

**Customer Segmentation,
Profitability Analysis,
Performance Insights, and Strategic
Recommendations for Scibids**

SUMMARY

- **Context, Objective, Methodology, Dataset**
- **Overview of Analysis conducted and Deliverables**
- **CLIENT OVERVIEW**
 - Count per Typology, Region, DSP, sub-DSP, Insertion Orders
 - Client portfolio evolution over time
- **KPI & DSP TRENDS**
 - Overview & Distribution by Typology and Region
- **REVENUE-BASED PROFITABILITY ANALYSIS**
 - Revenue by Typology and Region
 - Revenue per KPI & DSP
 - Profitability by Campaign Complexity
- **SEASONAL TRENDS**
 - Revenue/ Typology, Insertion Orders, Regional patterns, DSP and KPI evolution over time
 - Growth Trends of DSPs and KPIs Across Regions
- **PERFORMANCE MEASURES**
 - Weighted Revenue, CPM, CPM per Typology, Region and DSP
 - Performance metrics distribution per Typology
 - Outlier analysis
 - Analysis excluding Outliers
 - Solution Benefit analysis per Region and Typology
 - Impact of Outliers on the Performance Measures
 - Top Clients based on Revenue and Performance
- **Final Conclusions & Recommendations**

This project was conducted in the framework of a part-time data analysis bootcamp at Databird

CONTRIBUTORS



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*We would like to thank Scibids for providing us with this opportunity and challenge.
It has been a valuable experience that allowed us to apply our skills and knowledge gained from the bootcamp.*

Objective

In order to support its expansion and product development goals, Scibids trusted our team to analyze its data related to the usage of its product to gain a better understanding of its clients and uncover trends and opportunities.

Objective:

- Identify key client segments and discern patterns in their behavior when interacting with the Scibids product
- Analyse the performance of the solution to discover which clients maximize benefits from Scibids' AI and how they engage with it
- Use these insights to identify opportunities for enhanced engagement, uncover the effectiveness of the Scibids solution, and explore potential expansion avenues

Focus Areas:

- **Client Typology:** Thoroughly analyze client data to gain a deeper understanding of Scibids' diverse customer base
- **Regions:** Analyze where Scibids' clients are based and their regional tendencies
- **DSP & Sub-DSP:** Determine the most popular platforms among clients
- **KPI preference:** Examine which KPIs clients focus on and their associated outcomes
- **Revenue analysis:** Understand which client segments, KPIs and DSPs drive the most revenue
- **Seasonal trends:** Track any patterns or shifts in client behavior across different times of the year
- **Performance and solution impact:** Discover which clients maximize benefits from Scibids' AI and potential product development areas

Methodology

1. Exploratory analysis and exchange with Scibids to better understand the content of the dataset and key focus areas
2. Thorough cleaning and analysis in Python
3. Creating a Unified KPI column to handle missing values to determine if certain regions or typologies favor specific KPIs or DSP
4. Addressing performance analysis challenges
5. Adding CPC and CPM measures to the dataset for a better performance analysis
6. Visualising the key findings on customer segmentation, revenue and solution usage on Tableau Dashboards
7. Conduct deeper performance analysis in Python to address skewed data and draw relevant conclusions
8. Summarise findings, conclusions and recommendations

Dataset



Scibids



DataBird.

Initial

```
df.info()

<class 'pandas.core.frame.DataFrame'>
RangeIndex: 144800 entries, 0 to 144799
Data columns (total 21 columns):
#   Column                                     Non-Null Count  Dtype
---  -
0   Clients Characteristics Company ID        141271 non-null float64
1   Clients Characteristics Company Name      141271 non-null object
2   Accessible IDs Client ID                  144799 non-null object
3   Accessible IDs Client Name                144799 non-null object
4   Accessible IDs Advertiser ID              144799 non-null object
5   Accessible IDs Advertiser Name            144799 non-null object
6   Clients Characteristics Scibids Region    141173 non-null object
7   Clients Characteristics Typology          139698 non-null object
8   Accessible IDs Dsp                        144800 non-null object
9   Accessible IDs Sub Dsp                    34136 non-null object
10  Insertion Orders KPI Type (DSP)            86707 non-null object
11  Insertion Orders Kpi to Optimize           18954 non-null object
12  Performance Measures Day Tz Month          144800 non-null datetime64[ns]
13  Performance Measures Clicks with Scibids  15132 non-null float64
14  Performance Measures Impressions with Scibids  15132 non-null float64
15  Insertion Orders Distinct Count of IOs with Scibids  15132 non-null float64
16  Performance Measures Revenue USD with Scibids  15132 non-null float64
17  Performance Measures Clicks without Scibids  137593 non-null float64
18  Performance Measures Impressions without Scibids  137593 non-null float64
19  Insertion Orders Distinct Count of IOs without Scibids  137593 non-null float64
20  Performance Measures Revenue USD without Scibids  137593 non-null float64
dtypes: datetime64[ns](1), float64(9), object(11)
memory usage: 23.2+ MB
```

Final

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 26795 entries, 0 to 26794
Data columns (total 23 columns):
#   Column                                     Non-Null Count  Dtype
---  -
0   Clients Characteristics Company ID        26779 non-null Int64
1   Clients Characteristics Company Name      26779 non-null object
2   Accessible IDs Client ID                  26795 non-null object
3   Accessible IDs Client Name                26795 non-null object
4   Accessible IDs Advertiser ID              26795 non-null object
5   Accessible IDs Advertiser Name            26795 non-null object
6   Clients Characteristics Scibids Region    26795 non-null object
7   Clients Characteristics Typology          26714 non-null object
8   Accessible IDs Dsp                        26795 non-null object
9   Accessible IDs Sub Dsp                    26795 non-null object
10  Insertion Orders KPI Type (DSP)            16650 non-null object
11  Insertion Orders Kpi to Optimize           26795 non-null object
12  Performance Measures Day Tz Month          26795 non-null datetime64[ns]
13  Performance Measures Billing Scibids Activity  26795 non-null object
14  Performance Measures Clicks                26795 non-null int64
15  Performance Measures Impressions           26795 non-null int64
16  Insertion Orders Distinct Count of IOs      26795 non-null int64
17  Performance Measures Revenue USD           26795 non-null float64
18  unified_KPI                               26795 non-null object
19  CPC                                         26269 non-null float64
20  CPC*distinct order ID                     26269 non-null float64
21  CPM                                         26752 non-null float64
22  CPM*distinct order ID                     26752 non-null float64
dtypes: Int64(1), datetime64[ns](1), float64(5), int64(3), object(13)
memory usage: 4.7+ MB
```


Content of analysis and visualisations

Notebook (Google Colab):

Client overview, KPI and DSP distribution normalised

Revenue Analysis

Revenue by typology and insertion orders count
Total & Normalised Revenue Distribution per DSP by Typology and Region
Total & Normalised Revenue Distribution per KPI by Typology and Region
Calculating the average revenue per campaign based on Scibids Activity and Client Typology
Revenue Distribution across DSPs by Client Typology
Normalised Revenue per KPI and DSP Combination
Top 20 clients based on revenue, insertions orders, grouped by DSP, region, typology

Seasonal Trends

Campaign trends
DSP trends on insertion orders and revenue
Monthly Revenue Evolution grouped by Client Typology and Region
KPI trends per insertion orders and revenue

Performance Measures

Weighted Revenue, CPM, CPC by Typology, Region and Scibids activity
Comparison of metrics with and without Scibids
Exploration of unusually high values by checking distribution
Detecting outliers for Scibids active and without Scibids
Outliers analysis by Typology, Region and DSP
Weighted measures outliers by typology with and Without Scibids
% Difference analysis with and without Scibids for outliers
Details on top outliers based on Revenue, CPC, and CPM for a global overview
Analyzing how the presence of outliers affects the metrics
Performance measures excluding outliers
Performance measures by Typology, DSP, Scibids activity + Evolution over time
Further analysis on CTR, Impressions, clicks

Updated Dataset download code

View **Download**

**Files not publicly accessible*

Interactive dashboards and visualisations (Tableau):

Dashboards (also displayed in a single story for better view)

All visualisations have filters for a more comprehensive analysis. By default, we see results for Scibids active.

Global client view

Total client count
Total clients by region
Clients by typology
Clients by DSP and sub DSP

Clients by Typology, DSP, sub-DSP & KPI

Revenue by Client Types

Revenue (USD) and Insertion Orders by Client Types
Revenue Evolution by Client Types

Evolution of Insertion Orders by Client Types

Insertion Orders by Client Types
Insertion Orders Evolution by Client Types Over Time

Regional Insertion Orders & Revenue

Revenue & Insertion Orders by Region
Evolution of Revenue by Region (USD)

Big 6 Overview

Big6 media agencies ranked by the size of their network
Revenue Over Time by Big 6 typology

Total Revenue Distribution per KPI by Region and Typology

Total Revenue Distribution per DSP by Region and Typology

Further visualisations not included in Dashboards

Big 6 Revenue Evolution Over Time by Typology
Campaigns and Revenue Evolution filtered by Big 6 Typology
Total Campaigns per Region and DSP
Average Revenue Per Campaign by Region
Evolution of Clients by Region (Mar 2022 - Sep 2023)
Insertion Orders by Client Types
Revenue & Insertion Orders by Region

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