved August 27, 2026, from https://geerthofstede.com/country-comparison-bar-charts/

Note: Hofstede’s **Masculinity** category is taken here to mean **motivation towards achievement and success**.

Literature: Hypothesis 2 and 3

Hedonic motivation refers to the enjoyment or pleasure derived from using a technology and is a proposed determinant of consumers' behavioural intention to use technology

Source: Venkatesh et al., 2012; Yawised et al., 2022

➔ *H2: US-residents place greater importance on hedonic features in an application for visitors of Switzerland than respondents residing in Germany and Switzerland.*

Respondents in Germany placed a higher monetary value on privacy than respondents in the United States.

Source: Prince & Wallsten, 2022

➔ *H3: Respondents residing in the United States assign lower importance to Money and Time benefits of the proposed visitor geo-tracking application than respondents residing in Germany and Switzerland.*

Literature: Hypothesis 4

Sharing-options (e.g. photobook-option) is a potential incentive. Only 11% of American-residents DO NOT share pictures while travelling

(eDreams ODIGEO, 2024)

➔ *H4: Respondents residing in the United States assign greater importance to sharing visited places with friends than respondents residing in Germany and Switzerland.*

Kanos Survey-method regarding the app-features that could incentify location sharing

What do you think if, thanks to sharing your location data on a Switzerland-specific travel app, you could ...

... receive discounts on local transport

Functional / Dysfunctional	I like it	I expect that	I am neutral	I can tolerate it	I dislike it
I like it	questionable	attractive	attractive	attractive	one-dimensional
I expect that	reverse	indifferent	indifferent	indifferent	must-be
I am neutral	reverse	indifferent	indifferent	indifferent	must-be
I can tolerate it	reverse	indifferent	indifferent	indifferent	must-be
I dislike it	reverse	reverse	reverse	reverse	questionable

What do you think if, in exchange for sharing your location data on a Switzerland-specific travel app, you would NOT...

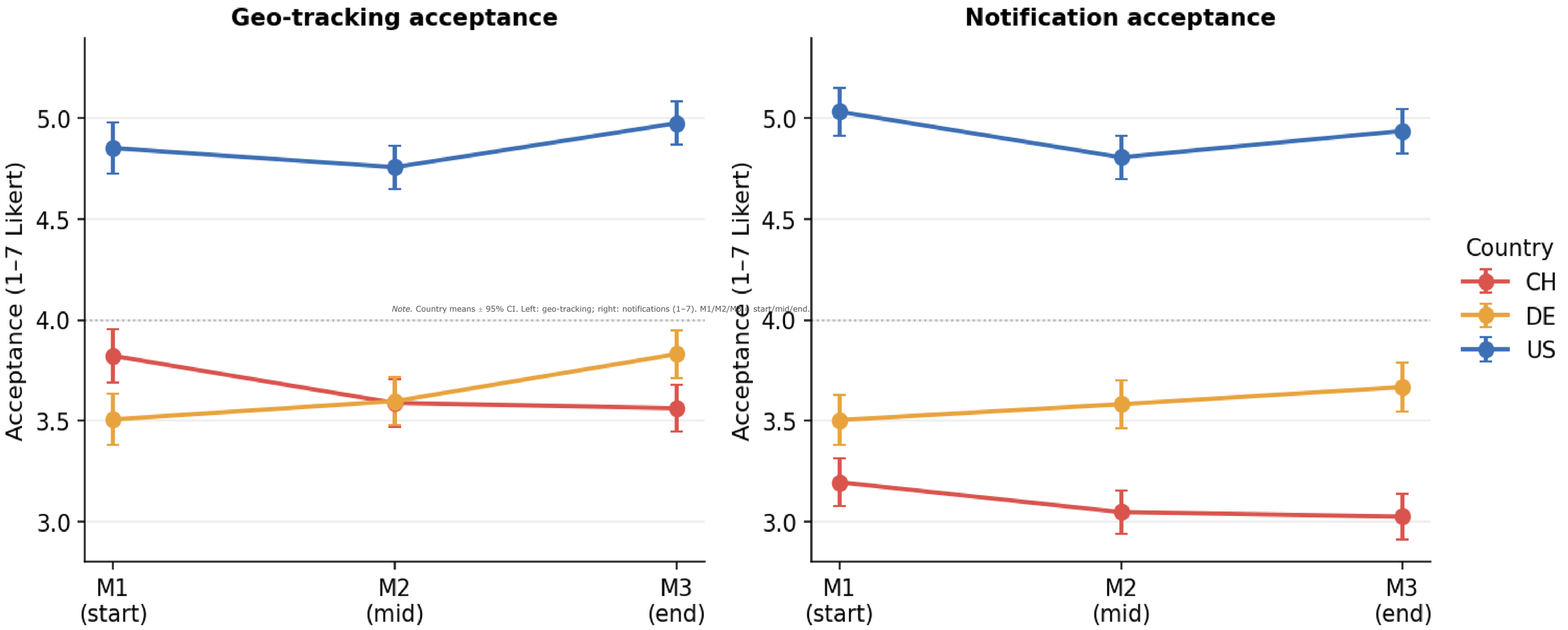
... receive discounts on local transport

Source: Kano et al. 1984

# Sample composition
n=3148

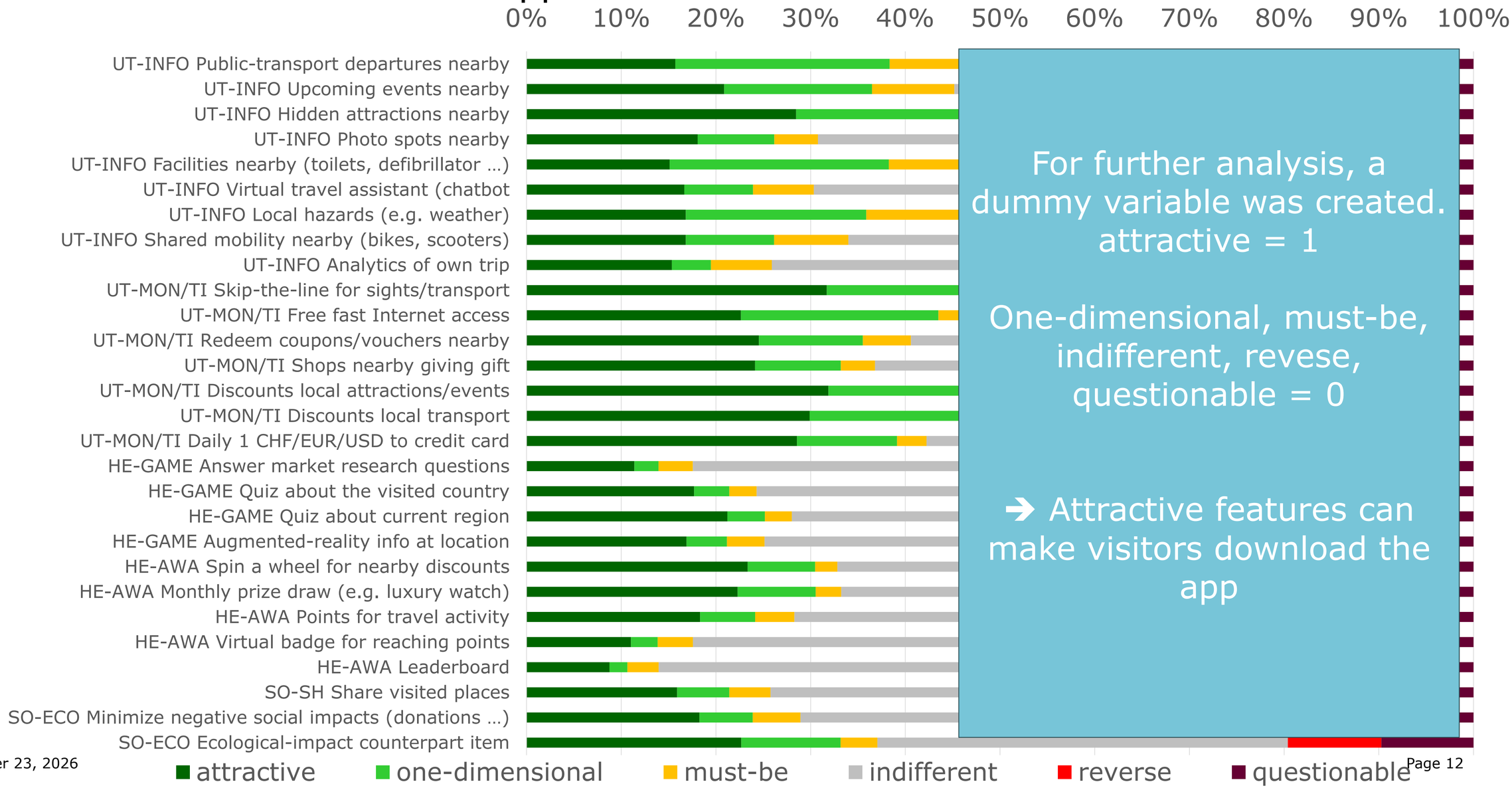
		Switzerland	Germany	United States	All
	N	1,120	1,033	995	3,148
Control variables	Age (mean, years)	47.0	48.8	44.8	46.9
	Gender				
	Male (share)	49.5%	49.9%	49.8%	49.7%
	Female (share)	48.9%	49.8%	49.8%	49.5%
	Diverse (share)	0.5%	0.3%	0.1%	0.3%
	No answer (share)	1.2%	0.0%	0.2%	0.5%
	Demographics				
	Education (1–6)	4.04	3.59	4.18	3.96
	Income (1–7)	4.60	3.55	3.62	3.89
	International trips (index)	1.28	0.95	1.65	1.29
	App / Smartphone Experience				
	Prior Swiss travel-app use (share)	80.0%	19.0%	45.0%	48.0%
	Smartphone years (1–4)	3.81	3.87	3.76	3.81

Results: Geo-Tracking and Notification Acceptance



Note. Country means ± 95% CI. Left: geo-tracking; right: notifications (1–7). M1/M2/M3 = start/mid/end.

Results related to Incentives and app features: Overall Results US+CH+DE:



For further analysis, a dummy variable was created.
attractive = 1

One-dimensional, must-be, indifferent, revese, questionable = 0

➔ Attractive features can make visitors download the app

Results: H2: Hedonic Features: Differences between US and Germany/Switzerland

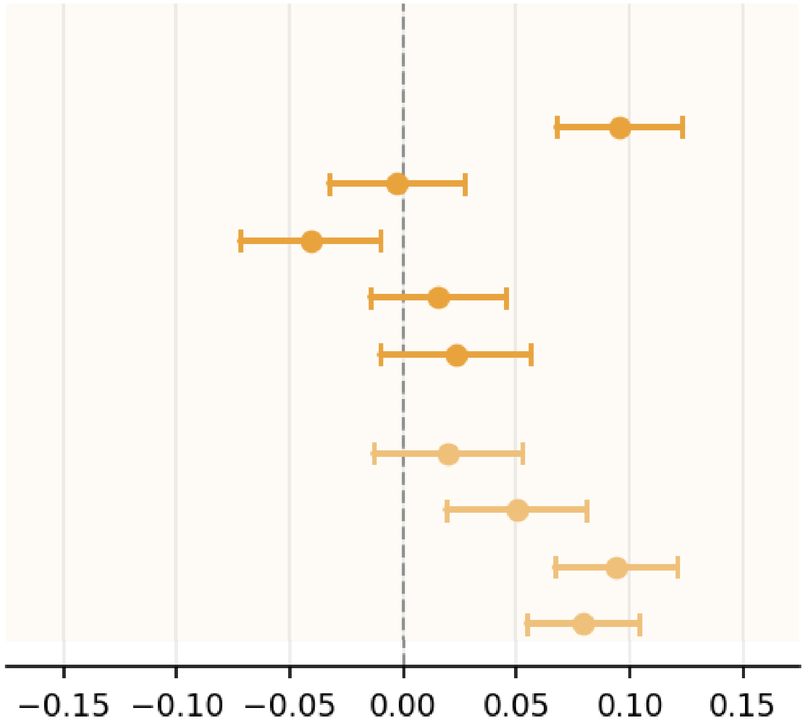
HEDONIC

Awards / premiums

- Spin a wheel for nearby discounts
- Monthly prize draw (e.g. luxury watch)
- Points for travel activity
- Virtual badge for reaching points
- Leaderboard vs. other users

Gamified / play

- Answer market-research questions
- Quiz about the visited country
- Quiz about your current location
- Augmented-reality info at location



H2: Confirmed for most features

n=3'030 respondents

Regression models used:

$Attractive_i = \alpha_0^k + \alpha_1^k \cdot US_i + u_i$, estimated separately for each feature k = 1, …, 28,

Results H3: Utilitarian Features: Differences between US and Germany/Switzerland

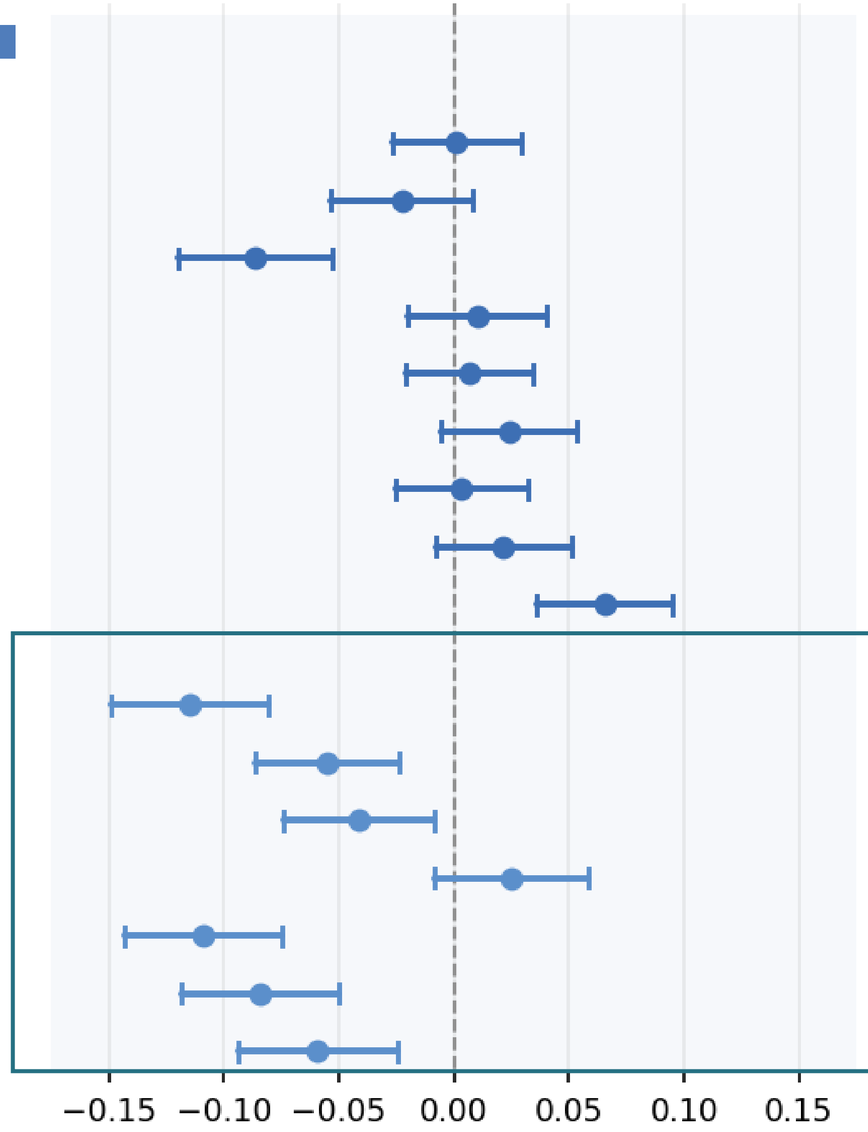
UTILITARIAN

Information / convenience

- Public-transport departures nearby
- Upcoming events nearby
- Hidden attractions nearby
- Photo spots nearby
- Nearby facilities (toilets, defibrillator, stations)
- Virtual travel assistant (chatbot)
- Local hazards (e.g. weather)
- Shared mobility nearby (bikes, scooters)
- Analytics of your own trips

Money / time

- Skip-the-line access to sights/transport
- Free fast internet access
- Redeem coupons/vouchers nearby
- Shops nearby giving a small gift
- Discounts on local attractions/events
- Discounts on local transport
- Daily 1 CHF/EUR credit to card



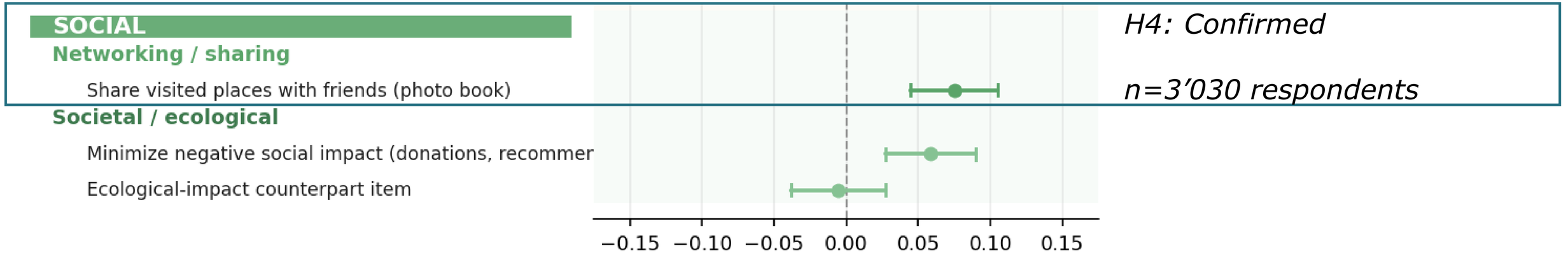
H3: Confirmed for most features. US residents assign lower importance to Money and Time incentives.

n=3'030 respondents

Regression models used:

$Attractive_i = \alpha_0^k + \alpha_1^k \cdot US_i + u_i$, estimated separately for each feature k = 1, …, 28,

Results H4: Networking/sharing Feature: Differences between US and Germany/Switzerland



Regression models used:

$\text{Attractive}_i = \alpha_0^k + \alpha_1^k \cdot \text{US}_i + u_i$, estimated separately for each feature k = 1, …, 28,

Practical Recommendations

Inspiration/download stage: Money-related features are the most attractive across all countries studied; promoting these benefits (money- and time-related) before download is likely to increase adoption among Swiss and German residents specifically

Consent point (data collection bias): US residents show higher acceptance of sharing geolocation data and location-based notifications than Swiss/German residents — destination managers relying on app data should expect US residents to be overrepresented in the sample, and should communicate the value exchange (data use + concrete benefit) clearly to counter this bias

General principles for the well-being of the visitors

- **Consent architecture:** For the well-being of the visitor, privacy protection, trustworthiness, and perceived value should be designed as complementary elements, not as trade-offs against each other
- **In-app usage:** A modular, preference-based incentive architecture is recommended (letting users choose benefit types: practical information, discounts/time-saving, entertainment/discovery, social functions); hedonic/gamification features should be opt-in only, since they're attractive to US respondents but show high rejection rates overall (Kano results)

Limitations and questions for further research

Limitations:

- Country of residence is used as a proxy for culture; the study cannot demonstrate that national culture or a specific dimension (e.g., uncertainty avoidance) actually explains the observed differences
- The three country samples were collected via different panel providers and at different times in 2024 (Switzerland → Germany → US), so panel, temporal, and seasonal effects cannot be fully ruled out
- The study measures stated acceptance (intention), not actual disclosure behavior — respondents were not required to activate geo-tracking in a real application

Questions for further research:

- Do individual-level cultural measures (e.g., uncertainty avoidance, self-construal) statistically account for the differences currently attributed to country of residence?
- How do the observed acceptance patterns translate into actual behavior in a real-world field experiment with an operational geolocation opt-in?
- How do country-of-residence effects interact with demographic, psychological, and situational factors (age, travel experience, tech experience, privacy sensitivity, prior app use)?

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www.resilienttourism.ch



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Confederaziun svizra

Swiss Confederation

Innosuisse – Swiss Innovation Agency

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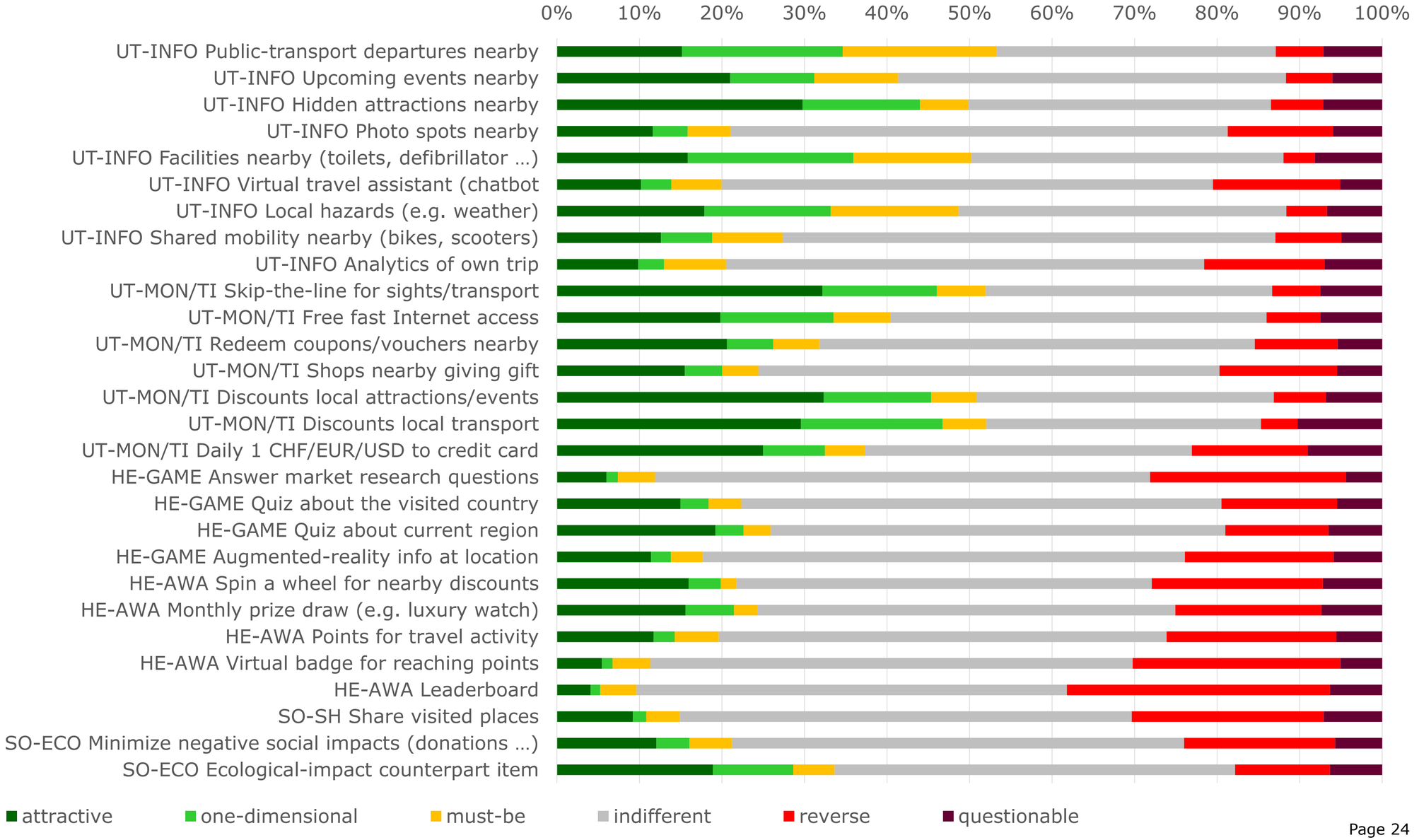
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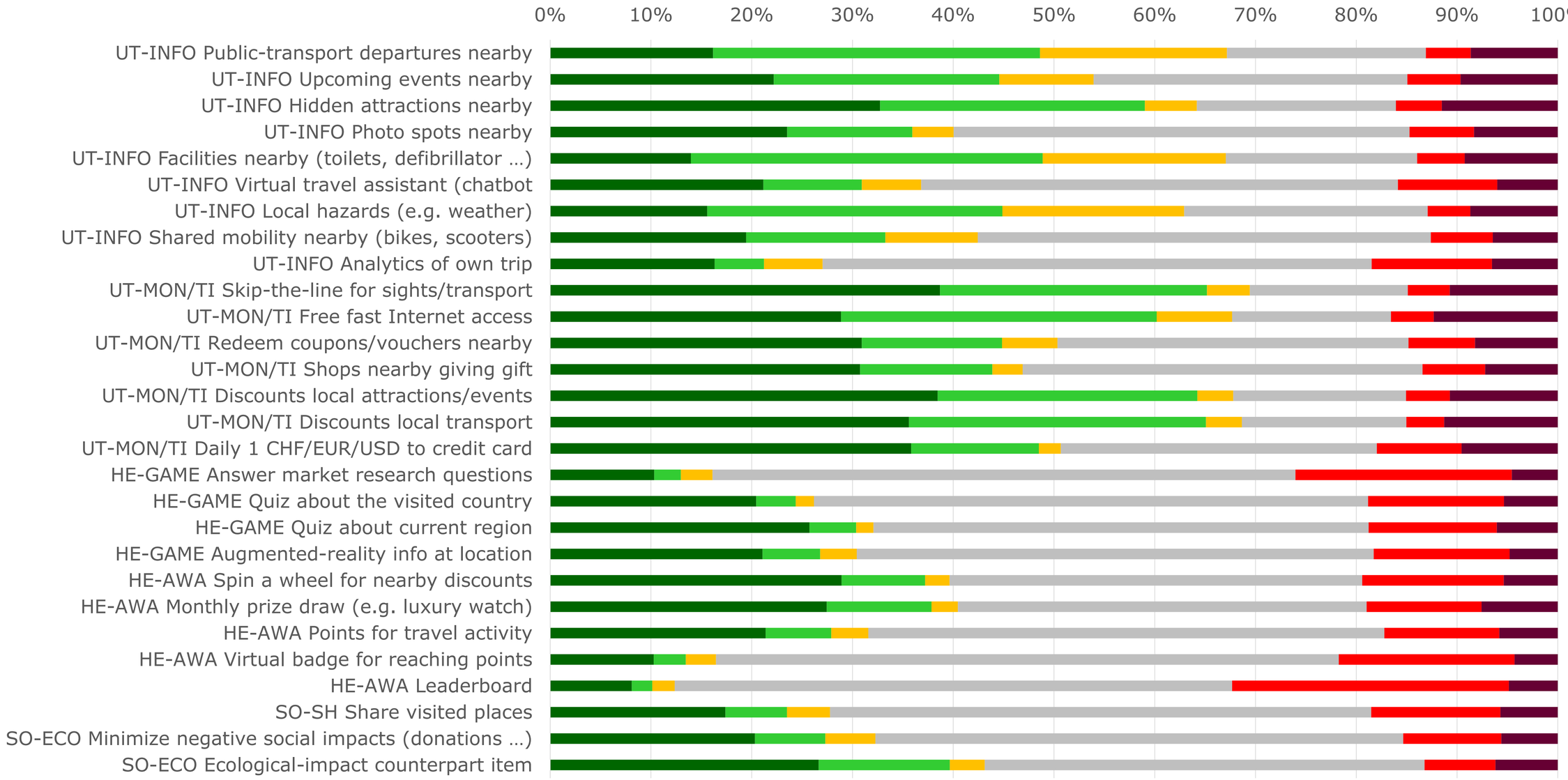
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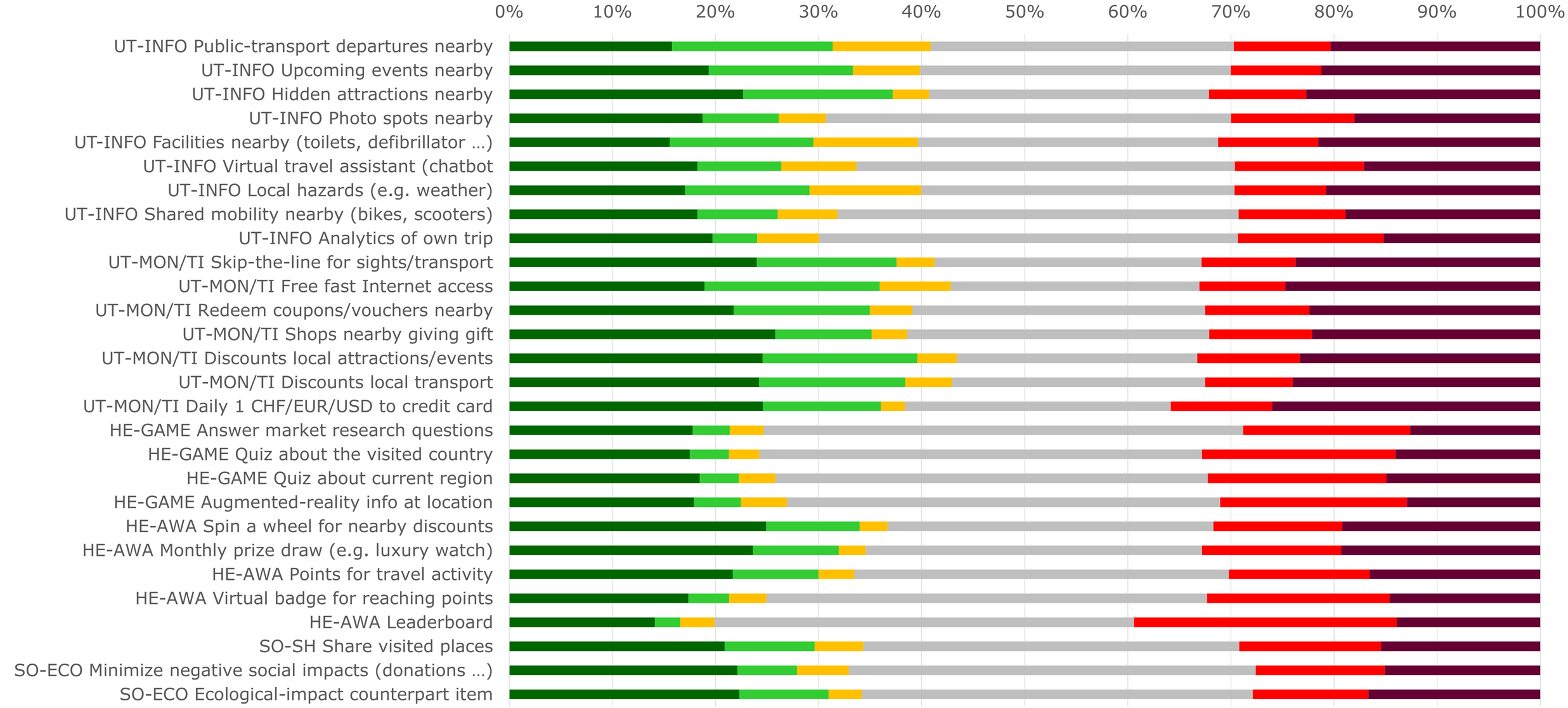
Results CH:


0%
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80%
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UT-INFO Upcoming events nearby
UT-INFO Hidden attractions nearby
UT-INFO Photo spots nearby
UT-INFO Facilities nearby (toilets, defibrillator …)
UT-INFO Virtual travel assistant (chatbot
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UT-INFO Shared mobility nearby (bikes, scooters)
UT-INFO Analytics of own trip
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UT-MON/TI Free fast Internet access
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UT-MON/TI Shops nearby giving gift
UT-MON/TI Discounts local attractions/events
UT-MON/TI Discounts local transport
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questionable

Results US:


0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
UT-INFO Public-transport departures nearby
UT-INFO Upcoming events nearby
UT-INFO Hidden attractions nearby
UT-INFO Photo spots nearby
UT-INFO Facilities nearby (toilets, defibrillator …)
UT-INFO Virtual travel assistant (chatbot
UT-INFO Local hazards (e.g. weather)
UT-INFO Shared mobility nearby (bikes, scooters)
UT-INFO Analytics of own trip
UT-MON/TI Skip-the-line for sights/transport
UT-MON/TI Free fast Internet access
UT-MON/TI Redeem coupons/vouchers nearby
UT-MON/TI Shops nearby giving gift
UT-MON/TI Discounts local attractions/events
UT-MON/TI Discounts local transport
UT-MON/TI Daily 1 CHF/EUR/USD to credit card
HE-GAME Answer market research questions
HE-GAME Quiz about the visited country
HE-GAME Quiz about current region
HE-GAME Augmented-reality info at location
HE-AWA Spin a wheel for nearby discounts
HE-AWA Monthly prize draw (e.g. luxury watch)
HE-AWA Points for travel activity
HE-AWA Virtual badge for reaching points
HE-AWA Leaderboard
SO-SH Share visited places
SO-ECO Minimize negative social impacts (donations …)
SO-ECO Ecological-impact counterpart item
attractive
one-dimensional
must-be
indifferent
reverse
questionable