

# Volume by Region Data

## Introduction

This portfolio project to analyze the status of sales volume data by region for 2<sup>nd</sup> quarter of 2021 was created with the guidance of Matt Brattin YouTube channel. The data cleaning, analysis, and presentation was performed in Microsoft Excel.

The data file contains two sheets of data. The first sheet named “EXT0070122021” contains 3 columns, namely:

- i. CLID – Client identification Code
- ii. Date – Date of Order
- iii. Vol – Volume ordered by the Client

The second sheet named “Sheet3” contains 2 columns, namely:

- i. CLID – Client identification Code
- i. GEOID – Region identification Code

The “EXT0070122021” sheet contains 908 rows of data and the “Sheet3” contains 54 rows of data.

## Data Cleaning

After reviewing the data in Sheet3 it was identified that it contained the client list with their respective geographical code. Hence, for clarity the Sheet3 was renamed as “GeoData”. Similarly, as EXT0070122021 sheet contained the volume, it was renamed as “VolumeData”.

In the VolumeData sheet, a table was inserted to create a data table. The table was named as ‘VolumebyClient’. In the CLID column, just the very top row contains the client data and is not populated on every row. All the related data columns of the client is then included in the respective rows until it gets to the next client and the same process is continued. The blank client rows should be filled up. All the blank cells are selected and cell reference is used to get

data from above cells. Then all the blank cells are populated with their respective client ID. The column is checked to verify accuracy in data. Next, the date column is checked for any discrepancies. It was found that the formatting for the date is assigned as Text rather than Date so the formatting was changed to Date. Further, it was identified that Vol column is formatted to Text rather than Number which was also fixed.

	A	B	C
1	CLID	Date	Vol
2	CL11420	2020-03-31	884
3	CL11420	2020-04-30	886
4	CL11420	2020-05-31	968
5	CL11420	2020-06-30	564
6	CL11420	2020-07-31	648
7	CL11420	2020-08-31	406
8	CL11420	2020-09-30	569
9	CL11420	2020-10-31	487
10	CL11420	2020-11-30	729
11	CL11420	2020-12-31	565
12	CL11420	2021-06-30	561
13	CL11420	2021-05-31	1,014
14	CL11420	2021-04-30	878
15	CL11420	2021-03-31	922
16	CL11420	2021-02-28	668
17	CL11420	2021-01-31	725
18	CL13213	2020-01-31	1,194
19	CL13213	2020-02-29	942
20	CL13213	2020-03-31	1,448
21	CL13213	2020-04-30	1,323
22	CL13213	2020-05-31	1,573

Similarly, in the GeoData sheet, a table was inserted to create a data table. The table was named as 'GeobyClient'. The column CLID was checked for any duplicate values but none were found. In addition, it was observed that the CLID in the GeoData was not the same as the CLID in the VolumeData. The length of CLID in the VolumeData was 7 digits but was 9 digits in the GeoData. In order to maintain consistency in the CLID in both sheets, the additional digits "C-" in the GeoData was removed and the length was made consistent in a new column named 'CLID New'. This assisted in creation of a new column in the VolumeData sheet for GEOID which corresponded with the respective CLID. In addition, Region Name column was also added. Further, a column was added to identify the quarter and year for each row as we need to analyze the quarterly data.

## Data Preparation

The GEOID column was found to contain 4 values which corresponded to the regions NAM, EMEA, APAC, and LATAM. A separate table was created named 'GEONames' for the region name corresponding to the GEOID. However, as per the provided information a further analysis has to be performed to identify the regions from their GEOID since it was mentioned that the LATAM region has the lowest volume. After calculating the total volume by GEOID, it was found that GEO1004 had the lowest volume so it was identified as LATAM.

H	I	J
GEOID	GEO Name	Volume
GEO1001	NAM	3,008,286
GEO1003	EMEA	880,760
GEO1002	APAC	562,005
GEO1004	LATAM	425,262
		4,876,313

## Data Analysis

The data was then explored using pivot tables as follows:

Sum of Vol	Column Labels					
	2020				2021	
	Qtr1	Qtr2	Qtr3	Qtr4	Qtr1	Qtr2
Row Labels						
NAM	509,419	576,618	363,694	432,034	530,019	596,502
EMEA	147,852	173,566	103,536	129,264	150,204	176,338
APAC	95,736	107,338	69,198	80,144	99,778	109,811
LATAM	69,053	82,618	50,574	65,121	75,265	82,631
Grand Total	822,060	940,140	587,002	706,563	855,266	965,282

Based on the above pivot table analysis, a variance analysis was conducted to identify the variance in volume from the last quarter data.

	2021		2022	
	Q1 YoY		Q2 YoY	
	#	%	#	%
NAM	20,600	4.0%	19,884	3.4%
EMEA	2,352	1.6%	2,772	1.6%
APAC	4,042	4.2%	2,473	2.3%
LATAM	6,212	9.0%	13	0.0%
<b>Grand Total</b>	<b>33,206</b>	<b>4.0%</b>	<b>25,142</b>	<b>2.7%</b>

A forecast can now be conducted to identify what Q2 might have been based on Q1 YoY growth from last year. Assuming the same growth rate is continued in the next quarter, a forecast is calculated.

Region	Q2 Actual Volume	Q2 Forecast	Value Difference	Variance in Percentage
NAM	596,502	599,935	3,433	27%
EMEA	176,338	176,327	(11)	0%
APAC	109,811	111,870	2,059	16%
LATAM	82,631	90,050	7,419	58%
<b>Total</b>	<b>965,282</b>	<b>978,116</b>	<b>12,834</b>	

The forecast shows a decline in YoY growth from Q1 to Q2 represented about 14000 units. The highest variance, i.e. 51 % came from LATAM region and the biggest region NAM has a variance of 27%. Hence, Q2 YoY growth slowed from Q1 growth of 4% down to 2.7% or 12,834 in volume.

Upon further data exploration, it was observed that in Q4 2020 and Q1 2021, there were a 53 clients which was the highest number of clients in the dataset. In the Q2 2021, there were only 50 active clients which was the same as Q2 2020. However, compared to last year, LATAM lost one client (CL49900) and NAM gained one client (CL50651) so the total number of clients was the same. LATAM also lost one other customer (CL22675) in Q1 2021 which it had gained in Q3 2020.

	2020 Qtr1	2020 Qtr2	2020 Qtr3	2020 Qtr4	2021 Qtr1	2021 Qtr2
<b>NAM</b>	18	19	19	20	20	20
<b>EMEA</b>	8	8	8	8	8	8
<b>APAC</b>	13	13	14	14	14	13
<b>LATAM</b>	10	10	11	11	11	9
<b>Total</b>	<b>49</b>	<b>50</b>	<b>52</b>	<b>53</b>	<b>53</b>	<b>50</b>

The average sales volume per active customer per quarter was also calculated as follows:

	2020 Qtr1	2020 Qtr2	2020 Qtr3	2020 Qtr4	2021 Qtr1	2021 Qtr2	Q2 YoY
NAM	28,301	30,348	19,142	21,602	26,501	29,825	-1.7%
EMEA	18,482	21,696	12,942	16,158	18,776	22,042	1.6%
APAC	7,364	8,257	4,943	5,725	7,127	8,447	2.3%
LATAM	6,905	8,262	4,598	5,920	6,842	9,181	11.1%
Total	16,777	18,803	11,289	13,331	16,137	19,306	2.7%

Upon review of individual client volume in the region of LATAM, it was observed that LATAM lost two customers in Q2 2021 resulting a decrease of more than 7000 in volume or 55% driving overall growth for region down from 9% in Q1 to less than 1% in Q2 YoY.

Sum of Vol		Years	Quarters	Date					
		2020	2020	2020	2020	2020 Total	2021	2021	2021 Total
		Qtr1	Qtr2	Qtr3	Qtr4		Qtr1	Qtr2	
RegionName	CLID								
LATAM	CL43946	41,282	49,071	28,827	36,607	155,787	41,985	50,429	92,414
LATAM	CL85641	11,480	13,176	8,078	9,778	42,512	11,595	13,523	25,118
LATAM	CL36191	4,139	4,910	2,891	3,665	15,605	4,268	4,961	9,229
LATAM	CL81431	4,076	4,680	2,879	3,476	15,111	4,222	4,678	8,900
LATAM	CL23634	2,665	3,174	1,864	2,376	10,079	2,667	3,248	5,915
LATAM	CL11420	884	2,418	1,623	1,781	6,706	2,315	2,453	4,768
LATAM	CL22675			1,249	3,569	4,818	4,809		4,809
LATAM	CL37879	1,324	1,619	913	1,211	5,067	1,336	1,636	2,972
LATAM	CL49900	1,639	1,879	1,153	1,402	6,073	483		483
LATAM	CL67438	982	1,079	691	806	3,558	996	1,088	2,084
LATAM	CL28683	582	612	406	450	2,050	589	615	1,204
LATAM Total		69,053	82,618	50,574	65,121	267,366	75,265	82,631	157,896

## Conclusion

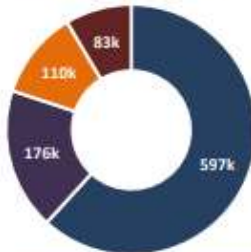
The key findings observed from the analysis of the dataset was:

Q2 YoY growth slowed from Q1 growth from 4% to 2.7% or 12,834 in volume, primarily driven by:

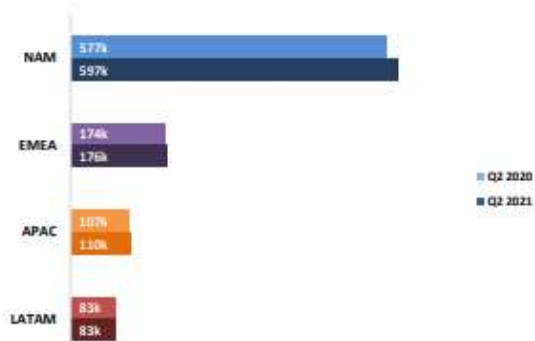
- Volume decline of 7000 or 55% from loss of two customers in LATAM, driving overall growth for region down from 9% in Q1 to less than 1% in Q2 YoY.
- NAM client onboarding in Q2 2020 anniversaried in Q2 2021, allowing perceived growth and amplifying Q1 growth by ~5000 units.

## Q2 2021 Overview

As of 30th June 2021



• NAM  
• EMEA  
• APAC  
• LATAM



Volume						
Region	Q1 2020	Q2 2020	Q3 2020	Q4 2020	Q1 2021	Q2 2021
NAM	509,419	576,618	363,694	432,034	530,019	596,502
EMEA	147,852	173,586	103,536	129,264	150,204	176,338
APAC	95,736	107,338	69,198	80,144	99,778	109,811
LATAM	69,053	82,618	50,574	65,121	75,265	82,631
Total	822,060	940,140	587,002	706,563	855,266	965,282

Q1 YoY		Q2 YoY		H1 YoY	
#	%	#	%	#	%
20,800	▲ 4.0%	19,884	▲ 3.4%	40,484	▲ 3.7%
2,352	▲ 1.6%	2,772	▲ 1.6%	5,124	▲ 1.6%
4,042	▲ 4.2%	2,473	▲ 2.3%	6,515	▲ 3.2%
6,212	▲ 9.0%	13	0.0%	6,225	▲ 4.1%
33,206	▲ 4.0%	25,142	▲ 2.7%	58,348	▲ 3.3%

Customers						
Region	Q1 2020	Q2 2020	Q3 2020	Q4 2020	Q1 2021	Q2 2021
NAM	18	19	19	20	20	20
EMEA	8	8	8	8	8	8
APAC	13	13	14	14	14	13
LATAM	10	10	11	11	11	9
Total	49	50	52	53	53	50

Q1 YoY		Q2 YoY		H1 YoY	
#	%	#	%	#	%
2	▲ 11.1%	1	▲ 5.3%	3	▲ 8.1%
-	0.0%	-	0.0%	-	0.0%
1	▲ 7.7%	-	0.0%	1	▲ 3.8%
1	▲ 10.0%	(1)	▼ (10.0%)	-	0.0%
4	▲ 6.2%	-	0.0%	4	▲ 4.0%

Average Volume/ Customer						
Region	Q1 2020	Q2 2020	Q3 2020	Q4 2020	Q1 2021	Q2 2021
NAM	28,301	30,348	19,142	21,602	26,501	29,825
EMEA	18,482	21,696	12,942	16,158	18,776	22,042
APAC	7,364	8,257	4,943	5,725	7,127	8,447
LATAM	6,905	8,262	4,598	5,920	6,842	9,181
Total	16,777	18,803	11,289	13,331	16,137	19,306

Q1 YoY		Q2 YoY		H1 YoY	
#	%	#	%	#	%
(1,800)	▼ (6.4%)	(523)	▼ (1.7%)	(2,323)	▼ (4.0%)
294	▲ 1.6%	347	▲ 1.6%	641	▲ 1.6%
(237)	▼ (3.2%)	190	▲ 2.3%	(47)	▼ (0.3%)
(63)	▼ (0.9%)	919	▲ 11.1%	856	▲ 5.6%
(1,806)	▼ (3.8%)	933	▲ 2.7%	(874)	▼ (0.4%)

### Key Findings:

Q2 YoY growth slowed from Q1 growth from 4% to 2.7% or 12,834 in volume, primarily driven by:

- Volume decline of 7000 or 55% from loss of two customers in LATAM, driving overall growth for region down from 9% in Q1 to less than 1% in Q2 YoY.
- NAM client onboarding in Q2 2020 anniversaried in Q2 2021, allowing perceived growth and amplifying Q1 growth by ~5000 units.