Zillow Project

Androids

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Comparison of Marketing Channels

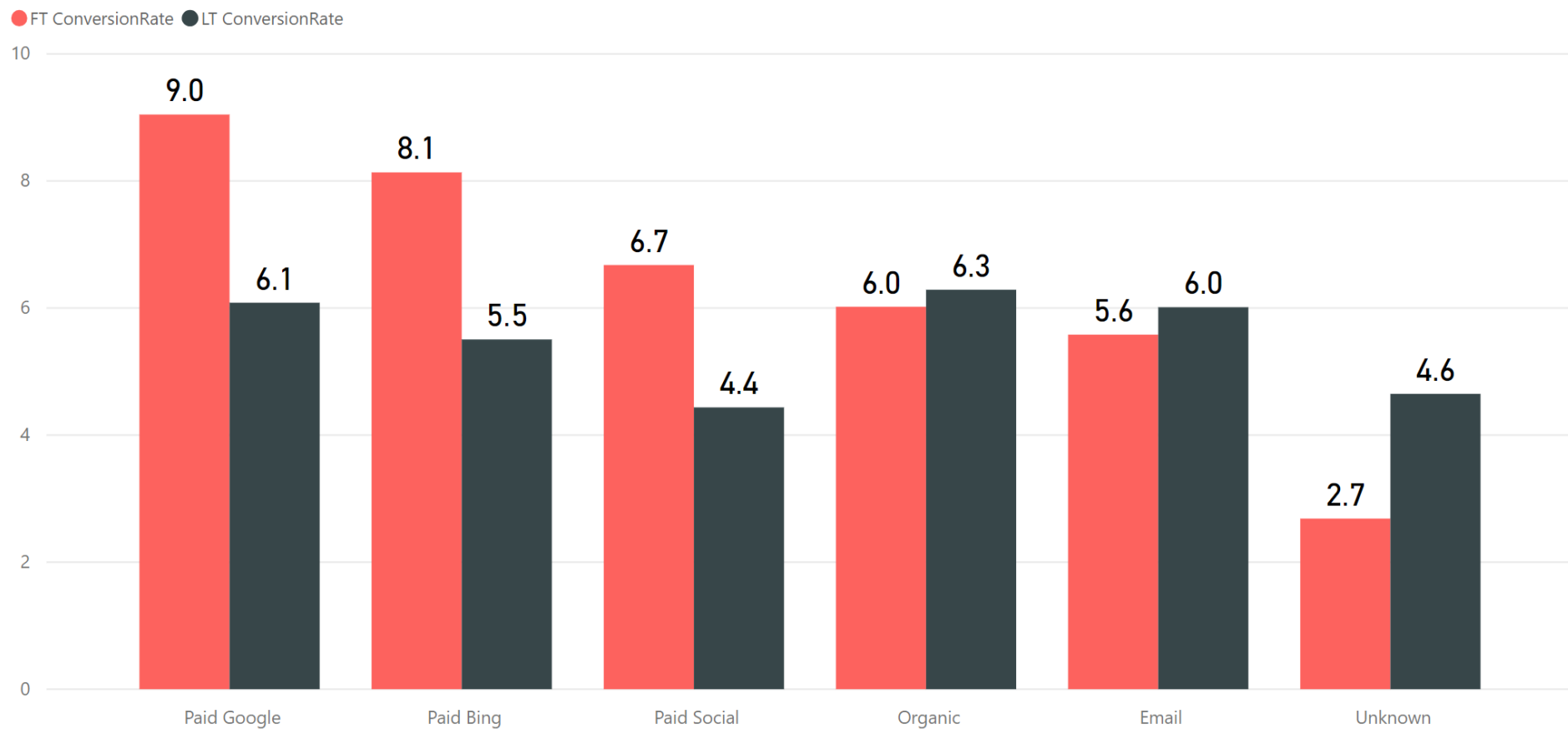Model and Explanation

Recommendations

Improvements

Comparison of First/Last Touch by Conversion Rate

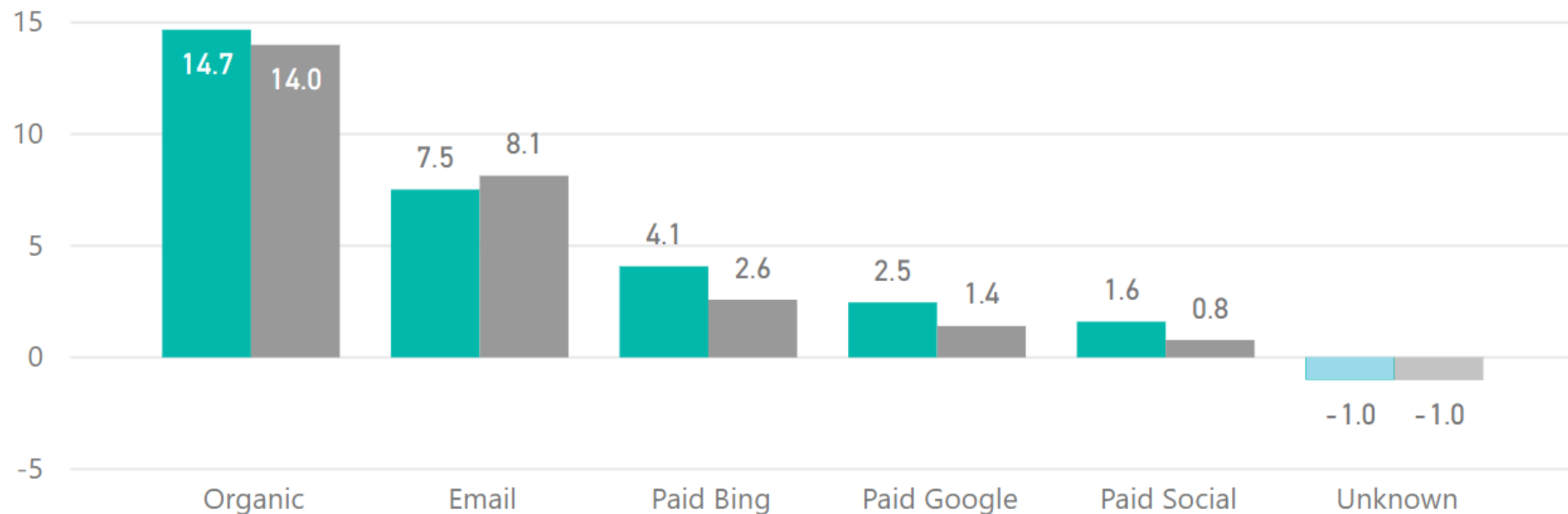First Touch and Last Touch conversion rate by channel (%)

● FT ConversionRate ● LT ConversionRate

Channel	FT ConversionRate	LT ConversionRate
Paid Google	9.0	6.1
Paid Bing	8.1	5.5
Paid Social	6.7	4.4
Organic	6.0	6.3
Email	5.6	6.0
Unknown	2.7	4.6

Comparison of First/Last Touch by ROI

ROI by Channel and Touch

Model and Explanation

	Estimate	Std. Error	P-Value	Odd ratio
(Intercept)	-1.7	0.01	0	0.18
LeadPlatformWeb	-0.07	0.01	0	0.93
ChannelOrganic	0.15	0.01	0	1.16
ChannelPaid Bing	0.27	0.04	0	1.31
ChannelPaid Google	0.53	0.02	0	1.70
ChannelPaid Social	0.30	0.01	0	1.35
ChannelUnknown	-0.91	0.01	0	0.40
TalkTimeMinutes	0.03	0.00	0	1.03
Meeting1	0.32	0.03	0	1.37

Recommendations

	First Touch		Last Touch	
	ROI	Conversion Rate (%)	ROI	Conversion Rate (%)
Organic	14.67	6.02	14.00	6.29
Email	7.52	5.58	8.14	6.01
Paid Bing	4.08	8.13	2.58	5.51
Paid Google	2.46	9.05	1.40	6.08
Paid Social	1.60	6.68	0.78	4.44
Unknown	-1.00	2.69	-1.00	4.65

Recommendations

- Overall order: Organic > Email > Google > Bing > Paid Social
- Invest less money on paid social, but select and focus on one or two vendors
- Spend more time managing social media channels
- Continue to invest in Email
- If investing in Search Engines, Google > Bing

If we had more time…

- We would try different techniques for dealing with missing values
- We'd like to see NPV of an acquired agent based on first touch attribution
- More types of attribution: linear attribution, multiple source attribution, weighted multiple source attribution
- We could consider trend and seasonality factors.
- More models could be used to compare the results
- We could see the revenue by each communication channel (call, email, or Meeting)

Appendix – Assumptions

Data filtering:

- Valid phone records are more than 0.5 min and records where AgentID or SalesID are blank are removed
- The revenue is only counted within the period of 2016-10-01 and 2017-06-30 because we do not have any leads data before that. Some agents have acquition date less than any touch

Data regrouping:

LeadType

- Organic and social organic are categorized in same group

Adding a new column 'Channel', based on…

- The leadtype first, and then look at leadvendor
- For example, when leadtype is 'email', we categorize the associate channel as 'email', no matter what leadvendor is

Joining tables:

- Joined all raw tables by REAgentID only
- To keep number of Agent IDs consistent and to avoid them being excluded by the join. This causes many duplicates, but we can remove these duplicates after the join

Appendix
First touch

Channel	Lead	Phone	Meeting	Acquired	Cost	Total NPV	ROI	Conversion Rate
Email	14370	60360	20	802	$ 753,300	$ 6,416,000	7.5	5.6
Organic	131994	375619	155	7946	$ 3,802,690	$ 59,595,000	14.7	6.0
Paid Bing	1217	3916	0	99	$ 136,520	$ 693,000	4.1	8.1
Paid Google	5030	16530	3	455	$ 920,700	$ 3,185,000	2.5	9.0
Paid Social	34492	102800	16	2303	$ 6,206,600	$ 16,121,000	1.6	6.7
Unknown	27403	187856	318	736	$ 1,973,960	0	-1	2.7

Appendix
Last touch

Channel	Lead	Phone	Meetin n	Acquired	Cost	TolNPV	ROI	Conversio nRate
Email	14370	60060	41	864	$ 756,600.00	$ 6,912,000.00	8.14	6.01
Organic	131994	409345	192	8300	$ 4,151,050.00	$ 62,250,000.00	14.00	6.29
Paid Bing	1217	3237	4	67	$ 130,930.00	$ 469,000.00	2.58	5.51
Paid Google	5030	13576	3	306	$ 891,160.00	$ 2,142,000.00	1.40	6.08
Paid Social	34492	85518	15	1530	$ 6,033,480.00	$ 10,710,000.00	0.78	4.44
Unknown	27403	175345	257	1274	$ 1,830,550.00	0	-1.00	4.65