

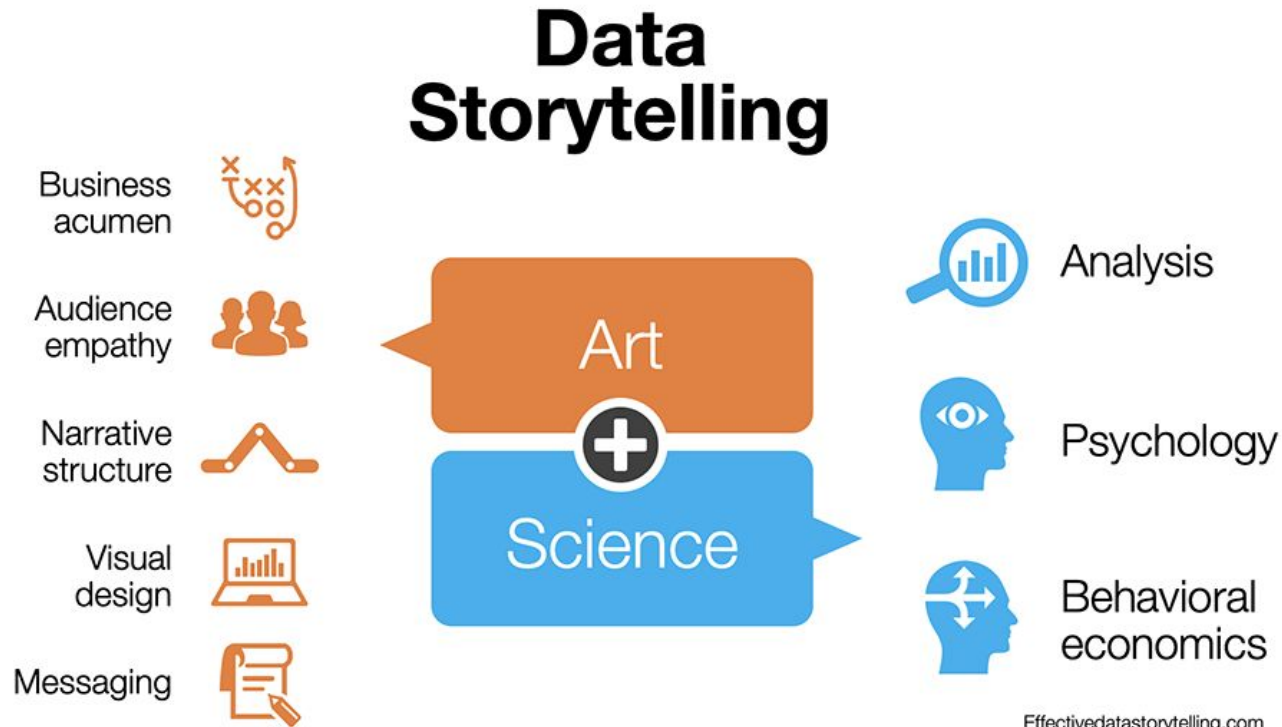
# Becoming a Professional in Data Analytics

[https://github.com/kaopanboonyuen/CP020002\\_SmartProcessManagement\\_2024s1](https://github.com/kaopanboonyuen/CP020002_SmartProcessManagement_2024s1)

# References

- <https://www.coraline.co.th/single-post/4-levels-of-analytics>
- <https://lazarinastoy.com/ultimate-guide-to-data-storytelling-for-marketing-and-data-consultants/>
- [https://www.linkedin.com/posts/lguelcher\\_good-thoughts-in-intelligence-analysis-activity-7181094260211875840-weM](https://www.linkedin.com/posts/lguelcher_good-thoughts-in-intelligence-analysis-activity-7181094260211875840-weM)
- [https://medium.com/@antonioneto\\_17307/dashboards-vs-storytelling-do-you-know-when-you-need-each-one-c7aa7df3ba51](https://medium.com/@antonioneto_17307/dashboards-vs-storytelling-do-you-know-when-you-need-each-one-c7aa7df3ba51)
- <https://support.google.com/analytics/answer/9849873?hl=en>
- <https://www.feld-m.de/en/the-battle-of-googles-looker-products-which-one-is-right-for-your-data-visualization-needs/>
- <https://blog.coupler.io/looker-studio-dashboard-examples/>
- <https://www.surveycto.com/analysis-reporting/data-visualization-dashboards/>

# Mastering Storytelling, Insight Discovery, and Visualization





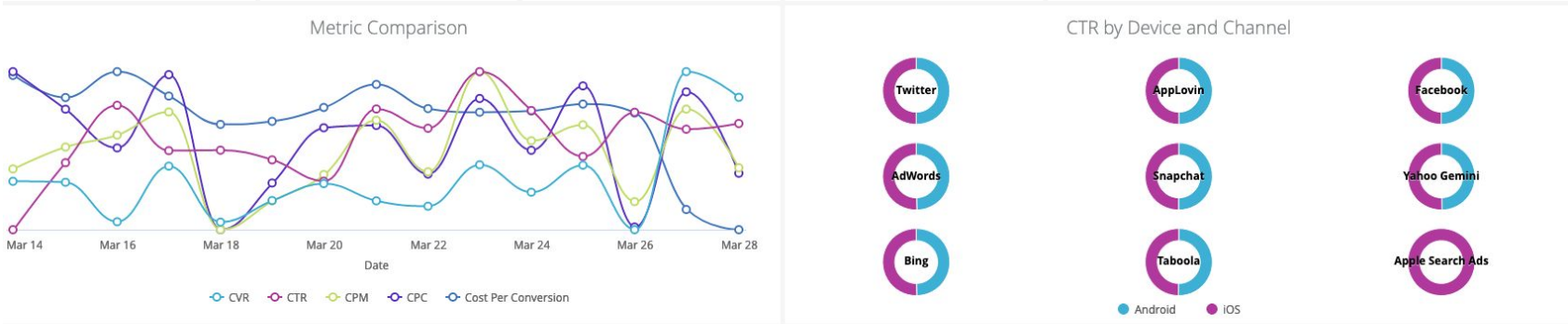
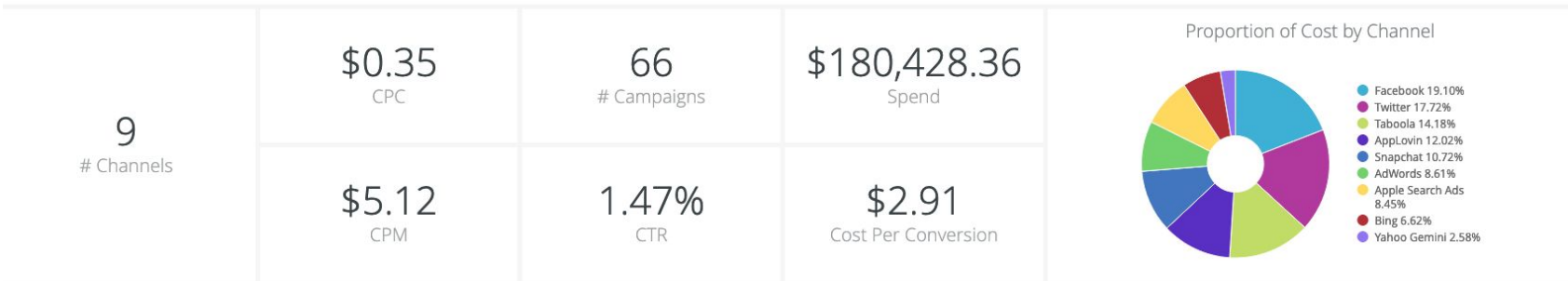
DASHBOARDS

Or



STORYTELLING?

FILTERS Time Range is from 2020/03/14 until 2020/03/29 Channel is any value



Channel Level

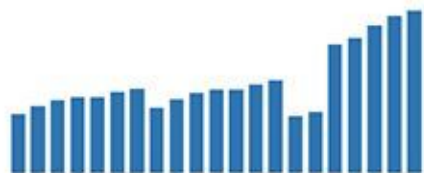
	Source	Impressio...	CTR	Clicks	CVR	Convers...	Cost	CPC	CPM
1	AdWords	1,782,709	2.01%	35,919	15.56%	5,589	\$15,539.01	\$0.43	\$0.00
2	Apple Sear...	1,825,196	2.02%	36,787	15.55%	5,721	\$15,247.79	\$0.41	\$0.00
3	Facebook ...	3,610,956	2.03%	73,292	15.32%	11,229	\$34,455.36	\$0.47	\$0.00
4	Bing	4,074,081	0.76%	30,994	14.78%	4,580	\$11,941.17	\$0.39	\$0.00
5	Yahoo Ge...	1,705,243	0.77%	13,074	14.53%	1,900	\$4,652.02	\$0.36	\$0.00
6	Snapchat	3,888,043	1.76%	68,359	11.24%	7,685	\$19,345.28	\$0.28	\$0.00
7	Twitter	5,443,597	2.16%	117,478	11.11%	13,046	\$31,976.95	\$0.27	\$0.00
8	Taboola	9,428,467	0.74%	69,565	10.75%	7,477	\$25,590.30	\$0.37	\$0.00
9	AppLovin	3,448,233	2.09%	72,226	6.74%	4,866	\$21,680.49	\$0.30	\$0.00

Country Breakdown

	Country	Impre...	Clicks	CVR	Conversions	CPC	Cost
1	IND	4,602,165	70,430	12.16%	8,563	\$0.34	\$23,972.15
2	USA	4,469,851	67,708	11.68%	7,909	\$0.34	\$23,357.58
3	CAN	4,289,416	58,142	11.70%	6,801	\$0.36	\$20,909.94
4	DEU	4,145,517	62,189	12.56%	7,812	\$0.34	\$21,262.11
5	FRA	3,740,096	53,964	11.87%	6,408	\$0.35	\$18,700.65
6	TUR	3,640,111	53,984	11.28%	6,092	\$0.33	\$17,886.41
7	GBR	3,608,083	53,699	12.71%	6,827	\$0.36	\$19,292.88
8	ISR	3,447,431	49,294	11.73%	5,784	\$0.34	\$16,771.73
9	ESP	3,263,855	48,284	12.21%	5,897	\$0.38	\$18,274.91

# Data storytelling: Visualizing data vs. message

Visualizing  
the **data**



OR



*"Is the data understandable at a glance?"*

VS

Visualizing  
the **message**



OR



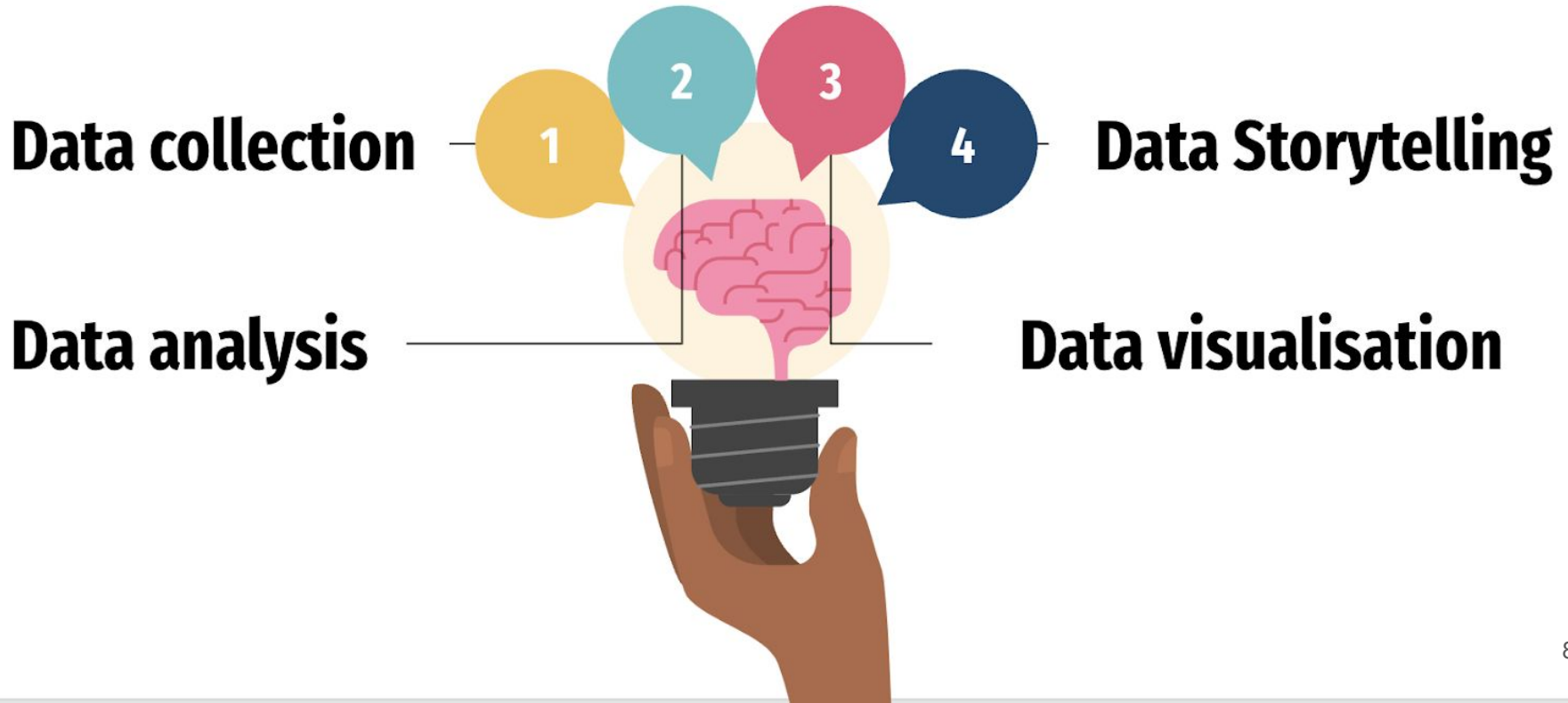
*"Is the main takeaway coming through clearly?"*

# Goal of the Presentation

## **Goal of the Presentation**

- Why data analytics is crucial for decision-making
- Key skills developers need to master: storytelling, insight finding, and visualization

# Where does data storytelling fit in the typical reporting process?





# Narrative

- convey insights
- communicate wins, urgency, and project relationships
- cause and impact demonstration via data

# Data Visualization

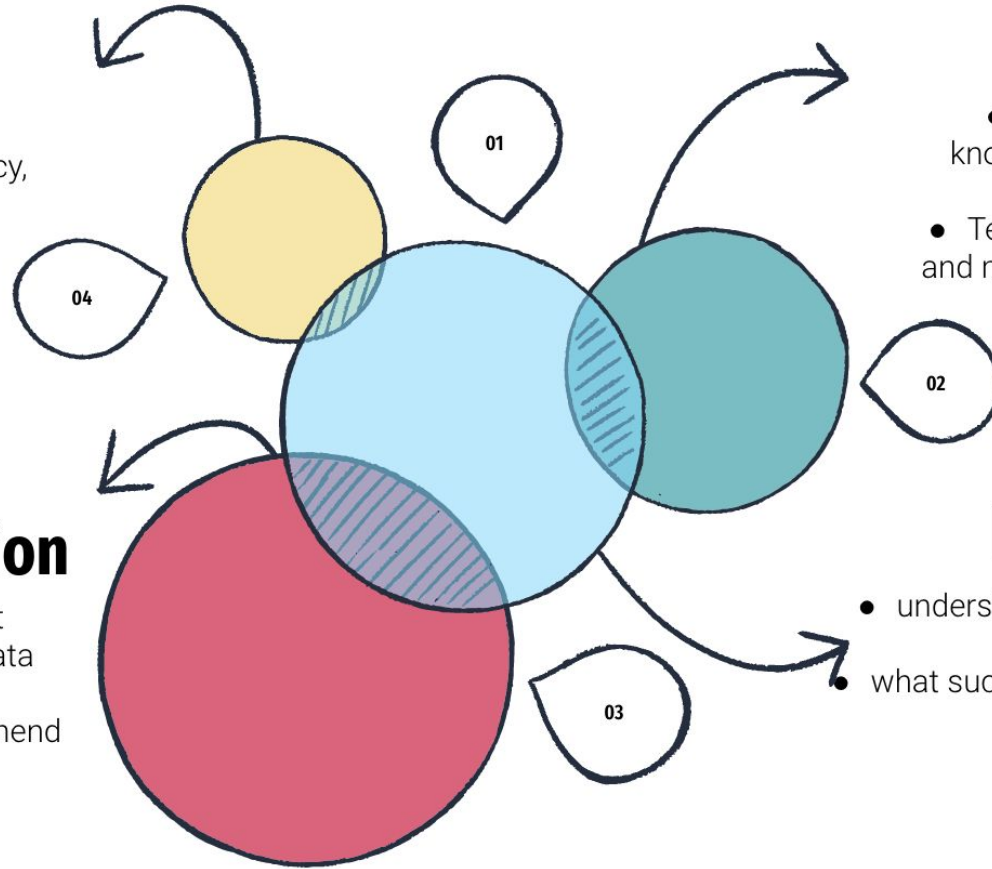
- understanding how to best visualise data, based on data type
- help stakeholders comprehend high quantities of data collected

# Data Science

- Knowing how to extract knowledge and insights from data
- Technical skill of combining and manipulating multiple data sources

# Relationships

- understanding your stakeholders
  - hidden motivations
- what success and failure looks like to them



Lazarina Stoy.

 @lazarinastoy | @techseowomen

#WTSFest



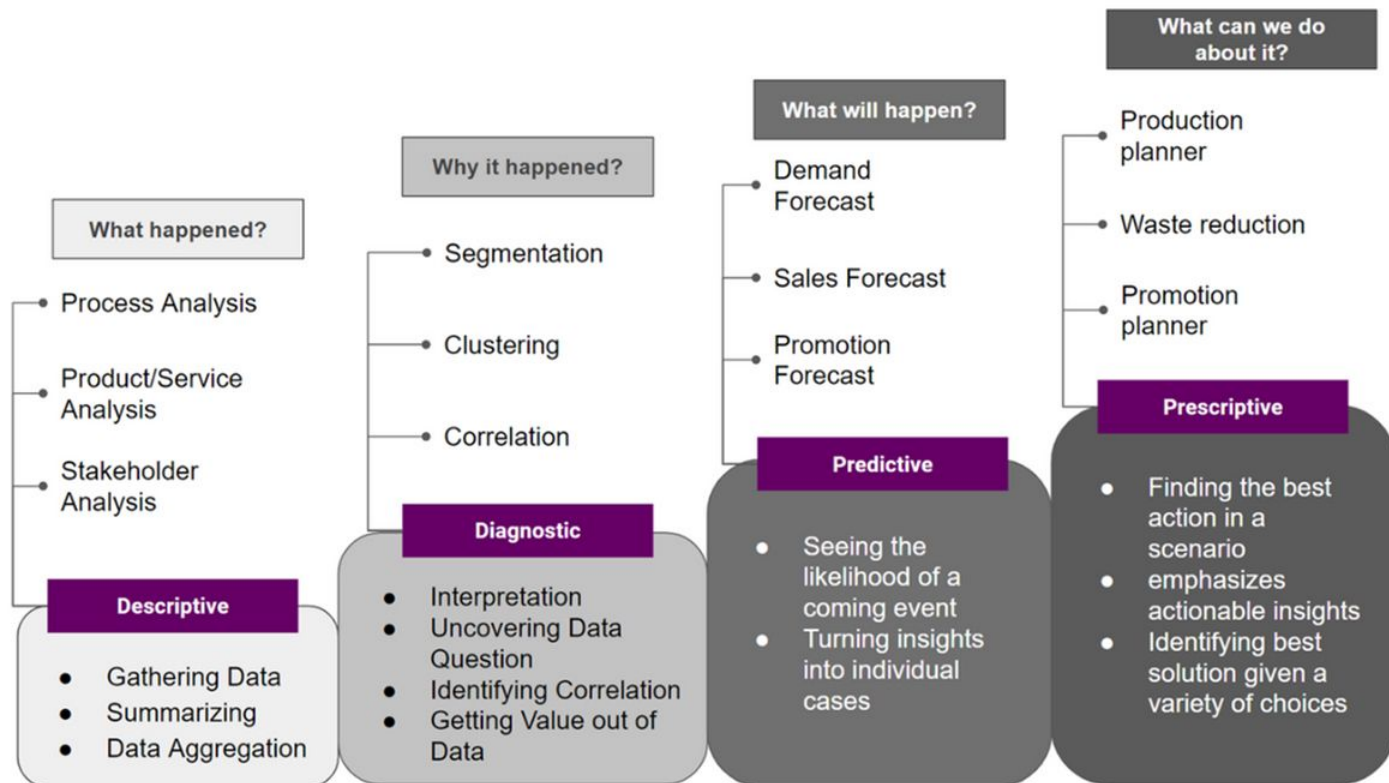
# What is Data Analytics?

Definition of data analytics

## **Four stages of data analytics:**

1. Descriptive
2. Diagnostic
3. Predictive
4. Prescriptive

Brief overview of how these are used in real-world scenarios



# Storytelling with Data

## The Power of Storytelling

- Why storytelling matters in data
- Turning data into a narrative

## The Storytelling Process:

1. **Set a goal** (What's the key takeaway?)
2. **Build a structure** (Beginning, middle, end)
3. **Highlight insights**

# Crafting a Data Story

## Structure Your Story:

1. **Problem Statement** – what question are you answering?
2. **Data Source** – where does your data come from?
3. **Key Findings** – what did you discover?
4. **Recommendation/Conclusion**

# Finding Insights from Data

## **Insight vs. Data**

- Data are facts; insights are meaningful interpretations
- How to turn data into actionable insights

## **Techniques for Insight Discovery:**

- Trend analysis
- Anomaly detection
- Clustering patterns

# Focus on Business Questions

## **Aligning Insights with Business Goals**

- Understand the audience's needs
- Focus on how your data impacts decision-making

# Key Metrics to Identify

- **Metrics Selection:**

- Key Performance Indicators (KPIs)
- Which metrics matter to your business?
- Example: Customer churn, sales growth, etc.



# Storytelling Case Study

- **Example: Revenue Growth Analysis**

1. Set the context: Year-over-year comparison
2. Key findings: Growth in Q2, stagnation in Q4
3. Insight: Marketing strategies correlated with growth, product launches affected by seasonality
4. Action: Recommend new product launch strategy for Q4

# Introduction to Data Visualization

- **Importance of Visuals:**
  - Make complex data simple
  - Help in decision-making
- **Choosing the Right Visualization:**
  - Who is your audience?
  - What message are you trying to convey?

# Choosing the Right Graph

- **Common Chart Types and When to Use Them:**
  - **Line Charts:** For time series trends
  - **Bar Charts:** For category comparison
  - **Pie Charts:** For showing parts of a whole (use sparingly)
  - **Scatter Plots:** For correlation and distribution

## Looker Studio Visualizations (40)

Visualizations built and supported by Looker Studio.



### 100% stacked area

By Google

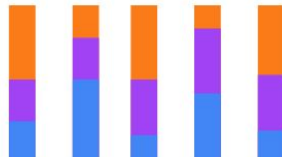
See how your data trends over time.



### 100% stacked Bar

By Google

A 100% stacked horizontal bar chart to show comparisons among categories.



### 100% stacked column

By Google

A 100% stacked vertical bar chart to show comparisons among categories.



### Area

By Google

See how your data trends over time.



### Bar

By Google

A horizontal bar chart to show comparisons among categories.



### Bubble

By Google

Use a bubble chart to look for relationships between variables.



### Bubble map

By Google

Use Google Maps to explore your geographic data as colored circles.



### Bullet

By Google

Quickly see how well a given metric is performing against target benchmarks.



### Candlestick

By Google

A candlestick chart. Shows an opening and closing value with a total variance.



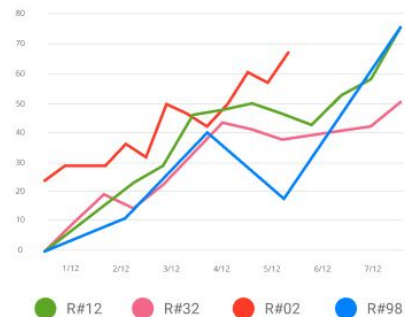
### Column

By Google

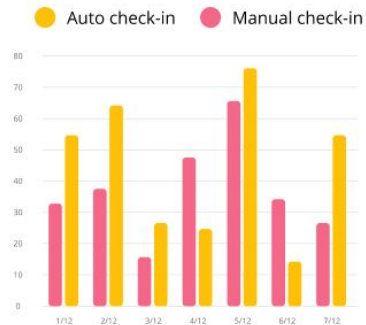
A vertical bar chart to show comparisons among categories.



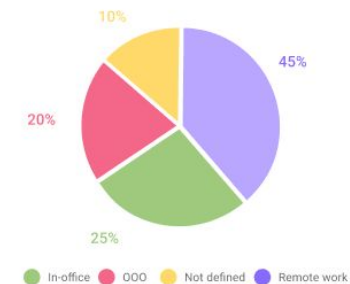
## Meeting Rooms trending



## Visitors check-ins



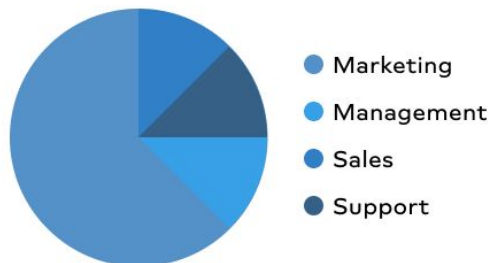
## Work activities status



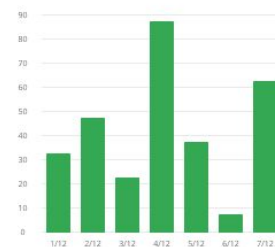
## Occupancy rate

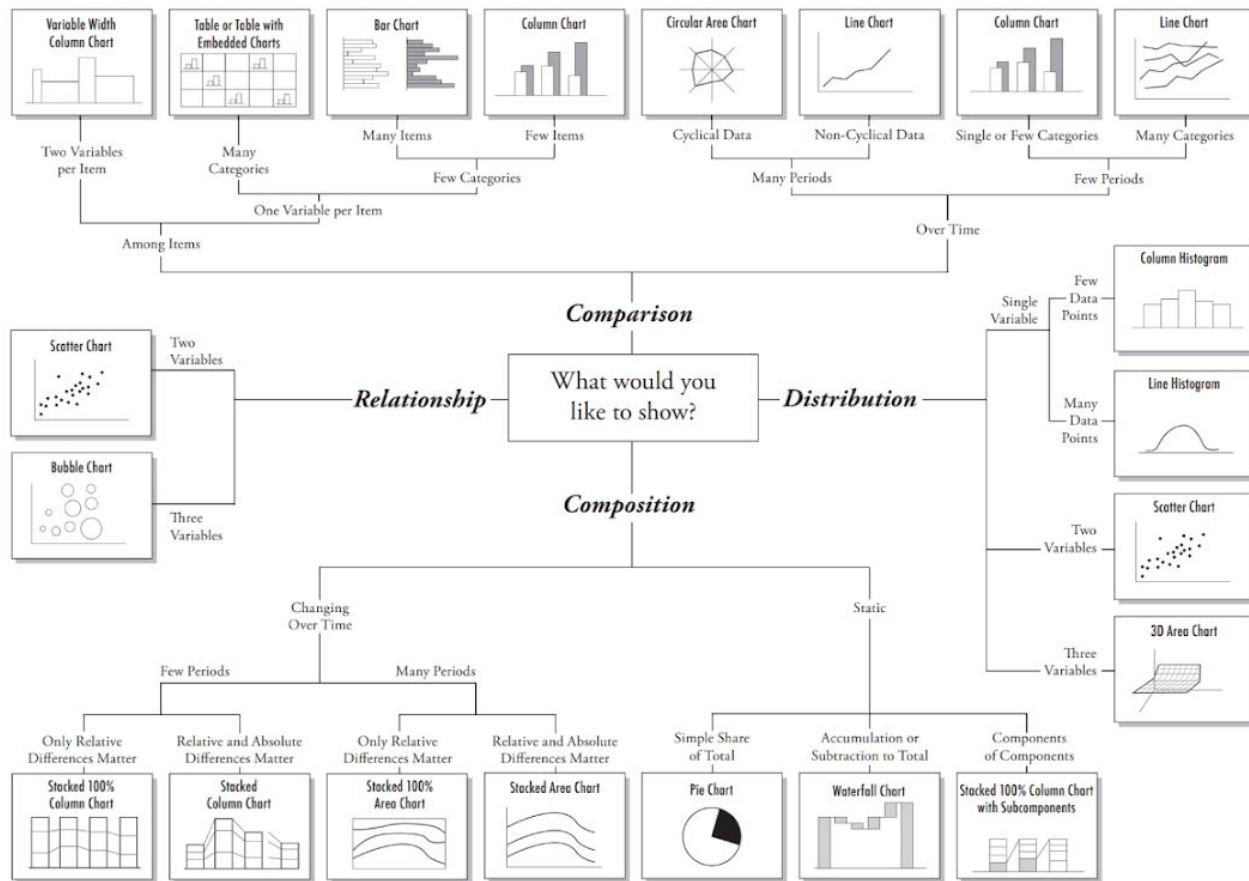


## Most reserved areas



## Office occupancy





Lazarina Stoy.

[@lazarinastoy](#) | [@techseowomen](#)

#WTSFest



# Example: Line Chart

## When to Use:

- Showing trends over time
- **Example:** Monthly sales trends for 2023

**Tip:** Ensure consistent intervals and clear axis labels

# Example: Bar Chart

- **When to Use:**
  - Comparing categories
  - **Example:** Revenue comparison across product categories
- **Tip:** Limit the number of categories for better clarity



# Example: Pie Chart

## When to Use:

- Displaying parts of a whole
- **Example:** Market share by company

**Tip:** Use only when there are clear, distinct categories (avoid too many slices)

# Example: Scatter Plot

- **When to Use:**
  - Show correlations between two variables
  - **Example:** Relationship between marketing spend and revenue
- **Tip:** Add a trendline to emphasize the pattern

# Looker Studio Dashboard Examples

<https://blog.coupler.io/looker-studio-dashboard-examples/>

Source

Campaign type

Campaign name

Amount spent

\$12,567

↑ 1.6%

Impressions

294,480

↑ 1.8%

Clicks

10,637

↑ 0.9%

CTR

3.61%

↓ -0.8%

CPM

\$42.68

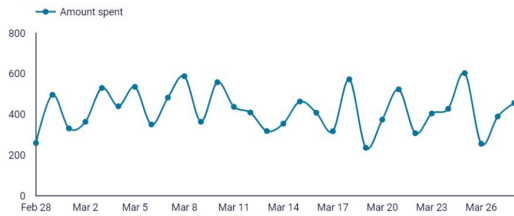
↓ -0.2%

CPC

\$1.18

↑ 0.7%

Spend amount by Date



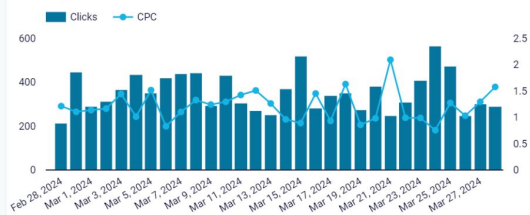
Impressions and Clicks by Date



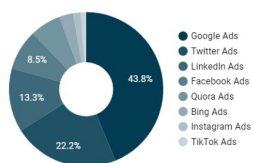
Impressions and CTR over time



Clicks performance over time



Clicks by Source



Source	Impressions	Clicks	CTR	Amount spend	% Δ	CPM	% Δ	CPC	% Δ
Quora Ads	10,885	686	6.3%	\$741	7.1% ↑	\$68.08	0.9% ↑	\$1.08	3.3% ↑
LinkedIn Ads	71,062	1,418	2%	\$360.76	20.1% ↑	\$5.08	4.6% ↑	\$0.25	2.7% ↑
Bing Ads	3,932	312	7.93%	\$329	207.5%...	\$83.67	22.2% ↑	\$1.05	53.7% ↑
Facebook Ads	70,270	908	1.29%	\$219.24	0.0% ↓	\$3.12	-4.1% ↓	\$0.24	-3.9% ↓
Instagram Ads	14,493	173	1.19%	\$48.72	-15.2% ↓	\$3.36	30.6% ↑	\$0.28	47.1% ↑
TikTok Ads	12,219	118	0.97%	\$37.7	6.6% ↑	\$3.09	-2.6% ↓	\$0.32	51.7% ↑
Grand total	294,480	10,637	3.61%	\$12,567.42	1.6% ↑	\$42.68	-0.2% ↓	\$1.18	0.7% ↑

## Campaign

## Amount spend

Type to search

<input checked="" type="checkbox"/>	LI Campaign 7	\$850.62
<input checked="" type="checkbox"/>	LI Campaign 1	\$302.42
<input checked="" type="checkbox"/>	LI Campaign 4	\$286.61
<input checked="" type="checkbox"/>	LI Campaign 5	\$181.37

Impressions

94.0K

↑ 9.5% from previous 30 days

Clicks

1.6K

↑ 49.8% from previous 30 days

Amount spend

\$2.40K

↑ 49.6% from previous 30 days

Landing page clicks

867.0

↑ 24.0% from previous 30 days

CTR

1.66%

↑ 0.45% from previous 30 days

CPM

\$25.57

↑ 36.6% from previous 30 days

CPC

\$1.54

↓ -0.2% from previous 30 days

## Reach and Frequency

for the last 30 days

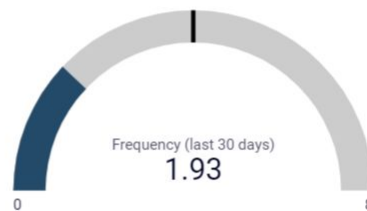
Reach (last 30 days)

49.0K

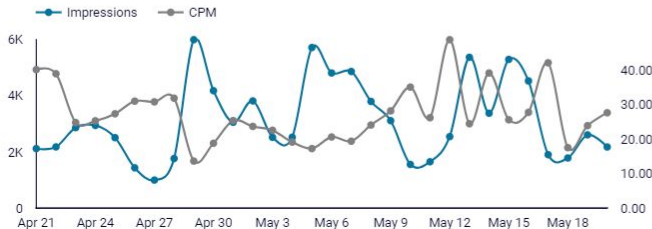
Campaign	Reach	Frequency
LI Campaign 5	5720	6.10
LI Campaign 8	3072	1.49
LI Campaign 3	2392	1.31
LI Campaign 15	9455	1.21
LI Campaign 1	3007	1.20

1 - 10 / 15

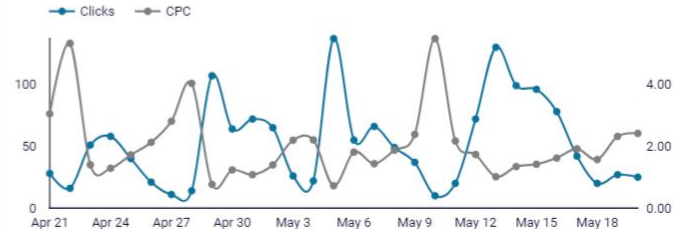
Consider optimising your campaigns if frequency exceeds 4



## Impressions and CPM



## Clicks and CPC



Ads Impressions

30.1M

Ads clicks

491.4K

Ads spend

\$102.93K

Branded Impressions

323.6K

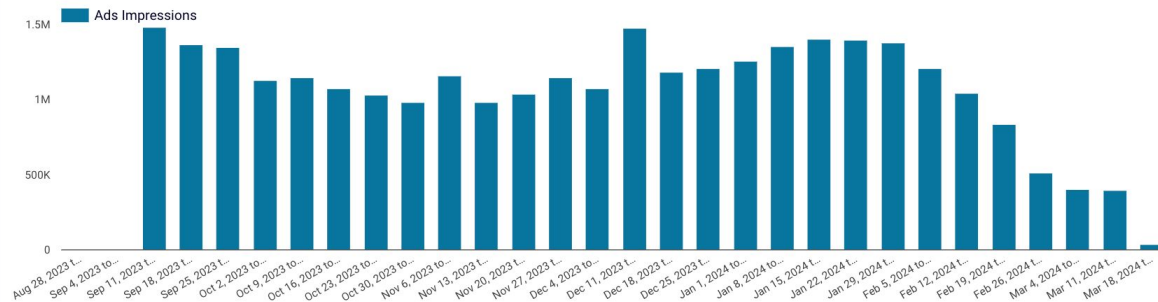
Branded Clicks

155.1K

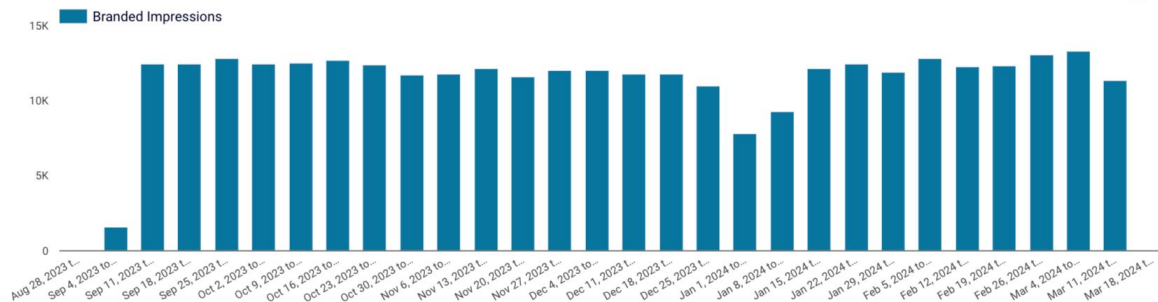
Country

Campaign name

## Weekly Facebook Ads Impressions



## Weekly GSC Branded Metrics



Username: Select user

(1) ▾

  
Followers  
1.2K  
Followers reach rate  
60.19%

Followers reach rate is the total reach of page followers during the last 30 days divided by the current total number of followers. The closer this metric is to 100% the better

Impressions 📊

12.8K

Reach (last 30 days)

4.3K

Likes ❤️

2.9K

Shares 🗨️

262

Comments 💬

828

Website 🌐

1,053

Get directions 📍

558

Phone call 📞

288

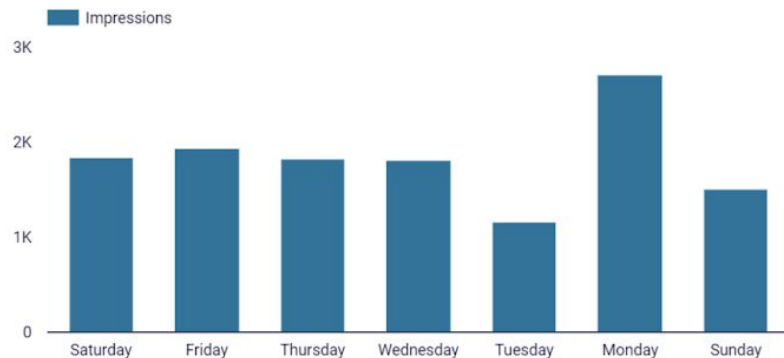
Text message 💬

867

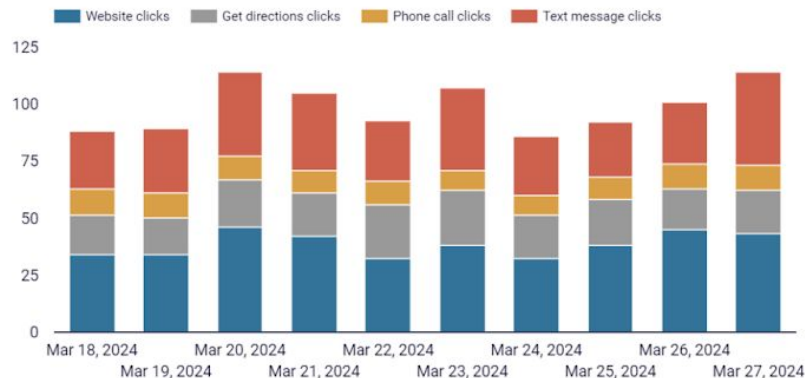
Total interactions 📊

5.4K

## Impressions by Day of Week



## Profile Interaction Dynamics





Video Id

Video title

Video title

Contains

Enter a value

☒ Content type

Views

Type to search

☒ videoOnDemand

69.9K

☒ shorts

4.2K

Views

74.1K

Shares

640.0

Estimated minutes watched

189.0K

Average view duration

00:02:33

Average views per day

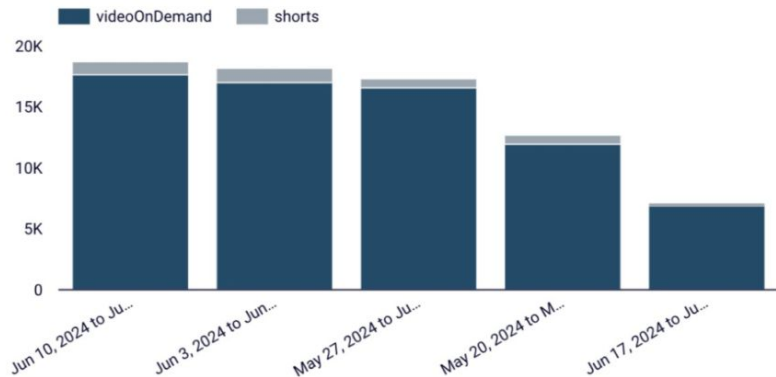
2.6K

Likes Dislikes



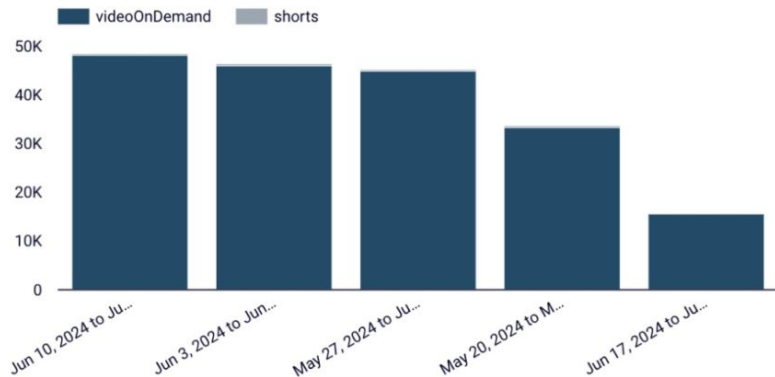
## Views dynamics

↑ ↓ A-Z ⋮

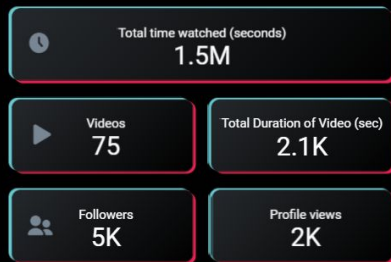


## Watch time dynamics

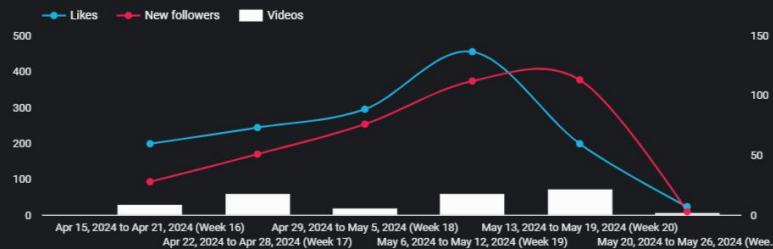
↑ ↓ A-Z ⋮





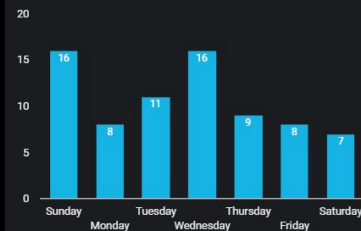


#### Timeline insights

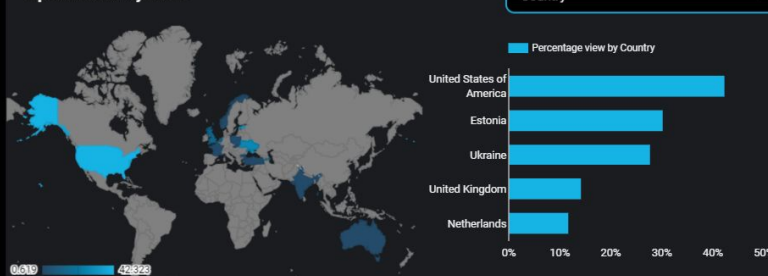


#### Your most active days

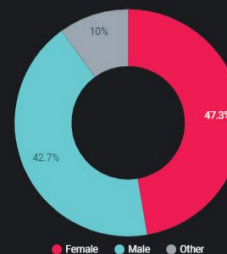
\*days of the week when you publish your videos



#### Top Countries by views



#### Audience composition by gender



Property name ▾

Channel ▾

Session source / medium ▾

Device category ▾

Country ▾

Sessions  
5.1M

Total users  
2.9M

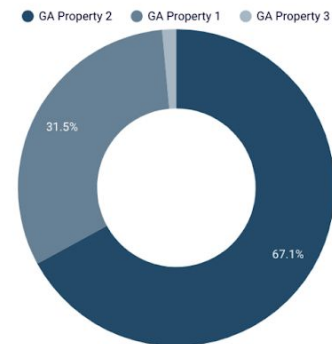
New users  
1.8M

Avg. engagement time per session  
06:15

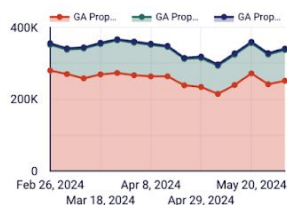
Channel	Sessions	Total users ▾	New users	Conversions
Organic Search	2.8M	1.9M	1.5M	3.3M
Direct	1.3M	581.1K	268.7K	4.4M
Referral	768.9K	278.7K	41.4K	2.4M
Paid Search	132.1K	63.5K	24.4K	461.5K
Unassigned	51.1K	47.2K	4.8K	175.9K
Organic Social	31K	25.4K	19.9K	10.2K
Display	6.9K	6.3K	5.9K	880
Organic Video	7.1K	4.1K	2K	13.4K
Paid Video	3.4K	2.8K	2.6K	385
Email	6.1K	2.8K	955	18.8K
Cross-network	1.4K	1.2K	1K	1.5K
Paid Other	114	91	67	134
Organic Shopping	41	30	17	126
Paid Social	13	11	5	11

1 - 14 / 14 < >

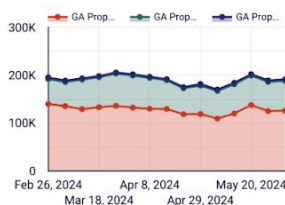
### Properties Breakdown by Total Users



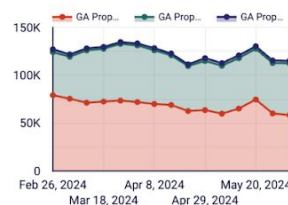
### Sessions



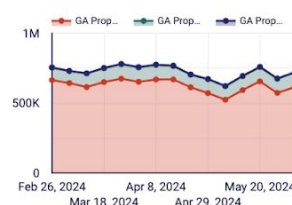
### Total users



### New users



### Conversions





200 URLs

273

81.0% of page fetch state

3xx URLs

9

2.7% of page fetch state

4xx URLs

20

5.9% of page fetch state

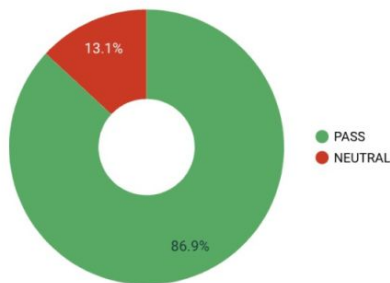
Indexed pages

273

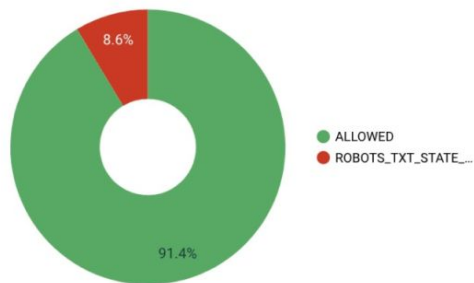
Non-indexed pages

64

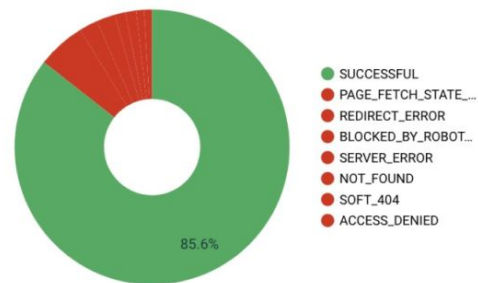
## Pages by Indexing Verdict



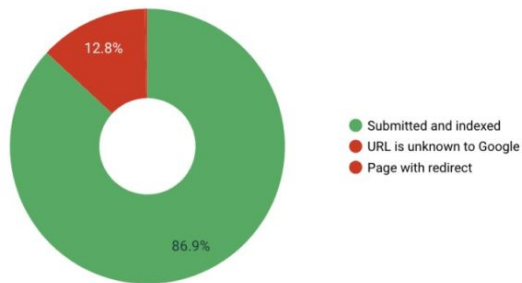
## Pages by Robots.txt status



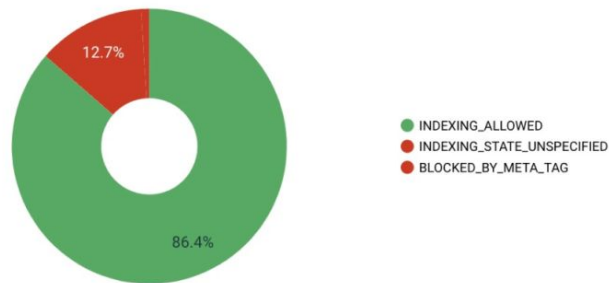
## Pages by Fetch State



## Pages by Coverage State



## Pages by Indexing State



Country ▾

Year Month ▾

Amount spend

\$21.56K

CPM

\$8.30

CPC

\$0.3

Cost per lead

\$76.19

Cost per SQL

\$106.75

Cost per customer

\$148.71

## Acquisition funnel



## Monthly funnel

Year Month	ADs				Google Analytics 4		HubSpot		
	Amount spend	Impressions ▾	Clicks	CTR	Total users	New users	Contacts	Conversion: New users to contacts	
Jan 2024	\$3,326.26	928,620	16,416	1.77%	1,728	574	207	36.06%	
Apr 2024	\$4,303.45	698,358	19,563	2.8%	1,727	564	197	34.93%	
Mar 2024	\$3,312.2	510,927	8,637	1.69%	1,738	565	184	32.57%	
Feb 2024	\$2,058.8	159,202	5,934	3.73%	1,708	526	167	31.75%	
May 2024	\$2,885.18	125,625	6,387	5.08%	1,670	546	189	34.62%	
Jun 2024	\$3,822.96	108,569	7,665	7.06%	1,762	614	204	33.22%	
Jul 2024	\$1,854.18	68,003	3,828	5.63%	1,756	601	10	1.66%	



Unpaid bills amount

3,586



Overdue amount

3,280



Overdue bills 30+ days

2,076

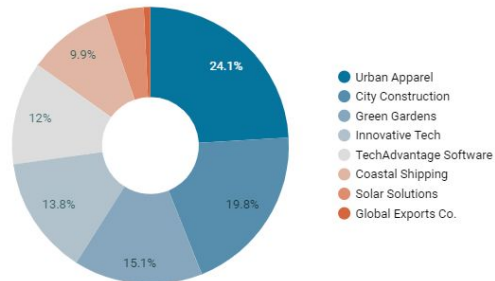
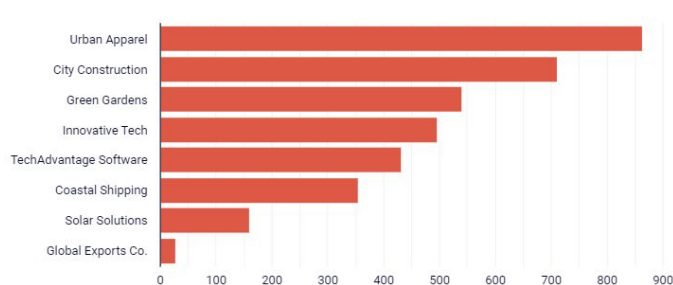


Overdue bills 90+ days

2,019

\* in home currency

## Unpaid bills amount by vendor \* in home currency



## Paid bills by vendor

\* in home currency

Current month amount

880

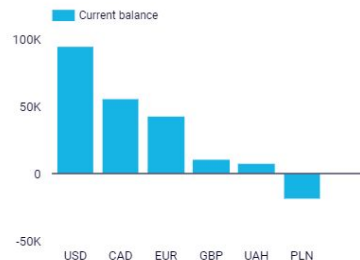
Vendor	Current month	Last month	Year to date
TechAdvantage S...	0	1,340	1,340
Solar Solutions	0	0	1,118
City Construction	0	0	1,068
Coastal Shipping	720	0	720
Green Gardens	0	637	637
Urban Apparel	0	381	381
Global Exports Co.	160	0	160

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## Bank&amp;Cash

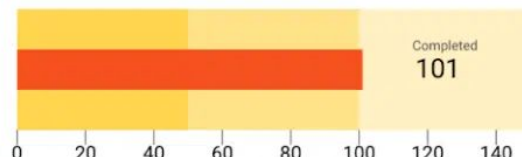
Account name	Currency	Current balance
Investment	USD	94579
Tech Innovations Operating...	CAD	56123
Petty Cash	EUR	42966
Operations	GBP	10997
Capital Growth Investment ...	UAH	7736
ByteBank	PLN	-18811
		null

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Schools	Girls	Avg: Pre Score	Avg: Total Score
65	71	3.96	5.09
Students	Boys	Avg: Post Score	Avg Time (Que)
101	30	4.99	86.89



School	Students	Sanitation Facility	Pre Score	Post Score	Overall Score
1. ABA School No-12- KauBa	1	1	4	6	7
2. ABA School No-14- Mumbra	2	1	4	6	7
3. ABA School no. 16- English	2	2	2	2	5.5
<b>Grand total</b>	<b>101</b>	<b>72</b>	<b>3.96</b>	<b>4.99</b>	<b>5.09</b>

Teachers	Schools	Avg Duration	Avg Survey Time
Kareen Ahirwar	9	1,494.78	51.44
Barkha Rashik	7	2,840.71	198
Shivani Sahu	5	2,403	8
Meena	5	2,685.4	114.8
Kalpna Rashik	4	3,242.25	6.25
Kenu Patel	4	3,160.25	87.25
Kasak Katiya	3	1,973	140.33



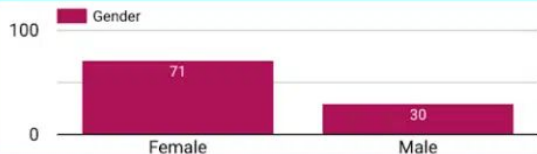
## Field Comments

Well answered, is training beautician, wants to open parlor

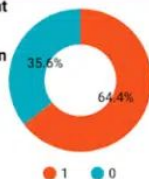
We liked this program. We will also tell our friends about it. People who are unsure about their goals can get the right information about their goals through this program.

We have learned a lot about our careers from the Fellowship Foundation. This session is very helpful.

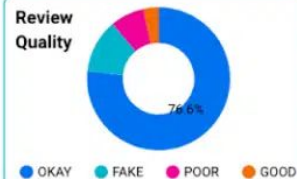
We gained a lot of knowledge from the online classes in the intimate foundation session.



## Consent & Attrition



## Review Quality



## Survey: Start Time

8:30 AM

## Survey: End Time

6:00 PM

## Aspirations





# How to Highlight Insights in Graphs

- **Visual Techniques:**

- **Use Color Sparingly** – to highlight key data points
- **Annotations** – Add labels to explain important trends
- **Focus Areas** – Bold or enlarge key sections of the graph

# Designing Clean Visuals

1. Simplify data – Avoid clutter
2. Consistent colors and fonts
3. Highlight the important data point

**Example Before/After:** Improve a cluttered graph



# Common Mistakes in Visualization

- **What to Avoid:**
  - Misleading scales
  - Overcomplicated charts (3D charts, too many variables)
  - Overuse of pie charts
- **Example:** A common visualization mistake and how to fix it

# Preparing for Final Presentation

- **Tips for a Successful Presentation:**

- Know your audience
- Practice your storytelling
- Simplify the message
- Engage the audience with key insights, not just data

- **Focus on:**

- Clear narrative
- Data-backed insights
- Actionable conclusions

# Conclusion

- **Recap:**

- Importance of storytelling in data
- How to find and present insights
- Choosing the right graphs to tell your story

- **Call to Action:**

- Ready to present your data? Let's make it impactful!