

II. DATA SCIENCE COMPETITION

Exploratory Analysis of MORGENS Hotel Booking
Efficiency and Marketing Data Enhancement

Created by: Gabor NAGYMANYAI

Organized by: Data36.com

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1 – Key Objectives

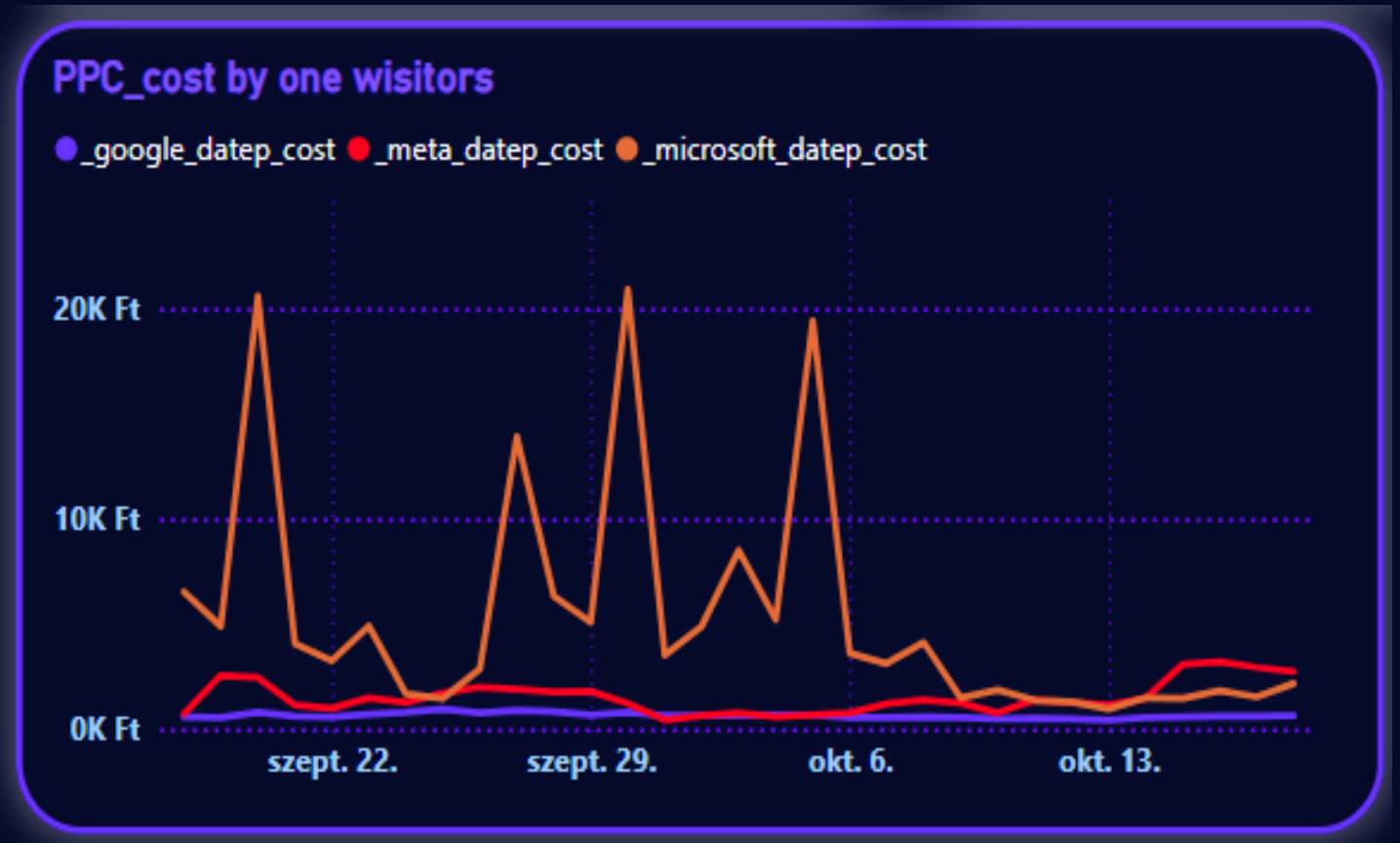
Processing and analyzing the anonymized real dataset provided by MORGENS, focusing on hotel marketing and booking data to explore opportunities for optimizing and maximizing hotel reservations.

2 – Findings & Insights,

2.1 – PPC cost analyzing + *Appendix*

The cost per visitor for PPC advertising shows that Google maintains consistently low levels, whereas Meta and Microsoft exhibit significant volatility.

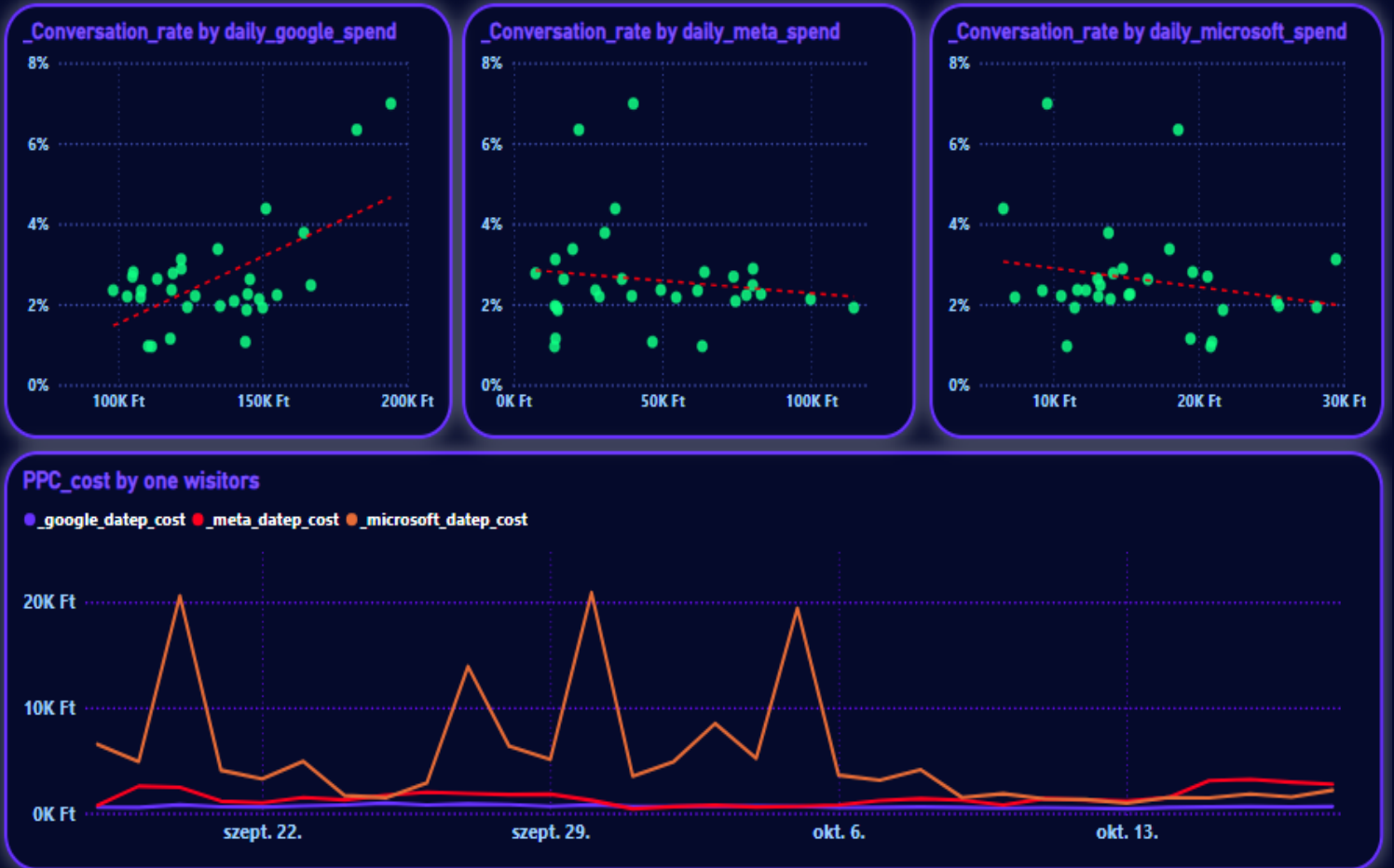
A relevant appendix is provided at the end of the presentation.



2 – Findings & Insights,

2.1 – PPC cost analyzing

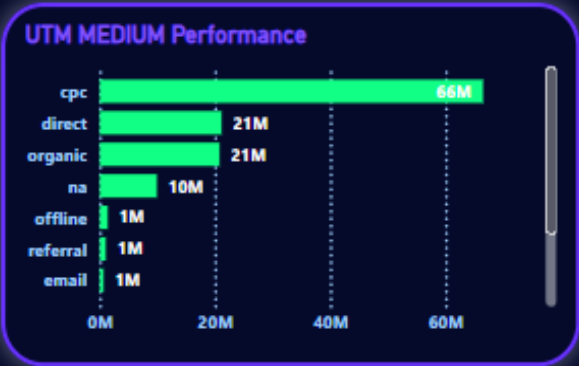
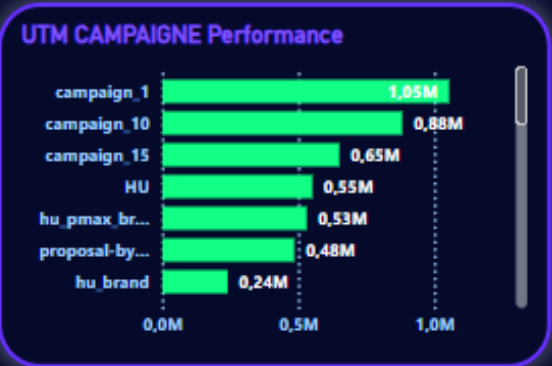
It is clearly visible that despite its consistently low cost level, Google achieves the highest conversion rate compared to Meta and Microsoft media.



2 – Findings & Insights,

2.2 – Analysis of UTM and Marketing data performance

The cost analysis clearly highlights which marketing channels generated the highest revenue.



utm_campaign	_count_of_BD_paid	Sum of total_price_final_HUF
campaign_1	6	1 053 625 Ft
campaign_10	3	881 193 Ft
campaign_15	4	649 976 Ft
HU	4	551 181 Ft
hu_pmax_brand	4	530 154 Ft
proposal-by-phone	2	484 768 Ft
hu_brand	3	239 689 Ft
hirleveLc6	2	187 168 Ft
AT	1	95 400 Ft
campaign_5	1	75 397 Ft
campaign_11		0 Ft
campaign_12		0 Ft
campaign_14		0 Ft
campaign_16		0 Ft
Total	30	4 748 551 Ft

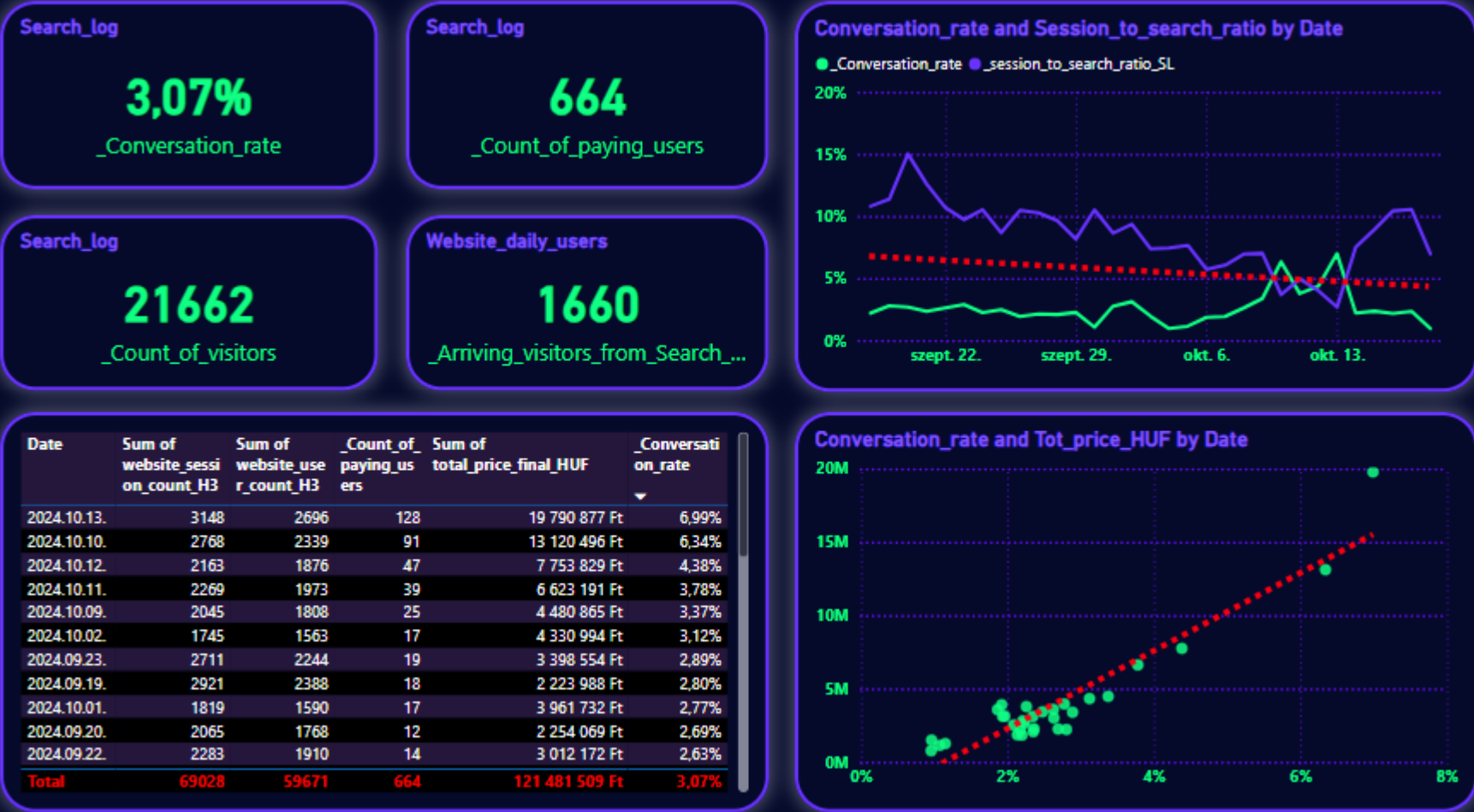
_sls_utm_medium_d	_count_of_BD_paid	Sum of total_price_final_HUF
cpc	379	66 468 973 Ft
direct	108	21 117 811 Ft
organic	106	20 766 270 Ft
na	50	9 893 943 Ft
offline	5	1 365 961 Ft
referral	7	1 031 407 Ft
email	4	649 976 Ft
ct	2	187 168 Ft
paid		0 Ft
teszt		0 Ft
Total	661	121 481 509 Ft

utm_source	_count_of_BD_paid	Sum of total_price_final_HUF
google	462	83 645 340 Ft
(direct)	108	21 117 811 Ft
na	50	9 893 943 Ft
microsoft	12	1 974 858 Ft
ajanlat	8	1 722 569 Ft
meta	7	1 141 623 Ft
live	5	561 420 Ft
saferpay	3	406 711 Ft
otpbankdirekt	1	295 860 Ft
email	1	293 368 Ft
hirleveLs2	2	187 168 Ft
wellcard.at	1	143 224 Ft
source_5	1	97 614 Ft
		0 Ft
app.optimonk		0 Ft
		0 Ft
Total	661	121 481 509 Ft

2 – Findings & Insights,

2.3 – Evaluation of conversion metrics and user acquisition channels

The scatter plot clearly shows that while the number of conversions above 5 million HUF is lower, their conversion rate is higher. In contrast, conversions below 5 million HUF occur more frequently but have a lower conversion rate.



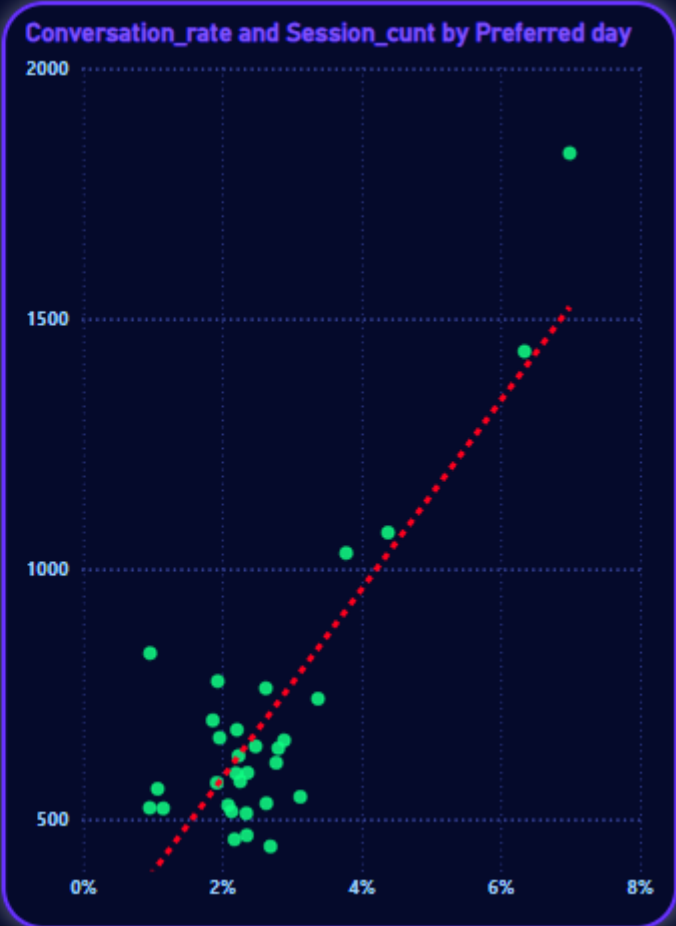
2 – Findings & Insights,

2.3 – Evaluation of conversion metrics and user acquisition channels

It is clearly visible which calendar days were the most in demand based on bookings, as well as the conversion rate during these peak periods.

Year	Month	Day	Sum of Session count
2024	October	28	590
2024	October	25	586
2024	October	18	551
2024	October	27	550
2024	November	1	540
2024	December	30	508
2024	October	20	505
2024	November	8	481
2024	November	15	452
2025	January	2	428
2024	October	26	425
2024	December	13	414
2024	October	11	379
2024	October	31	374
2024	October	13	365
2024	November	29	350
2024	November	3	307
2024	November	18	302
2024	November	22	302
2024	December	24	281
2024	December	1	278
2024	October	30	274
2024	October	19	267
2024	October	29	267
2024	November	4	266
2024	October	24	263
2024	November	11	263
Total			21662

Year	Month	Day	Sum of Session count	Sum of conversion	_search_c onversion
2025	January	28	4	1	25,00%
2025	January	14	18	4	22,22%
2025	May	24	5	1	20,00%
2025	June	22	5	1	20,00%
2025	January	29	12	2	16,67%
2025	February	3	6	1	16,67%
2025	August	31	7	1	14,29%
2025	January	25	57	8	14,04%
2025	January	17	189	25	13,23%
2025	January	9	39	5	12,82%
2025	January	23	94	12	12,77%
2025	January	24	249	29	11,65%
2025	January	11	71	8	11,27%
2025	January	12	40	4	10,00%
2025	January	18	70	7	10,00%
2024	November	27	43	4	9,30%
2025	January	16	56	5	8,93%
2025	January	13	48	4	8,33%
2025	January	6	62	5	8,06%
2025	January	8	38	3	7,89%
2025	January	10	228	18	7,89%
2025	January	5	65	5	7,69%
2024	December	3	71	5	7,04%
2024	December	18	57	4	7,02%
2024	November	24	86	6	6,98%
2024	November	5	74	5	6,76%
Total			21662	664	3,07%



2 – Findings & Insights,

2.4 – Business interpretation and analysis of search logs, - (user churn)

The hotel data highlights users who navigated from the website to the booking engine but did not complete a reservation. Additionally, the chart below illustrates the channels through which these users accessed the site.

Users who can't reach the booking engine from campaigns

utc_datetime	Sum of Session count	conversion	id	utm_campaign
2024.09.18.	1	0	129575	campaign_1
2024.09.18.	1	0	129595	campaign_1
2024.09.18.	1	0	129598	campaign_1
2024.09.18.	1	0	129611	campaign_1
2024.09.18.	1	0	129612	campaign_1
2024.09.18.	1	0	129618	campaign_1
2024.09.18.	1	0	129622	campaign_1
2024.09.18.	1	0	129623	campaign_1
2024.09.18.	1	0	129624	campaign_1
2024.09.18.	1	0	129631	hu_brand
2024.09.18.	1	0	129729	campaign_1
2024.09.18.	1	0	129733	campaign_1
2024.09.18.	1	0	129749	campaign_1
2024.09.18.	1	0	129765	campaign_1
2024.09.18.	1	0	129804	campaign_1
2024.09.18.	1	0	129805	campaign_1
2024.09.18.	1	0	129807	campaign_1
2024.09.18.	1	0	129820	hu_brand
2024.09.18.	1	0	129848	campaign_1
2024.09.18.	1	0	129862	campaign_1
2024.09.18.	1	0	129866	campaign_1
2024.09.18.	1	0	129908	campaign_1
2024.09.18.	1	0	129913	campaign_1
2024.09.18.	1	0	129914	campaign_1
2024.09.18.	1	0	129927	campaign_2
2024.09.18.	1	0	129939	campaign_1
2024.09.18.	1	0	129959	campaign_1
Total	2103			

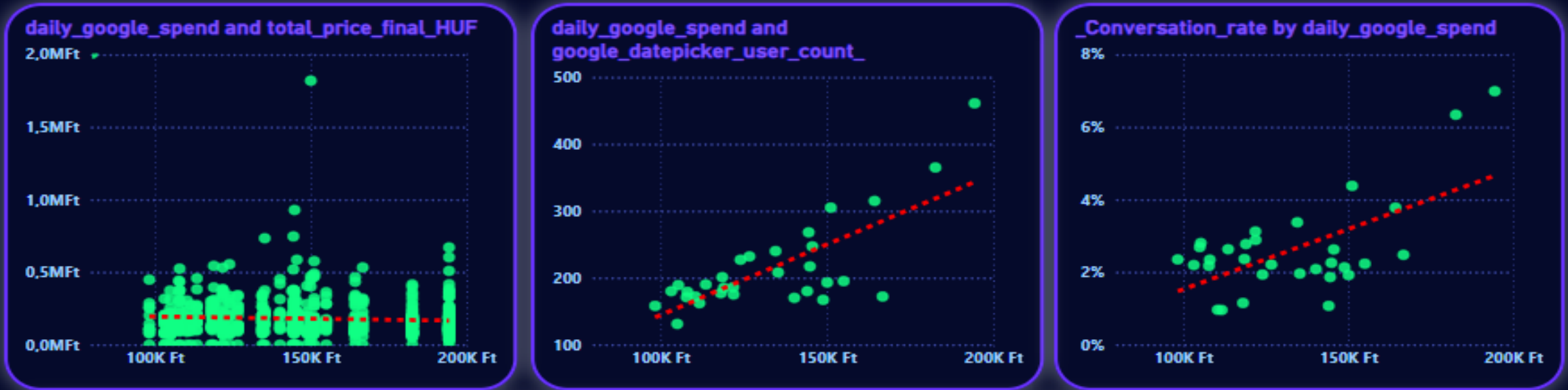
Users who can't reach the booking engine from campaigns

utc_datetime	camp aign_1	camp aign_10	camp aign_15	camp aign_2	camp aign_5	camp aign_8	hirle vel_c 1	hirle vel_c 2	hirle vel_c 4	hirle vel_c 5	hirle vel_c 6	HU	hu_b rand	hu_p max_ brand	Total
2024.10.18.	26	1	5	2				2	1			230	1	2	270
2024.10.13.	42	13	5	5							1	17	13	9	105
2024.09.25.	71			8				1				2	8		90
2024.09.26.	75			2	2			1					4		84
2024.09.23.	71	2		1		3						1	1		79
2024.09.24.	71			4	1			2				1			79
2024.09.27.	72			2	1								3		78
2024.10.12.	33	5		4						1		14	8	10	75
2024.10.10.	36	2	2	1						3		20	5	1	70
2024.09.28.	58			4		1							2		65
2024.09.22.	45			5		1		1					7		59
2024.09.18.	52			2								1	3		58
2024.09.29.	54			1										3	58
2024.10.11.	30	2	3	1						4		10	5	1	56
2024.09.30.	44			1	2								8		55
2024.09.19.	30			3	3		2					4	11		53
2024.10.14.	29	2		3								4	11	3	52
2024.10.04.	32			5	2							1	11		51
2024.10.08.	25	1	6	4								4	7	1	48
2024.10.09.	17	1		6						2		12	5	4	47
2024.10.03.	38		1			1						1	5		46
2024.09.21.	38			3									1	2	44
2024.10.07.	21	1		7					1			4	9	1	44
2024.10.17.	32			1	3					2		3	3		44
2024.10.15.	27			4	5							2	2	3	43
2024.10.01.	28	2	1	1	1								8		41
2024.09.20.	38														38
2024.10.06.	22	1		2			1					6	5		37
Total	1240	36	32	86	10	7	3	7	2	13	230	110	154	40	1970

3 – Strategic Recommendations

- 1 – Further analysis and optimization of Meta and Microsoft PPC advertising costs.
- 2 – Retaining users from successful marketing channels with more personalized offers, while conducting a competitive activity analysis for low-performing channels to understand why they have declined.
- 3 – Optimization of Microsoft and Meta PPC ads, as a relatively low number of visitors reach the date selector.

2.1 – Appendix, - Google PPC efficiency



Date	_cost_of_PPC_google	_google_datep_cost	_google_web_cost	_sum_of_google_dat epicker_user_count	_sum_of_google_websit e_user_count	Sum of total_price_final_HUF	Sum of conversion	_Conversation_rate
2024.10.13.	194 372,00 Ft	421,63 Ft	183,20 Ft	461,00	1 061,00	19 790 877 Ft	128	6,99%
2024.10.10.	182 586,00 Ft	500,24 Ft	199,77 Ft	365,00	914,00	13 120 496 Ft	91	6,34%
2024.10.12.	151 136,00 Ft	495,53 Ft	195,27 Ft	305,00	774,00	7 753 829 Ft	47	4,38%
2024.10.11.	164 288,00 Ft	521,55 Ft	197,22 Ft	315,00	833,00	6 623 191 Ft	39	3,78%
2024.10.09.	134 531,00 Ft	560,55 Ft	169,01 Ft	240,00	796,00	4 480 865 Ft	25	3,37%
2024.10.02.	121 842,00 Ft	655,06 Ft	179,18 Ft	186,00	680,00	4 330 994 Ft	17	3,12%
2024.10.01.	118 987,00 Ft	643,17 Ft	165,26 Ft	185,00	720,00	3 961 732 Ft	17	2,77%
2024.09.26.	150 061,00 Ft	777,52 Ft	154,54 Ft	193,00	971,00	3 913 527 Ft	11	1,92%
2024.09.29.	144 863,00 Ft	667,57 Ft	137,31 Ft	217,00	1 055,00	3 786 088 Ft	13	2,26%
2024.10.08.	145 607,00 Ft	589,50 Ft	186,92 Ft	247,00	779,00	3 588 656 Ft	20	2,62%
2024.10.06.	144 490,00 Ft	539,14 Ft	180,61 Ft	268,00	800,00	3 581 751 Ft	13	1,86%
2024.09.25.	166 705,00 Ft	969,22 Ft	224,37 Ft	172,00	743,00	3 427 584 Ft	16	2,48%
Total	4 115 376,00 Ft	621,85 Ft	167,28 Ft	6 618,00	24 601,00	121 481 509 Ft	664	3,07%

Thank you very much, for your attention