



FINAL PROJECT

# FORECAST FOR DENTISTRY

Ruban Karina





# Project concept

quarter

- I. A dental clinic with **2 dentists** was opened in the city of **N**. The services were actively promoted at prices close to the market average.
- II. Discount for the first session was added. Due to the market situation, the unchanged prices were higher than average.
- III. **3<sup>rd</sup> doctor** was hired. The discount was replaced with a referral program (a discount for every new client referred to the practice). Prices have been reduced but they still were higher than average.
- IV. **4<sup>th</sup> doctor** was hired. All discount programs were cancelled.



# Project goals and objectives

**The goal** – to develop a strategy in **Q5** to maximize profitability.

**Project objectives:**

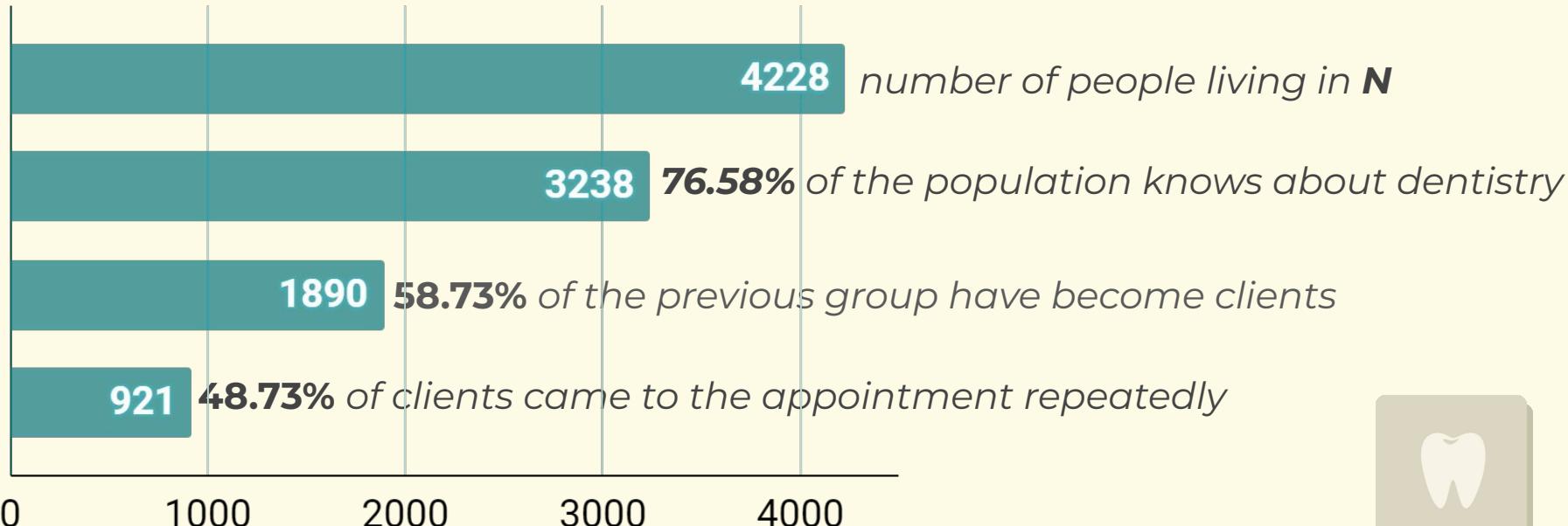
- 🦷 performing calculations and analyzing the obtained metrics;
- 🦷 preparing charts and graphs for visualizing calculations;
- 🦷 formulation and testing of hypotheses;
- 🦷 forecast of business indicators for **Q5** according to the strategy formulated on the basis of calculations and hypothesis testing.





# Source data

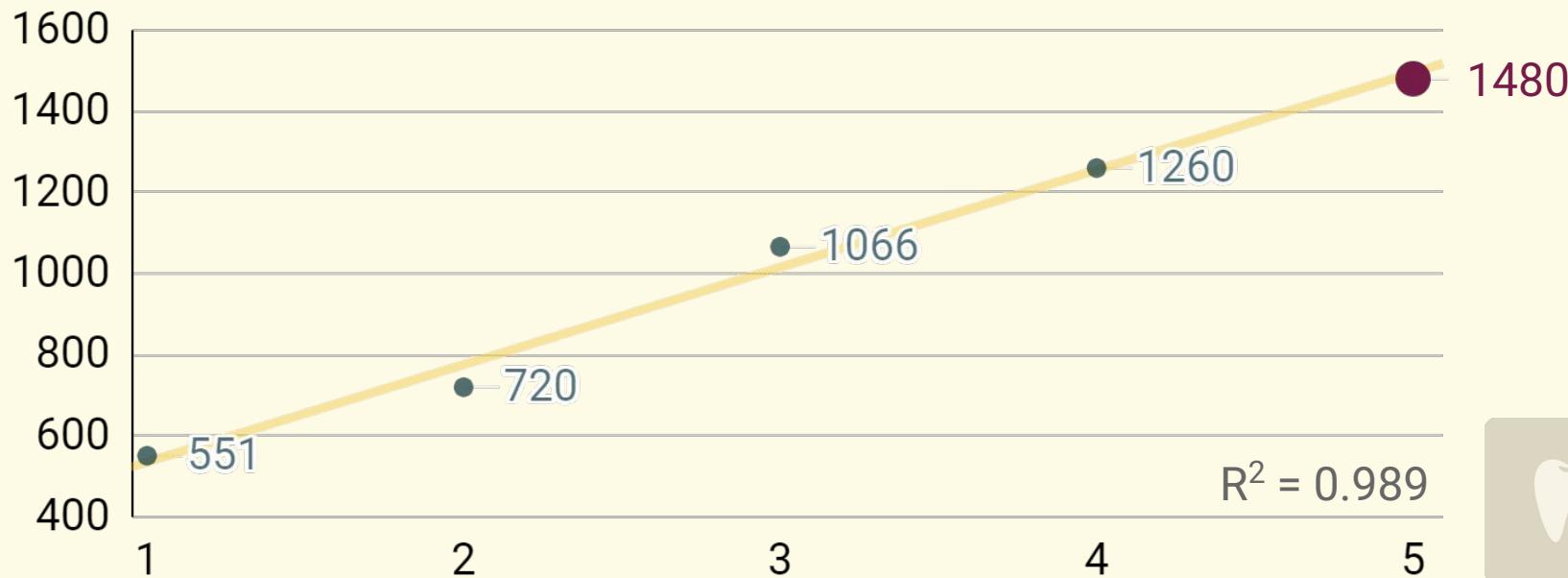
The ratio of real and potential clients to the total population:





# Source data

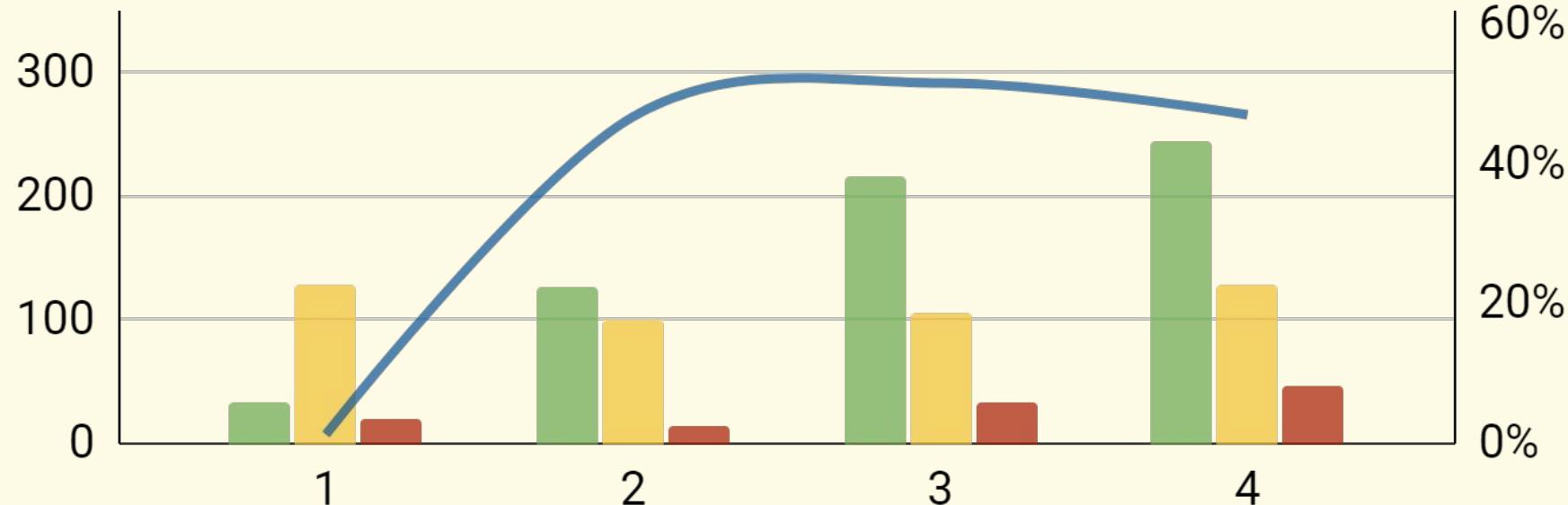
Number of sessions, depending on the quarter:





# Source data

Ratio of the average number of **promoters\***, **neutrals\***, and **detractors\*** and the **NPS\*** value depending on the quarter:

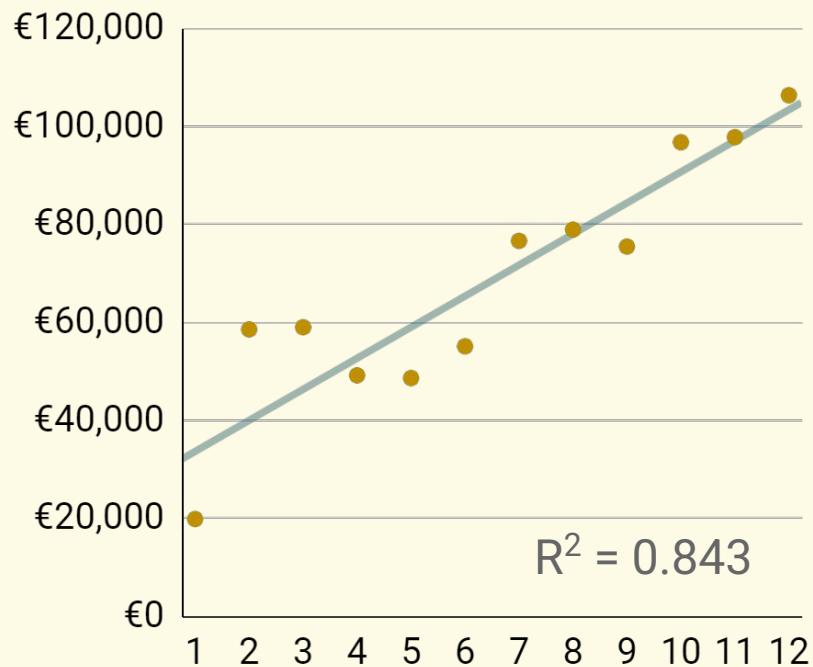


\*Net Promoter Score: \*9-10 \*7-8 \*0-6



# Source data

Revenue, depending on the period:



Costs, revenue, and total balance depending on the quarter:



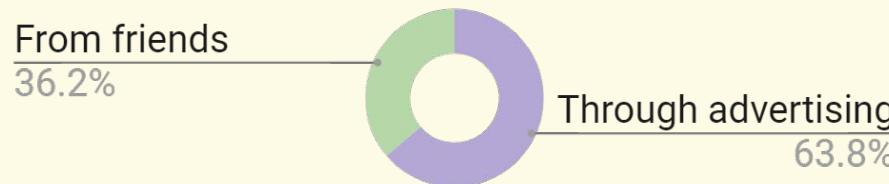


# Assessing the impact of advertising

Ratio of potential clients who found out about the clinic:



Ratio of real clients who found out about the clinic:



Correlation coefficient between the **NPS**\* and the number of attracted potential clients in different ways:

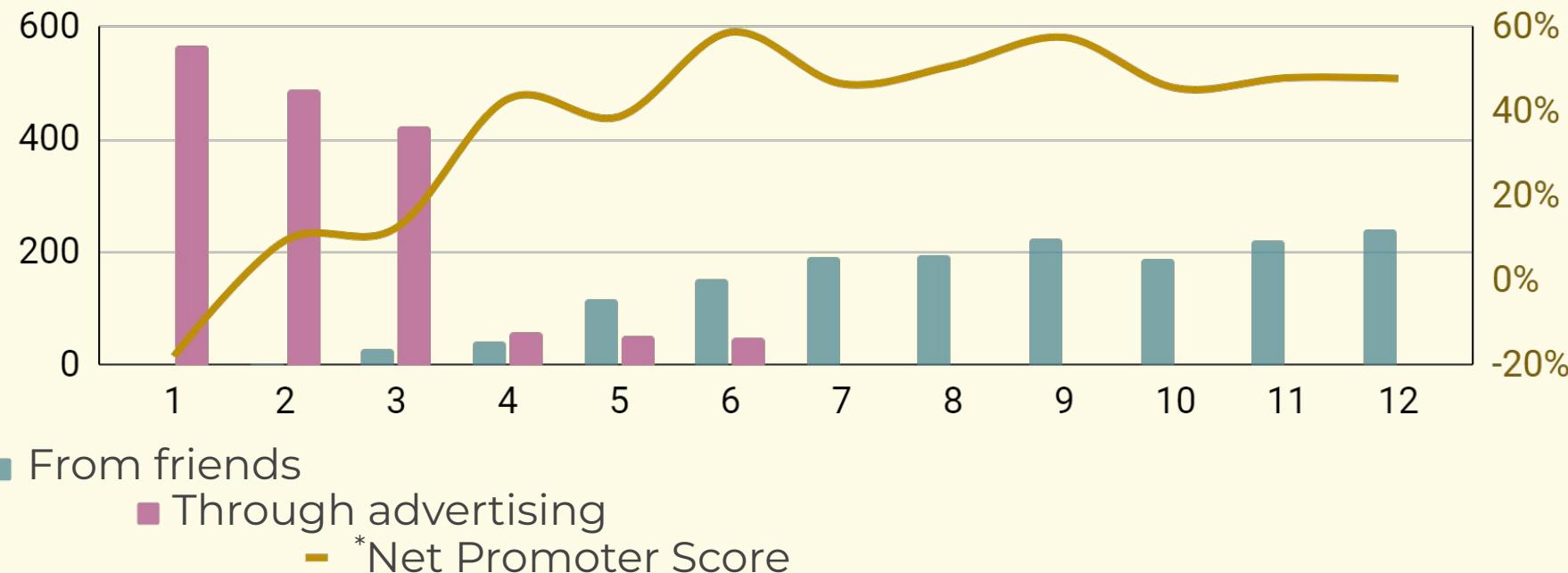
<b>From friends</b>	0.82163
<b>Through advertising</b>	-0.94479

\*Net Promoter Score



# Assessing the impact of advertising

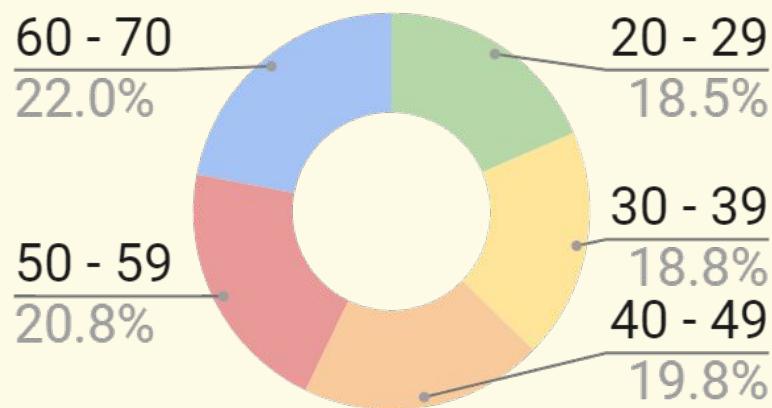
Correlation of the NPS\* with the number of potential clients who found out about dentistry:



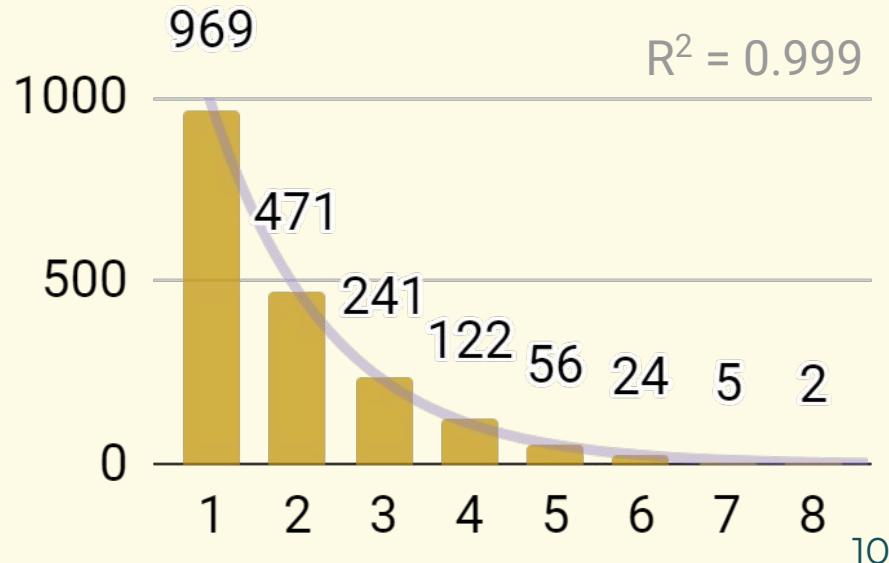


# Customer profile

Distribution of the number of clients by age:



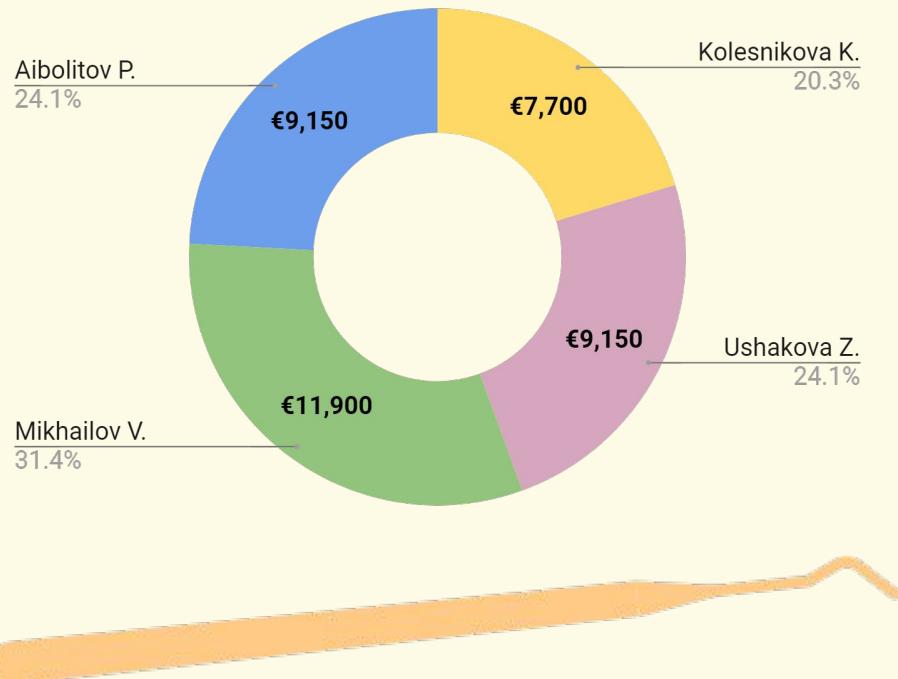
Distribution of the number of clients depending on the number of sessions:



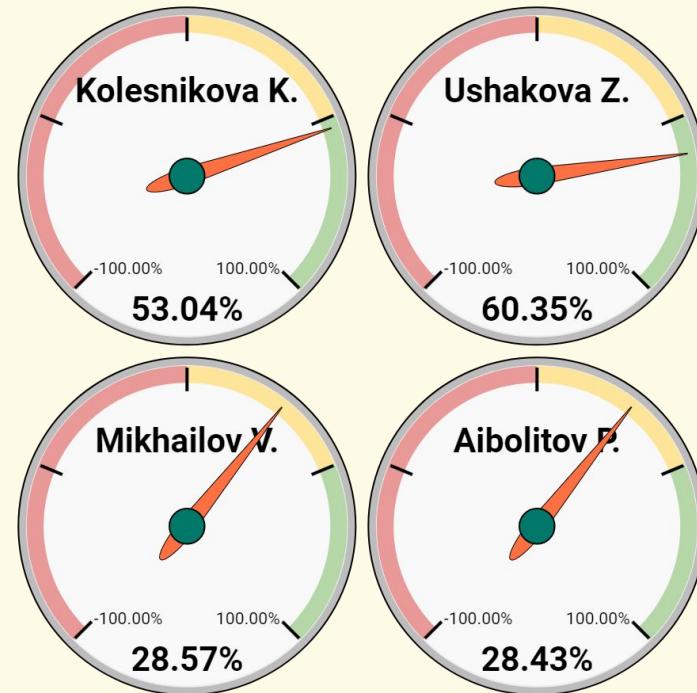


# Doctor profile

Salary expenses for doctors:



Net Promoter Score:





# Doctor profile

Doctors name	Materials	Bill	Profit	Revenue / month	CQFB*	CSFB*	CPFB*	FB*	Retention
Kolesnikova K.	€75	€236	€161	€9,061	0.32	-0.08	-0.16	0.08	-
Ushakova Z.	€88	€223	€135	€5,619	0.03	0.56	0.31	0.89	64%
Mikhailov V.	€88	€236	€148	€4,459	0.01	-0.32	-0.08	-0.40	23%
Aibolitov P.	€76	€229	€153	€7,507	0.31	-0.46	0.25	0.10	55%

\*FB - feedback:

CQFB – Client Quality FeedBack

CSFB – Client Service FeedBack

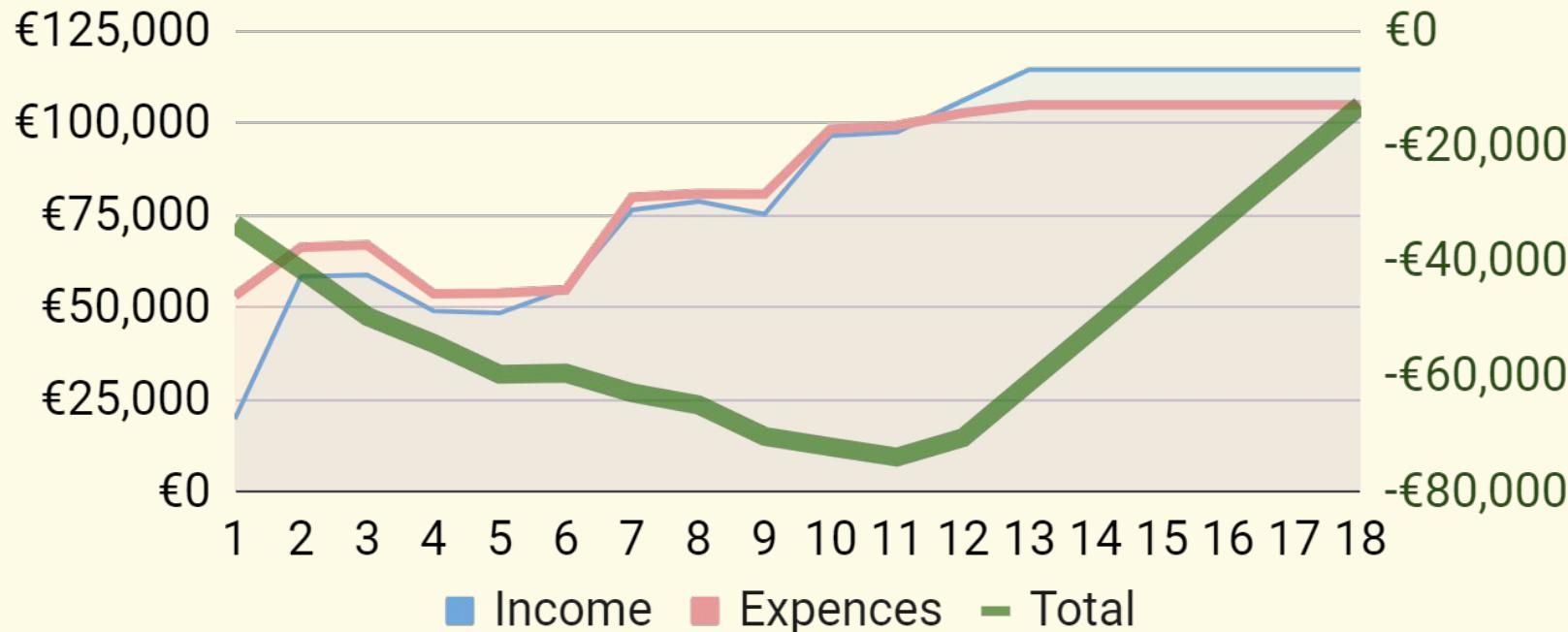
CPFB – Client Price FeedBack





# Break-even point

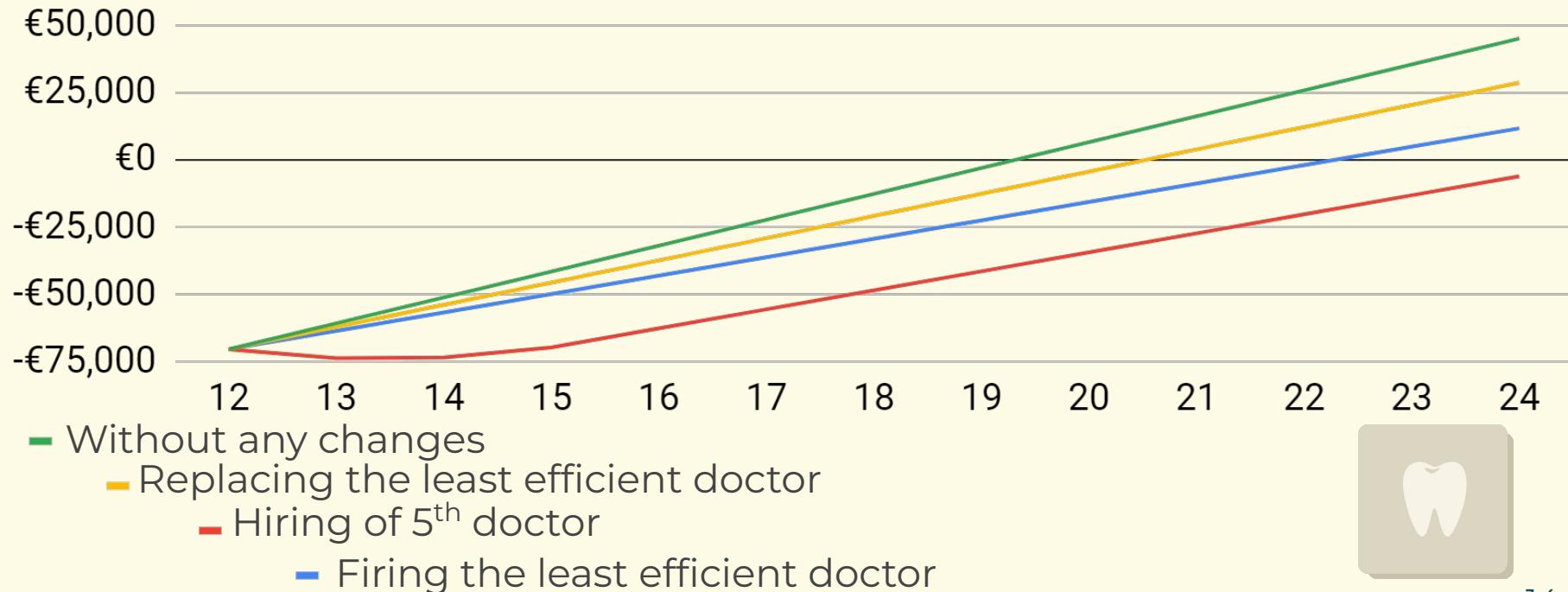
Dynamics of changes in the clinic's income, expenses, and overall balance:





# Break-even point

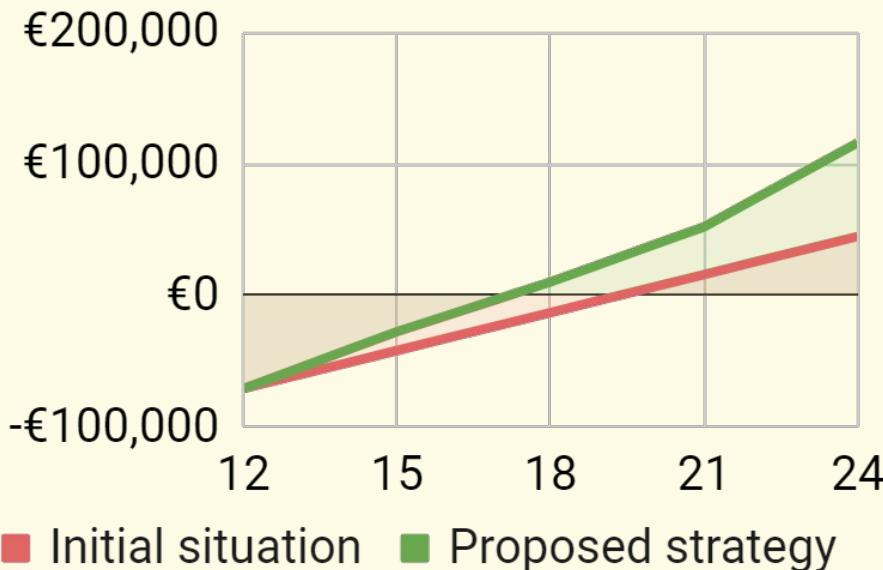
Dynamics of the overall balance of the clinic for 2 years:





# Break-even point

Overall balance of the clinic:



## Referral program

For new clients:

Consultation when paying for further treatment at the clinic for free.

For repeat clients:

Brushing teeth is free if cost of services will be more than 300€.



**Thank you  
for attention!**





## CONTACT DETAILS

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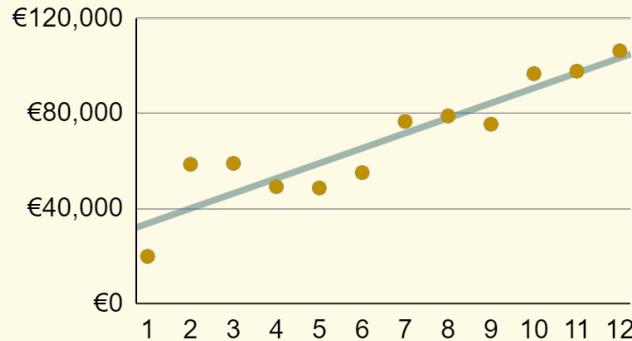
# Dashboards

(may use as printouts)

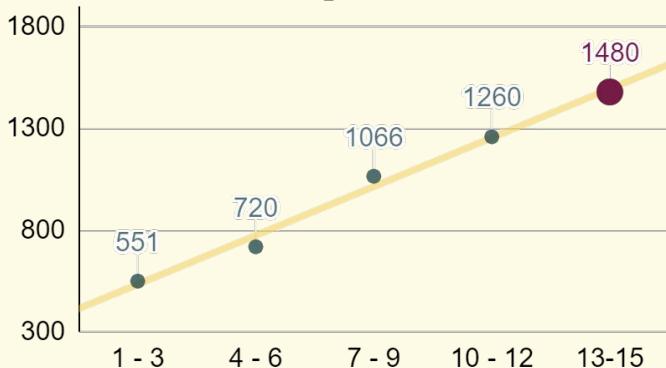
# Source data



Revenue, depending on the period



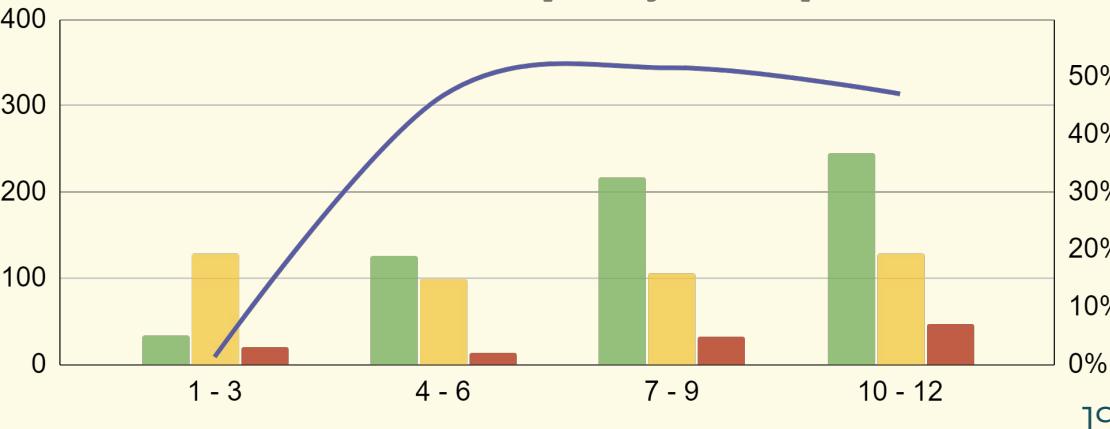
Number of sessions, depending on the quarter



Expenses, revenue, and total balance depending on the quarter



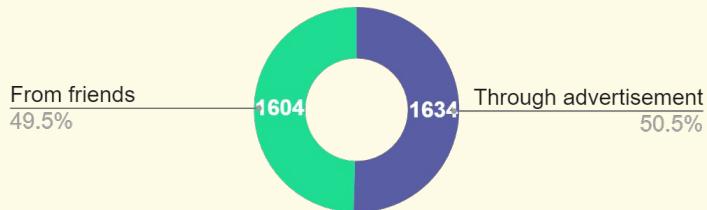
Ratio of the average number of promoters, neutrals, and detractors and the NPS value depending on the quarter



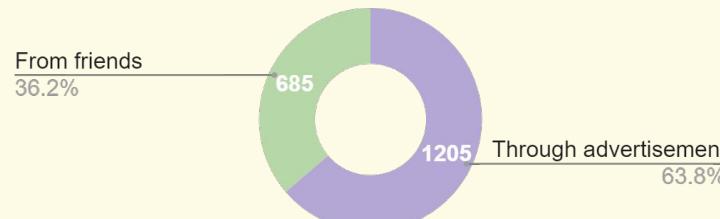
# Ad effectiveness



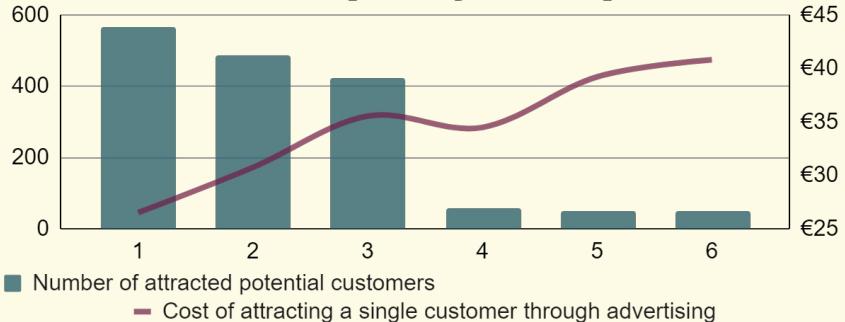
Ratio of potential clients who found out about the clinic



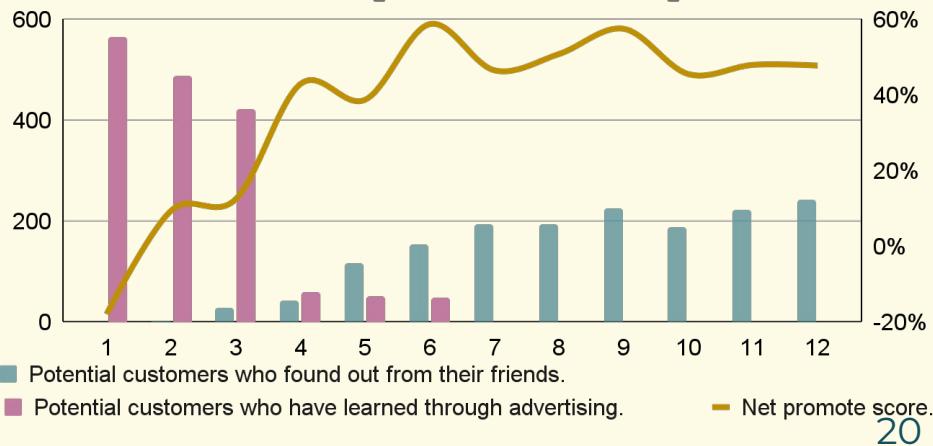
Ratio of real clients who found out about the clinic



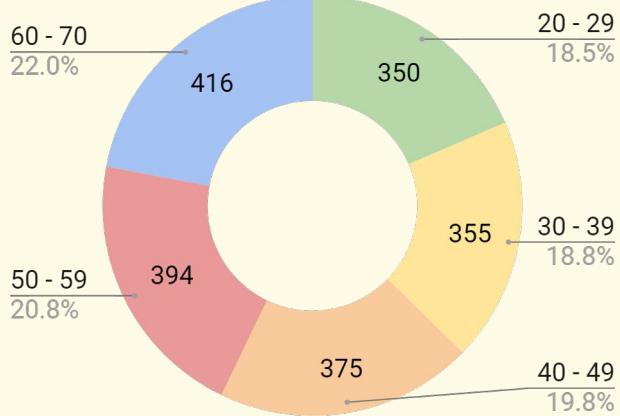
Changes in the price of attracting a customer through advertising and the number of attracted customers depending on the period



Correlation of the consumer loyalty index with the number of potential customers who learned about dentistry in different ways

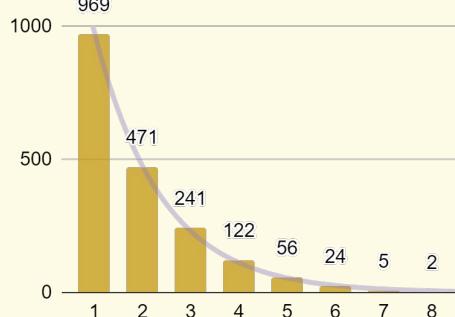


Distribution of the number of clients by age

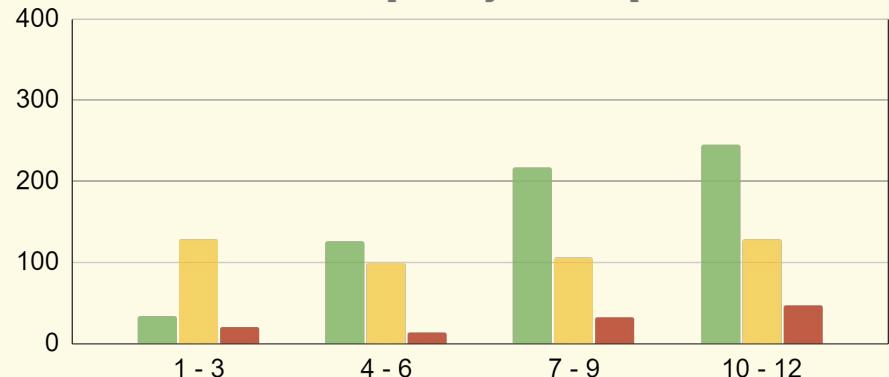


# Client profile

Distribution of the number of clients depending on the number of sessions

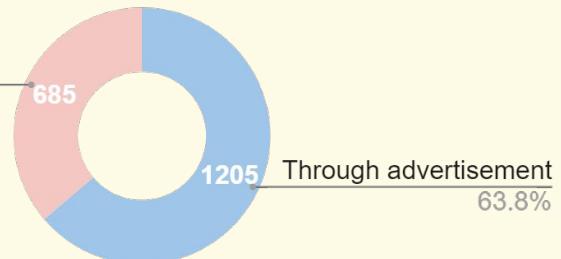


Ratio of the average number of promoters, neutrals, and detractors depending on the quarter

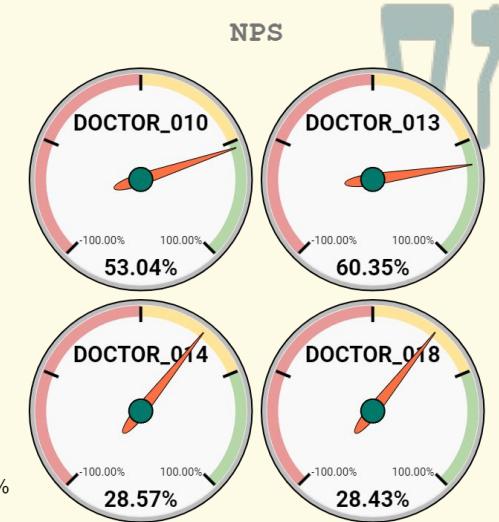
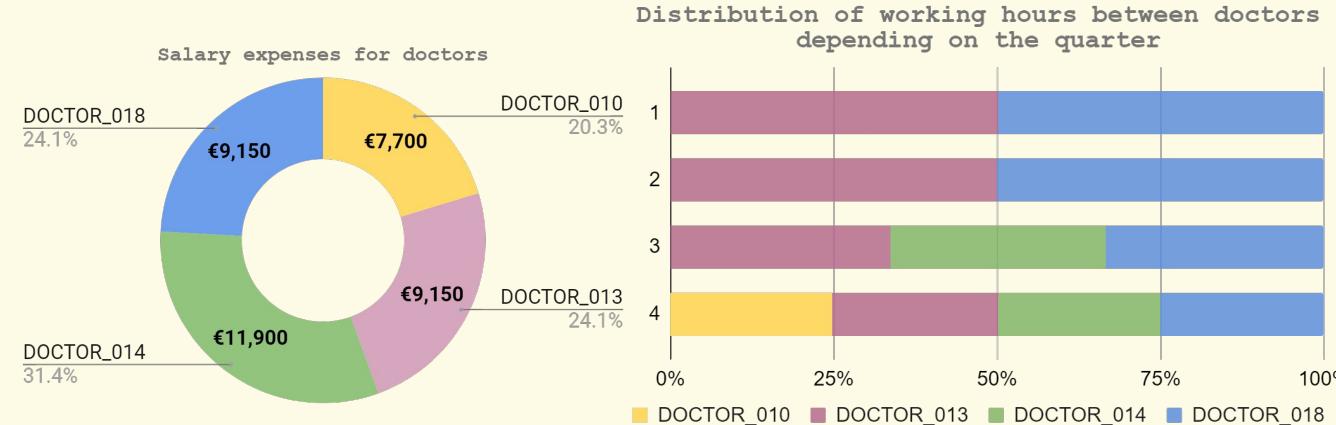


Ratio of real clients who found out about the clinic

From friends  
36.2%



# Doctor profile

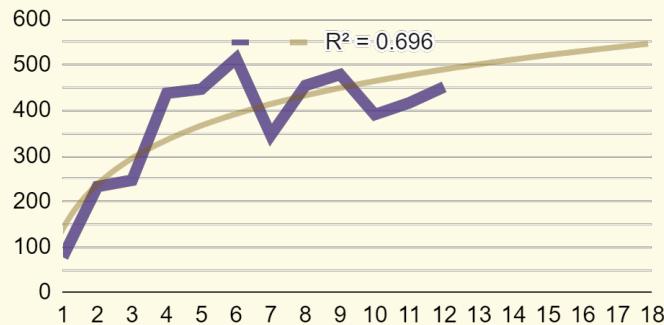


Doctors ID	Materials Bill	Profit	(Profit-Salary) per month	SQFB	CSFB	CPFB	FB	Retention
DOCTOR_010	€75	€236	€161	€9,061	0.32	-0.08	-0.16	0.08
DOCTOR_013	€88	€223	€135	€5,619	0.03	0.56	0.31	0.89
DOCTOR_014	€88	€236	€148	€4,459	0.01	-0.32	-0.08	-0.40
DOCTOR_018	€76	€229	€153	€7,507	0.31	-0.46	0.25	0.19

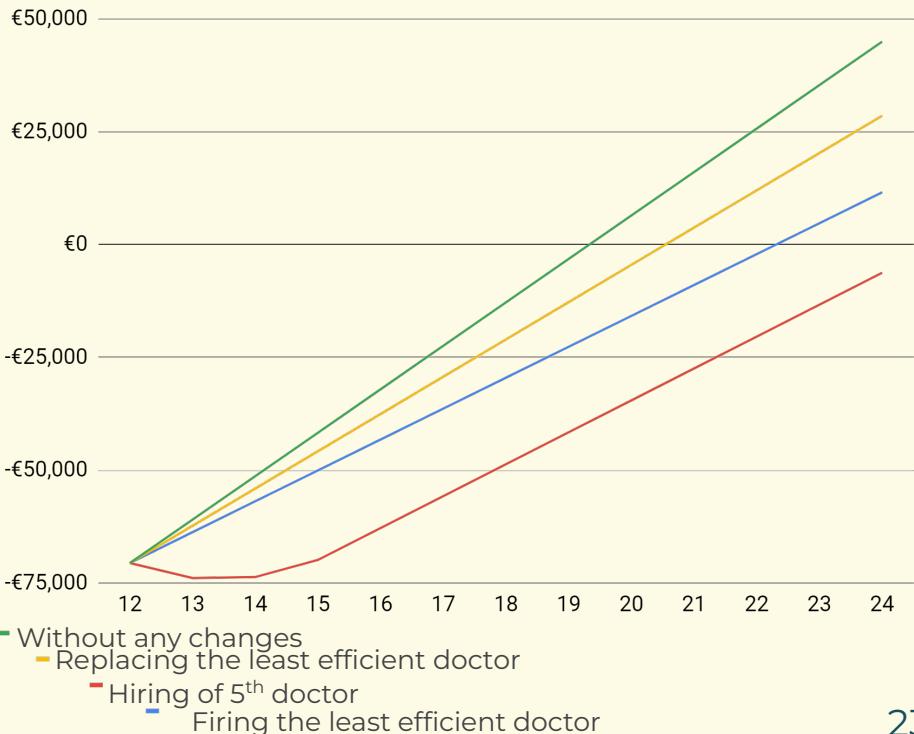
# Break-even point



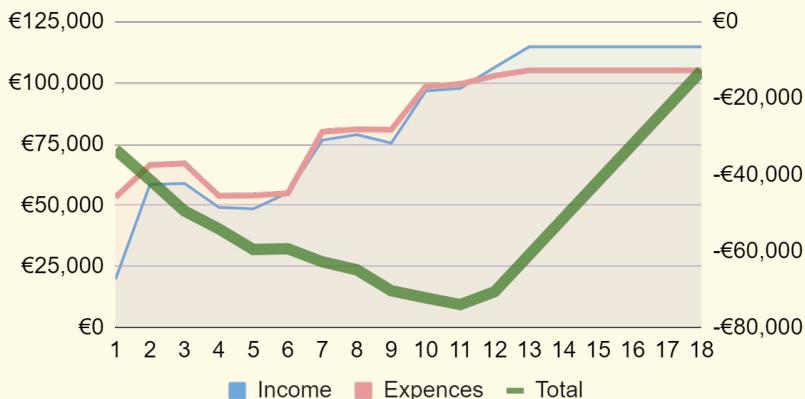
Dynamics of changes in the number of requests to the clinic



Dynamics of the overall balance of the clinic for 2 years:



Dynamics of changes in the clinic's expenses, income, and overall balance



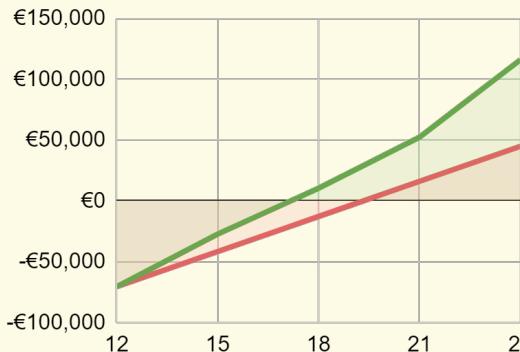
# Proposed strategy



Period	13	14	15	16	17	18	19	20	21	22	23	24
Requests	530	554	578	602	626	650						
Visits	480	480	480	540	540	540	600	600	600	600	600	600
ACV	€239	€239	€239	€242.24	€242.24	€242.24	€242.24	€242.24	€242.24	€254.35	€254.35	€254.35
NPS	47%	47%	47%	42.60%	42.60%	42.60%	42.60%	42.60%	42.60%	42.60%	42.60%	42.60%
Expences	€105,083	€105,083	€105,083	€118,218	€118,218	€118,218	€131,354	€131,354	€131,354	€131,354	€131,354	€131,354
Operational	€28,000	€28,000	€28,000	€31,500	€31,500	€31,500	€35,000	€35,000	€35,000	€35,000	€35,000	€35,000
Personnel	€37,900	€37,900	€37,900	€42,638	€42,638	€42,638	€47,375	€47,375	€47,375	€47,375	€47,375	€47,375
Service	€39,183	€39,183	€39,183	€44,081	€44,081	€44,081	€48,979	€48,979	€48,979	€48,979	€48,979	€48,979
Income	€114,707	€114,707	€114,707	€130,808	€130,808	€130,808	€145,343	€145,343	€145,343	€152,610	€152,610	€152,610
Profit	€9,624	€9,624	€9,624	€12,590	€12,590	€12,590	€13,989	€13,989	€13,989	€21,256	€21,256	€21,256
Total	-€56,177	-€41,796	-€27,414	-€14,824	-€2,234	€10,356	€24,345	€38,334	€52,323	€73,579	€94,835	€116,092

Overall balance of the clinic with different strategies

Without changes      Proposed strategy



## Referral program

- For new clients:
  - Consultation when paying for further treatment at the clinic for free.
  
- For repeat clients:
  - Brushing teeth is free if cost of services will be more than 300€.



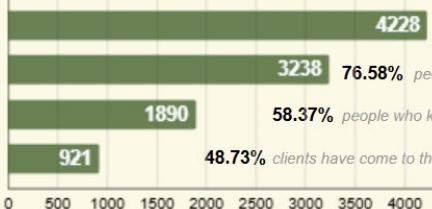


# Dashboards

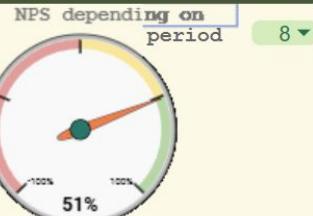
G Sheets



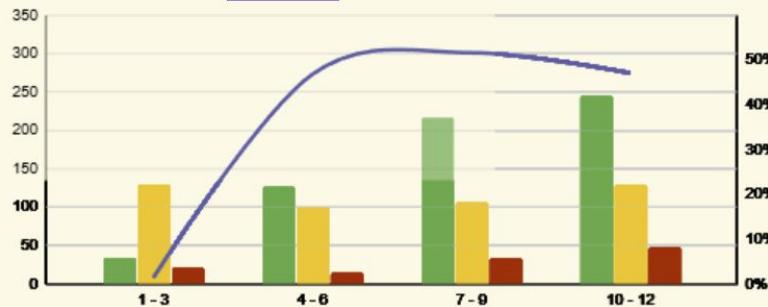
Ratio of actual and potential clients to total city population



## Raw Data



Ratio of the average number of promoters, neutrals and detractors depending on the block



Revenue by period



Cost, revenue and total balance by quarter





Ratio of potential clients who learned about the clinic in different ways



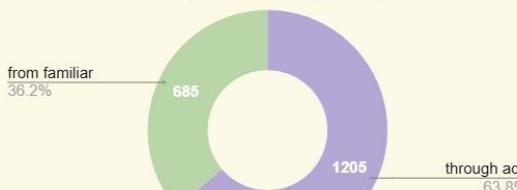
## How does advertising work?

Cost of attracting one new client. Comparison of the effectiveness of attraction through advertising and referral program in correlation with NPS.

Correlation coefficient between the consumer loyalty index (NPS) and the number of attracted potential customers in different ways:

from familiar 0.82163

Ratio of real clients who learned about the clinic in different ways



Changes in the price of customer attraction through advertising and number of attracted depending on the period

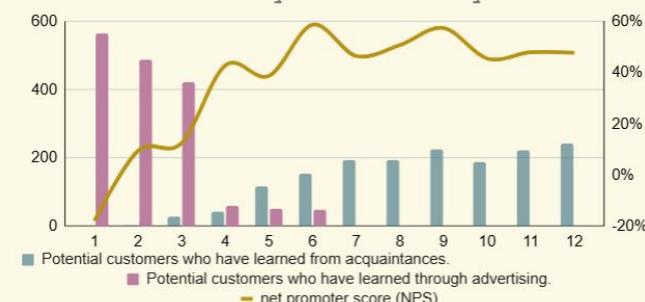


Cost correlation coefficient on advertising and the number of attracted potential customers through advertising

0.982



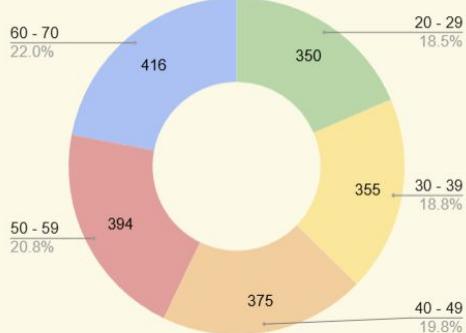
Correlation of the consumer loyalty index with the number of potential customers who learned about dentistry in different ways





Age	
total number of clients	2508
Number of returning customers	659
AVG age	46
MIN age	20
MAX age	70
Median age	46
Mode age	62

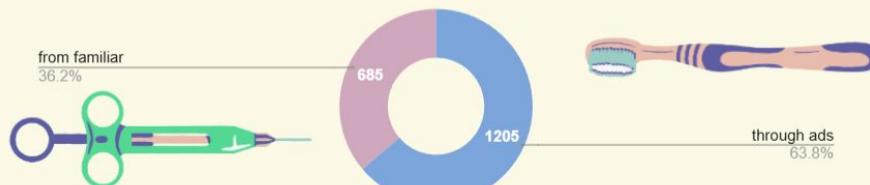
Distribution of clients by age



## Who is our client?

Create a profile of the typical client: age, frequency of calls.

Ratio of real clients who learned about the clinic in different ways



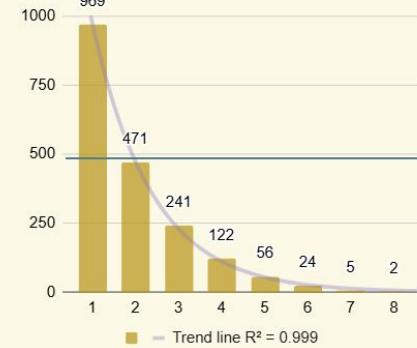
Ratio of the average number of promoters, neutrals and detractors depending on the block



Appointments

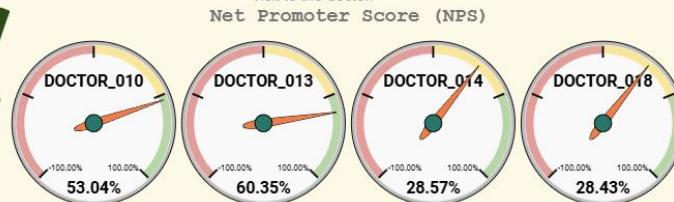
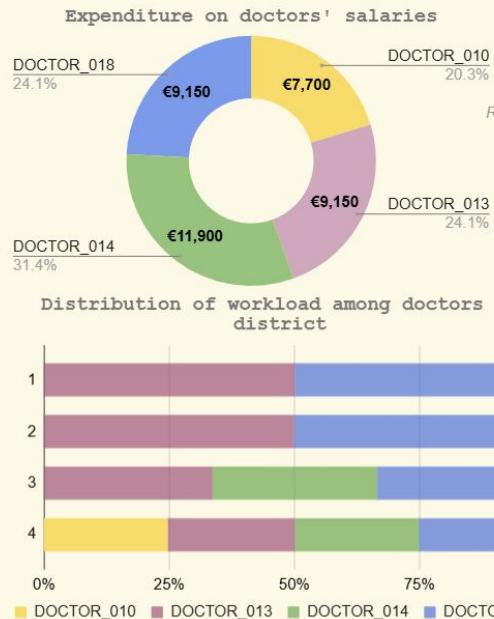
Total number of appointments	3597
AVG appointments frequency	1.9
MIN appointments frequency	1
MAX appointments frequency	8
Median appointments frequency	1
Mode appointments frequency	1

Distribution of the number of clients according to the number of visits

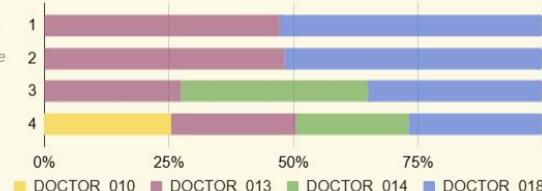




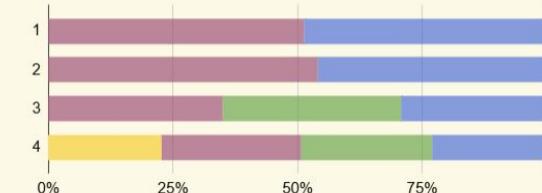
## How does the employee work?



**Distribution of profit from doctors' work by quarter**



**Distribution of material costs by quarter and doctor**



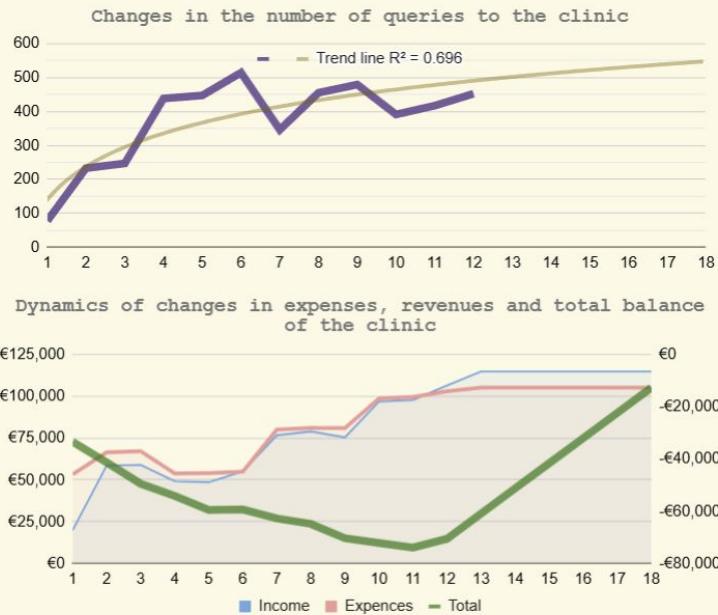
Doctors ID	Materials	Bill	Profit	SQFB	CSFB	CPFB	FB	Salary	Retention	(Profit-Salary)/month
Ксения Колесникова	€74.95	€235.59	€160.65	0.3227	-0.0799	-0.1597	0.0831	€7,700	-	€9,061.00
Зоя Ушакова	€87.63	€222.50	€134.88	0.0251	0.5563	0.3059	0.8874	€9,150	63.65%	€5,619.08
Владимир Михайлов	€88.10	€235.70	€147.60	0.0075	-0.3233	-0.0827	-0.3985	€11,900	22.97%	€4,458.67
Петр Айболитов	€75.85	€229.02	€153.16	0.3057	-0.4628	0.2521	0.0950	€9,150	54.89%	€7,506.50



## Break-even point

Forecast date/period of return on investment.

Period	7	8	9	10	11	12	13	14	15	16	17	18
Привлечение	2170	2364	2588	2776	2997	3238	3428	3629	3834	4039	4245	4226
NEW	193	194	224	188	221	241	190	201	204	205	206	0
REF	193	194	224	188	221	241	190	201	204	205	206	0
Market size	4228	4228	4228	4228	4228	4228	4228	4228	4228	4228	4228	4228
Branded	2170	2364	2588	2776	2997	3238	3475	3694	3913	4132	4350	4228
Needs	1579	1751	1878	2008	2234	2357	2541	2701	2861	3022	3182	3342
Requests	346	455	479	391	417	452	530	554	578	602	626	650
Visits	346	360	360	391	417	452	479	507	534	562	590	617
ACV	€221	€219	€209	€247	€234	€235	€238.97	€238.97	€238.97	€238.97	€238.97	€238.97
NPS	47%	51%	58%	46%	48%	48%	50.38%	49.79%	49.65%	49.59%	49.57%	49.56%
Expenses	€80,000	€80,988	€80,885	€98,553	€99,498	€102,927	€105,083	€105,083	€105,083	€105,083	€105,083	€105,083
Marketing	€0	€0	€0	€0	€0	€0	€0	€0	€0	€0	€0	€0
Operational	€21,000	€21,000	€21,000	€28,000	€28,000	€28,000	€28,000	€28,000	€28,000	€28,000	€28,000	€28,000
Personnel	€30,200	€30,200	€30,200	€37,900	€37,900	€37,900	€37,900	€37,900	€37,900	€37,900	€37,900	€37,900
Service	€28,800	€29,788	€29,685	€32,653	€33,598	€37,027	€39,183	€39,183	€39,183	€39,183	€39,183	€39,183
							€344,426					
Income	€76,590	€78,891	€75,418	€96,707	€97,741	€106,309	€114,707.24	€114,707.24	€114,707.24	€114,707.24	€114,707.24	€114,707.24
Profit	-€3,410	-€2,097	-€5,467	-€1,846	-€1,757	€3,382	€9,624.26	€9,624.26	€9,624.26	€9,624.26	€9,624.26	€9,624.26
Total	€62,773	€64,870	€70,337	€72,183	€73,940	€70,558	-€60,934	€51,309	-€41,685	-€32,061	-€22,437	-€12,812





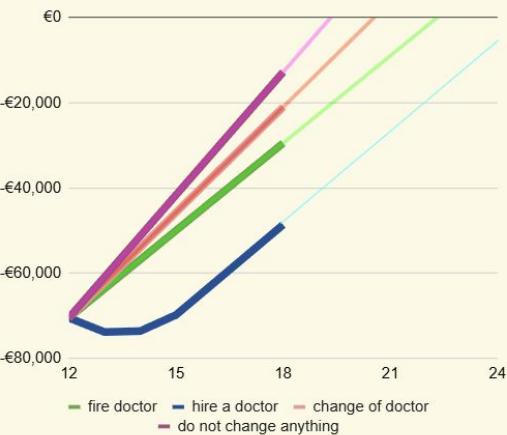
## what to do next?

Period	13	14	15	16	17	18
Requests	530	554	578	602	626	650
Visits	360	360	360	360	360	360
ACV	€229.04	€229.04	€229.04	€229.04	€229.04	€229.04
NPS	47.27%	47.27%	47.27%	47.27%	47.27%	47.27%
Expences	€75.611	€75.611	€75.611	€75.611	€75.611	€75.611
Operational	€21.000	€21.000	€21.000	€21.000	€21.000	€21.000
Personnel	€26.000	€26.000	€26.000	€26.000	€26.000	€26.000
Service	€28.611.08	€28.611.08	€28.611.08	€28.611.08	€28.611.08	€28.611.08
Income	€82.453.79	€82.453.79	€82.453.79	€82.453.79	€82.453.79	€82.453.79
Profit	€6.842.71	€6.842.71	€6.842.71	€6.842.71	€6.842.71	€6.842.71
Total	-€63.715	-€56.873	-€50.030	-€43.187	-€36.344	-€29.502

Period	13	14	15	16	17	18
Requests	530	554	578	602	626	650
Visits	530	554	578	600	600	600
ACV	€230.70	€230.70	€230.70	€230.70	€230.70	€230.70
NPS	42.60%	42.60%	42.60%	42.60%	42.60%	42.60%
Expences	€125.640	€127.606	€129.558	€131.354	€131.354	€131.354
Operational	€35.000	€35.000	€35.000	€35.000	€35.000	€35.000
Personnel	€47.375	€47.375	€47.375	€47.375	€47.375	€47.375
Service	€43.265	€45.231	€47.183	€48.979	€48.979	€48.979
Income	€122.314.42	€127.831.12	€133.347.82	€138.421.67	€138.421.67	€138.421.67
Profit	-€3.325.13	€224.72	€3.789.41	€7.067.94	€7.067.94	€7.067.94
Total	-€73.883	-€73.658	-€69.869	-€62.801	-€55.733	-€48.665



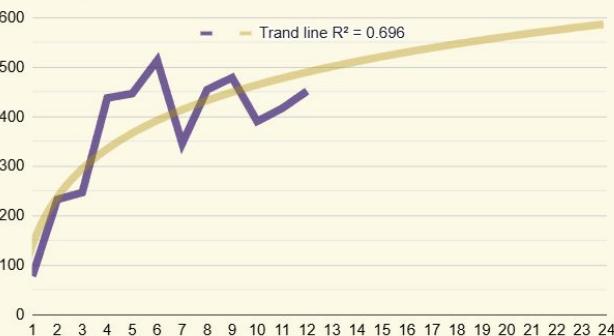
Dynamics of the total balance of the clinic for 2 years





Period	13	14	15	16	17	18	19	20	21	22	23	24
Requests	530	554	578	602	626	650						
Visits	480	480	480	540	540	600	600	600	600	600	600	600
ACV	€239	€239	€239	€242.24	€242.24	€242.24	€242.24	€242.24	€242.24	€254.35	€254.35	€254.35
NPS	47%	47%	47%	42.60%	42.60%	42.60%	42.60%	42.60%	42.60%	42.60%	42.60%	42.60%
Expenses	€105,083	€105,083	€105,083	€118,218	€118,218	€131,354	€131,354	€131,354	€131,354	€131,354	€131,354	€131,354
Operational	€28,000	€28,000	€28,000	€31,500	€31,500	€35,000	€35,000	€35,000	€35,000	€35,000	€35,000	€35,000
Personnel	€37,900	€37,900	€37,900	€42,638	€42,638	€47,375	€47,375	€47,375	€47,375	€47,375	€47,375	€47,375
Service	€39,183	€39,183	€39,183	€44,081	€44,081	€48,979	€48,979	€48,979	€48,979	€48,979	€48,979	€48,979
Income	€114,707	€114,707	€114,707	€130,808	€130,808	€145,343	€145,343	€152,610	€152,610	€152,610	€152,610	€152,610
Profit	€9,624	€9,624	€9,624	€12,590	€12,590	€13,989	€13,989	€21,256	€21,256	€21,256	€21,256	€21,256
Total	-€56,177	-€41,796	-€27,414	-€14,824	-€2,234	€10,356	€24,345	€38,334	€52,323	€73,579	€94,835	€116,092

Changes in the number of queries to the clinic



Overall clinic balance across different strategies



In the 5th quarter we offer non-returning customers to visit another doctor and take advantage of a bonus program in the 6th quarter

We add a doctor in the 6th quarter on a part-time basis, in the 7th quarter we transfer to full employment

We increase prices by 5% in the 6th and 8th quarters

We receive budget to open a new clinic in another city

### Referral Program:

For new clients:	Consultation and examination when paying for further treatment in the clinic free of charge.
For repeat clients:	Cleaning when checking out more than 300 euros free.