



PENS AND PAPERS

Sales Approaches' Analysis

Context

Six weeks ago, **Pens and Papers** launched a new line of office stationery.

They used **three different sales strategies for this:**

- **Targeted email**
- **Phone calls**, and
- **Email + call.**

This report helps them understand how the sales performed during these six weeks.

André Canal

Recommendations for the sales team

Recommended Metric

Average Revenue per Customer (ARPC) by sales approach

The value of ARPC for each sales approach in the first week is as follows:

- **Call:** \$35.36,
- **Email:** \$87.56,
- **Email + call:** \$128.86.

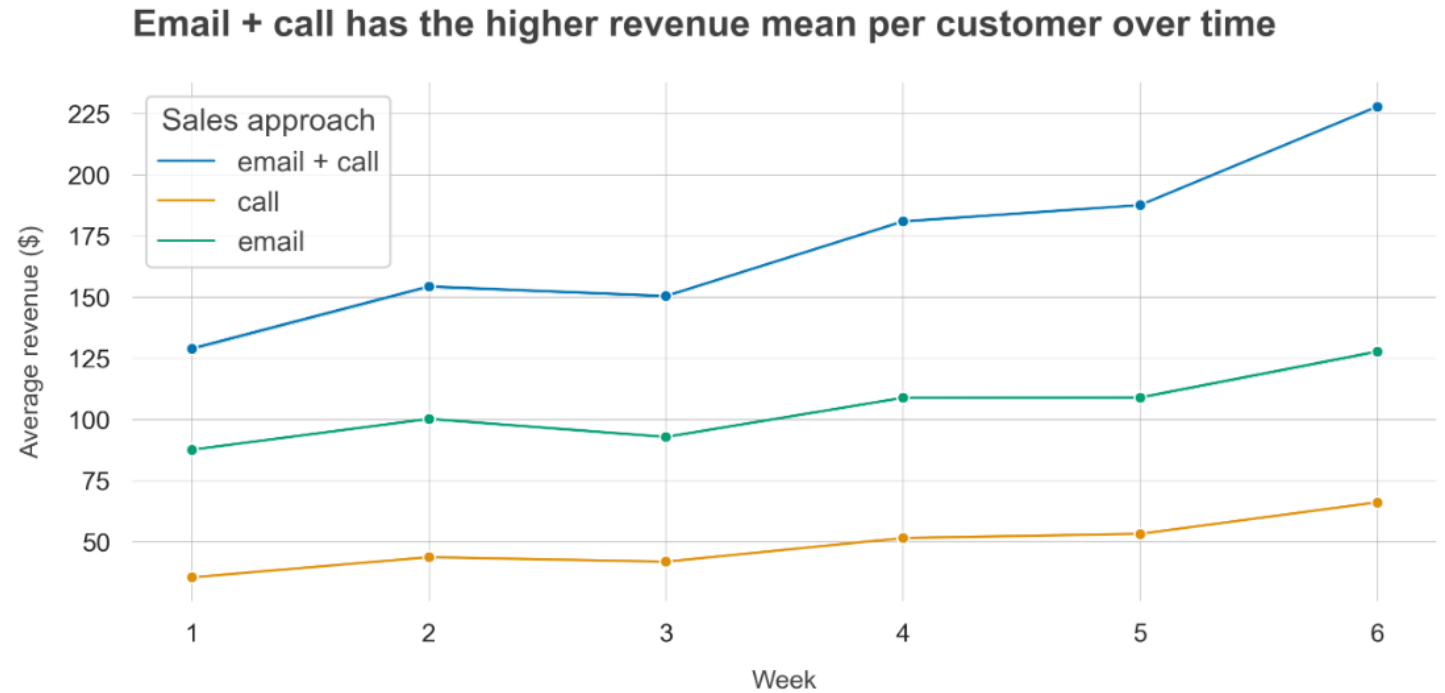


Figure 6. Mean revenue for each sales approach.

1. Data validation

Data
cleaning

Null values, typos, case
adjustments, outliers

Table 1. The original database file first ten rows.

	week	sales_method	customer_id	nb_sold	revenue	years_as_customer	nb_site_visits	state
0	2	Email	2e72d641-95ac-497b-bbf8-4861764a7097	10	NaN	0	24	Arizona
1	6	Email + Call	3998a98d-70f5-44f7-942e-789bb8ad2fe7	15	225.47	1	28	Kansas
2	5	Call	d1de9884-8059-4065-b10f-86eef57e4a44	11	52.55	6	26	Wisconsin
3	4	Email	78aa75a4-ffeb-4817-b1d0-2f030783c5d7	11	NaN	3	25	Indiana
4	3	Email	10e6d446-10a5-42e5-8210-1b5438f70922	9	90.49	0	28	Illinois
5	6	Call	6489e678-40f2-4fed-a48e-d0dff9c09205	13	65.01	10	24	Mississippi
6	4	Email	eb6bd5f1-f115-4e4b-80a6-5e67fcfbfb94	11	113.38	9	28	Georgia
7	1	Email	047df079-071b-4380-9012-2bfe9bce45d5	10	99.94	1	22	Oklahoma
8	5	Email	771586bd-7b64-40be-87df-afe884d2af9e	11	108.34	10	31	Massachusetts
9	5	Call	56491dae-bbe7-49f0-a651-b823a01103d8	11	53.82	7	23	Missouri

1. Data validation

Data
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Null values, typos, case
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Overall spread and the search for outliers

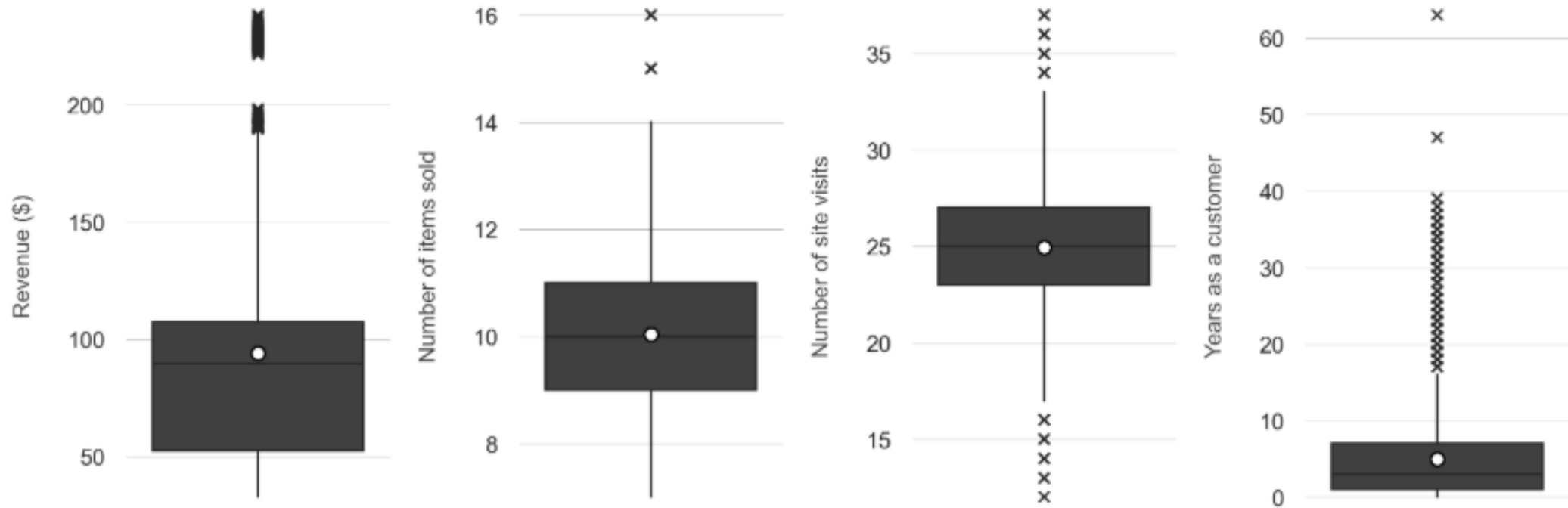


Figure 1. First look at outliers.

1. Data validation

Data
cleaning

Null values, typos, case
adjustments, outliers

Table 2. Unique and null values for the original database.

	Column	Top 5 Unique Values	Unique Values Count	Null Values Count
0	week	{1: 3721, 4: 2575, 5: 2574, 2: 2491, 3: 2411}	6	0
1	sales_method	{'Email': 7456, 'Call': 4962, 'Email + Call': 2549, 'em + call': 23, 'email': 10}	5	0
2	customer_id	{'00019f95-cd18-4a2a-aa62-512cc6b17ac5': 1, 'a907f16b-2481-4ac6-95bd-6161e15cbe08...	15000	0
3	nb_sold	{10: 3677, 9: 3535, 11: 2439, 8: 1941, 12: 1088}	10	0
4	revenue	{51.86: 11, 53.25: 10, 52.51: 10, 98.42: 9, 51.58: 9}	6744	1074
5	years_as_customer	{1: 2504, 2: 1987, 3: 1619, 0: 1471, 4: 1338}	42	0
6	nb_site_visits	{25: 1688, 26: 1645, 24: 1601, 23: 1478, 27: 1440}	27	0
7	state	{'California': 1872, 'Texas': 1187, 'New York': 965, 'Florida': 904, 'Illinois': ...	50	0

Table 3. Unique and null values after the transformation.

	Column	Top 5 Unique Values	Unique Values Count	Null Values Count
0	week	{1: 3295, 4: 2300, 5: 2261, 2: 2224, 3: 2151}	6	0
1	sales_method	{'email': 6523, 'call': 4579, 'email + call': 2091}	3	0
2	customer_id	{'00020b38-1ebb-427f-88d1-c60f3c426cfe': 1, 'a9620439-f29c-4e96-905a-2b2deb9ea535...	13193	0
3	nb_sold	{10: 3275, 9: 3184, 11: 2194, 8: 1719, 12: 918}	10	0
4	revenue	{52.51: 10, 51.86: 10, 51.91: 9, 53.25: 9, 53.69: 9}	6498	0
5	years_as_customer	{1: 2302, 2: 1809, 3: 1482, 0: 1332, 4: 1209}	17	0
6	nb_site_visits	{25: 1491, 26: 1456, 24: 1414, 23: 1316, 27: 1289}	22	0
7	state	{'california': 1645, 'texas': 1044, 'new york': 849, 'florida': 770, 'illinois': ...	50	0

Question 1: *How many customers were there for each approach?*

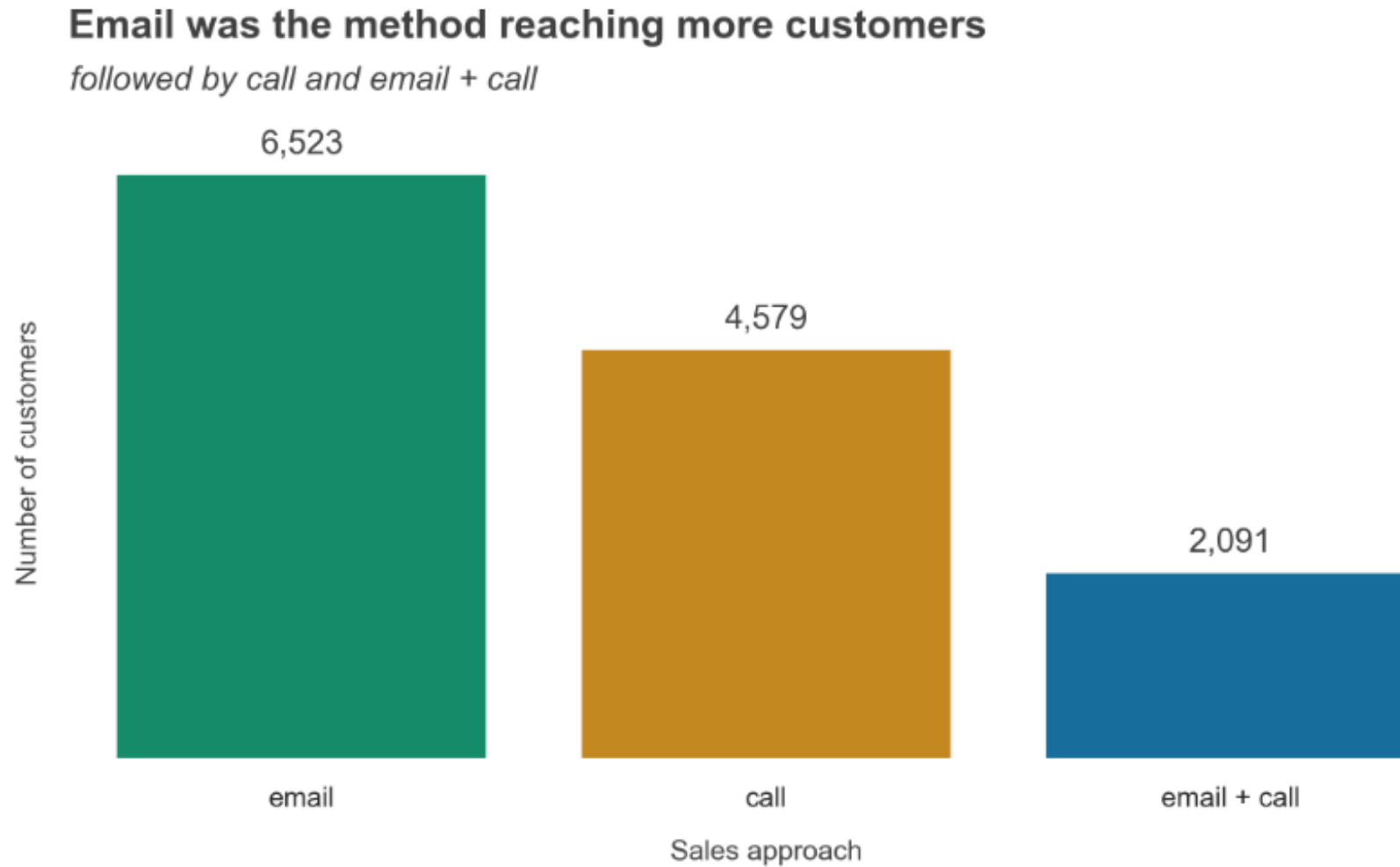


Figure 2. The number of customers reached by each method.

Question 2: *What does the spread of the revenue look like overall? And for each method?*

Density for sales measures

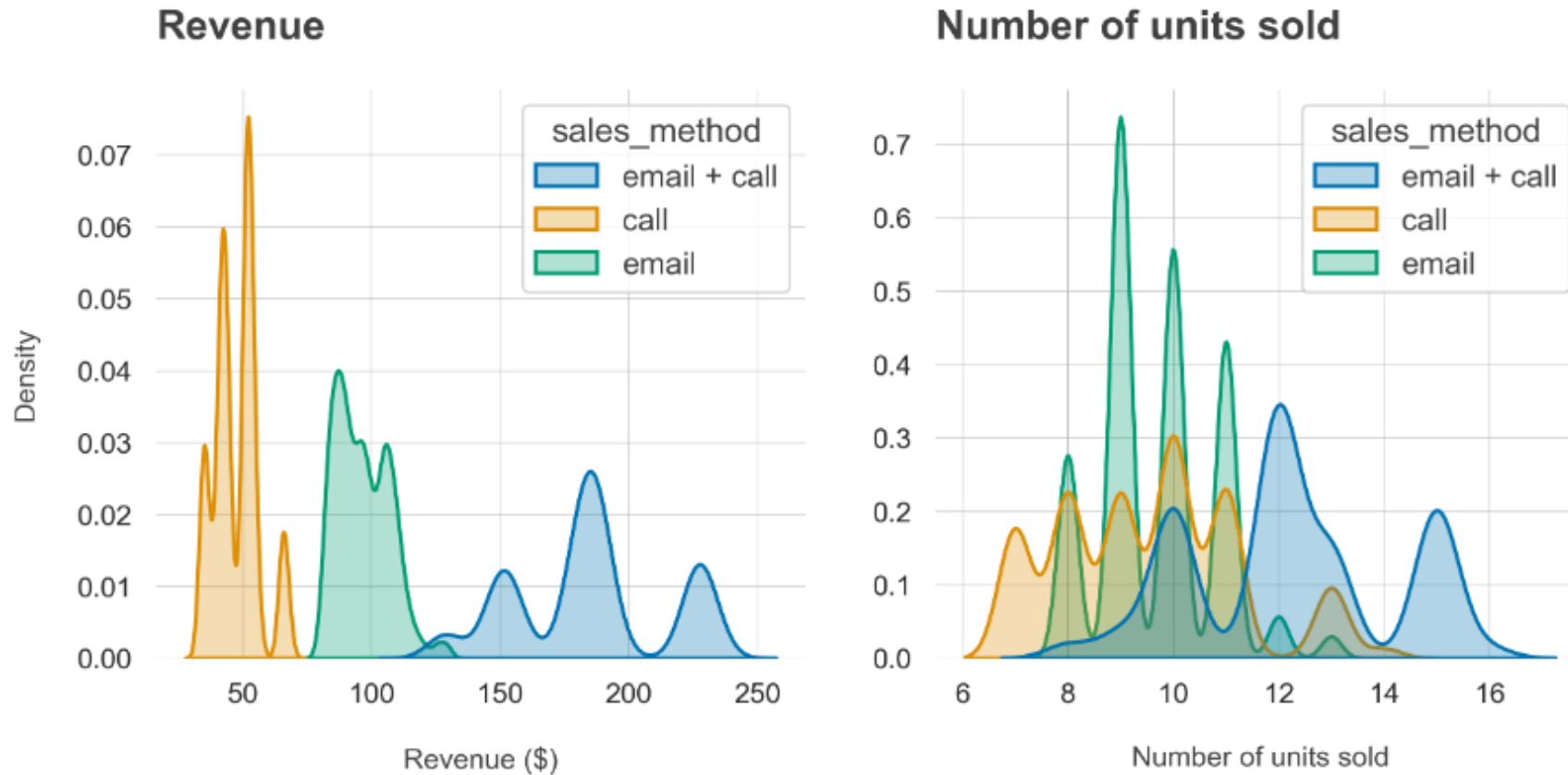


Figure 3. Density for key figures of the sales: revenue and number of units sold, grouped by the sales approach.

Question 2: *What does the spread of the revenue look like overall? And for each method?*

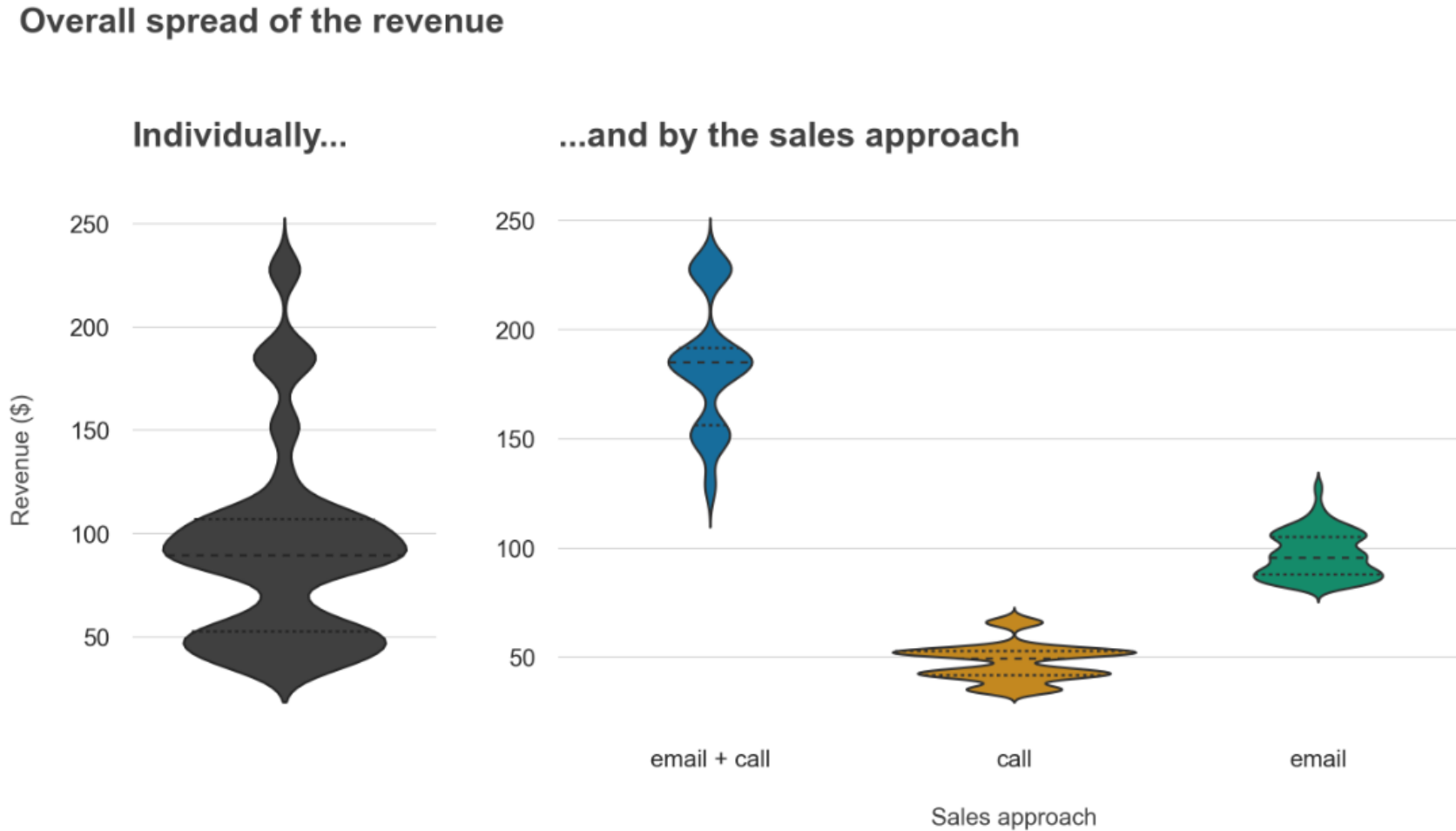


Figure 5. A violin plot to see spread and density in the same plot.

Question 2: *What does the spread of the revenue look like overall? And for each method?*

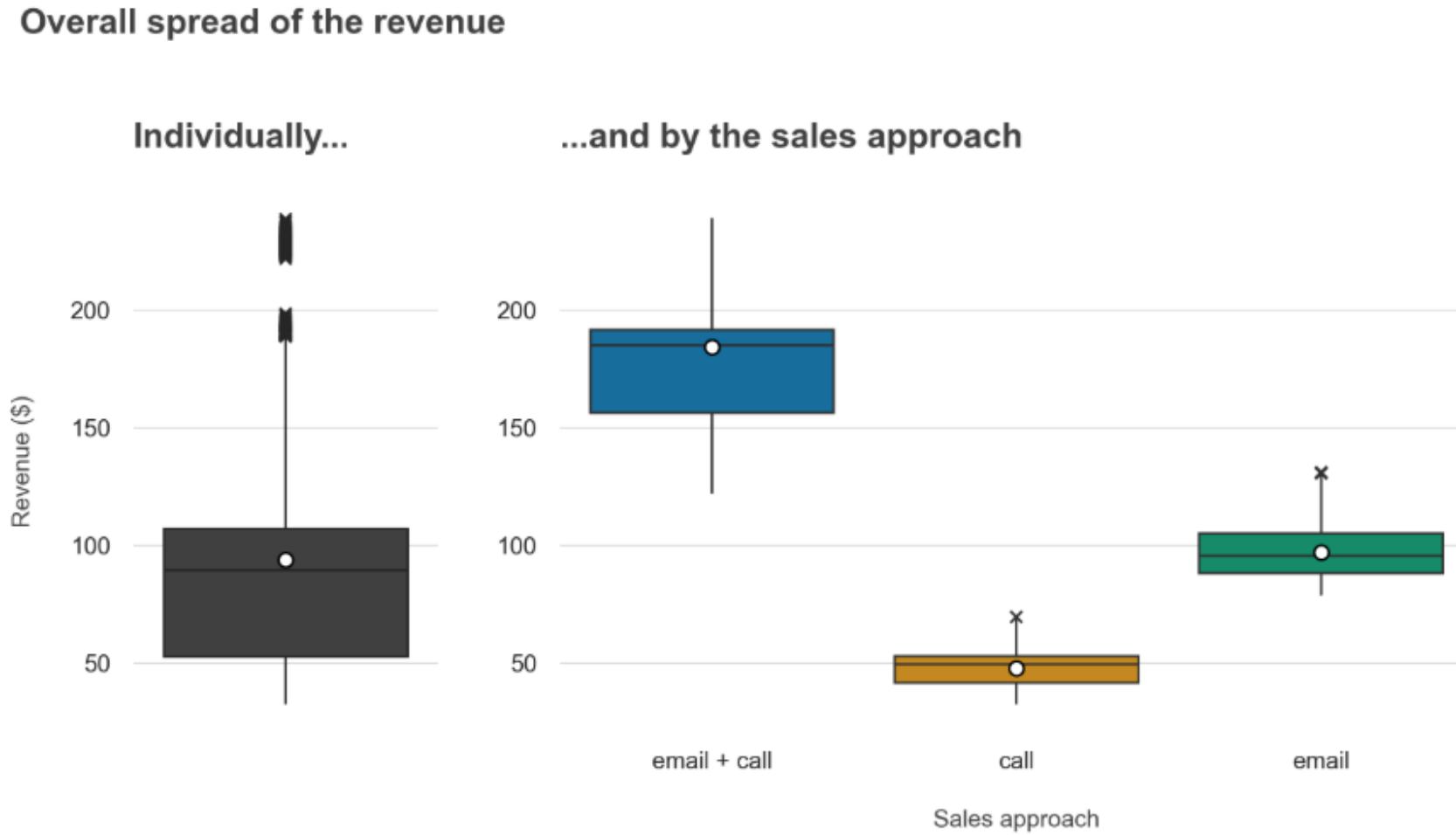


Figure 4. Spread of the revenue — alone and by each sales approach.

Question 3: *Was there any difference in revenue over time for each of the methods?*

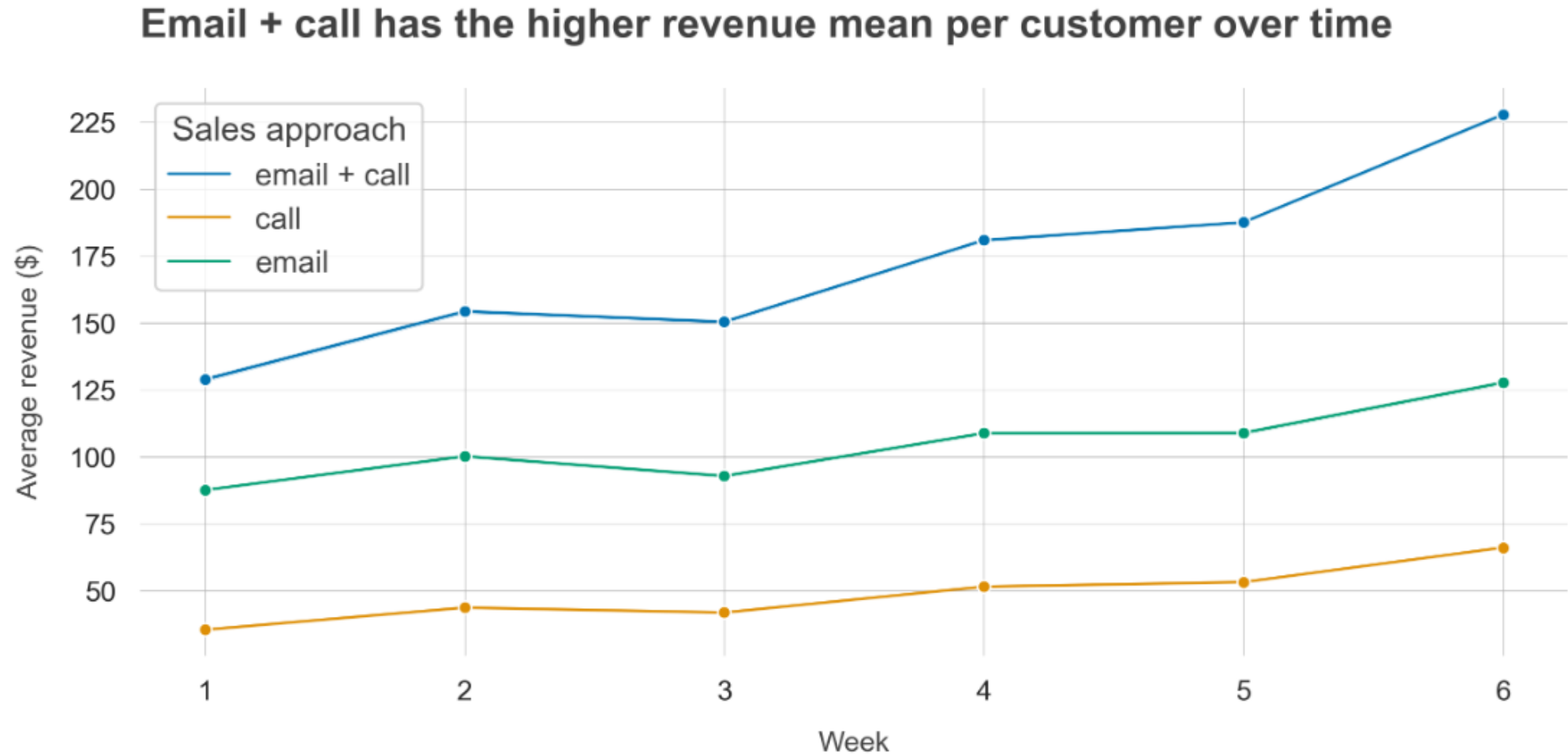


Figure 6. Mean revenue for each sales approach.