

GA4 + BigQuery Webinar

Troubleshooting Data and
Making Confident Decisions

August 7th

AIM Conversion
Experts

V//^RIFY.iO® - A/B Testing Platform

- ∞ Unlimited Traffic
- 🍪 No Cookies
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- 🔍 Shopify & Big Query Integration



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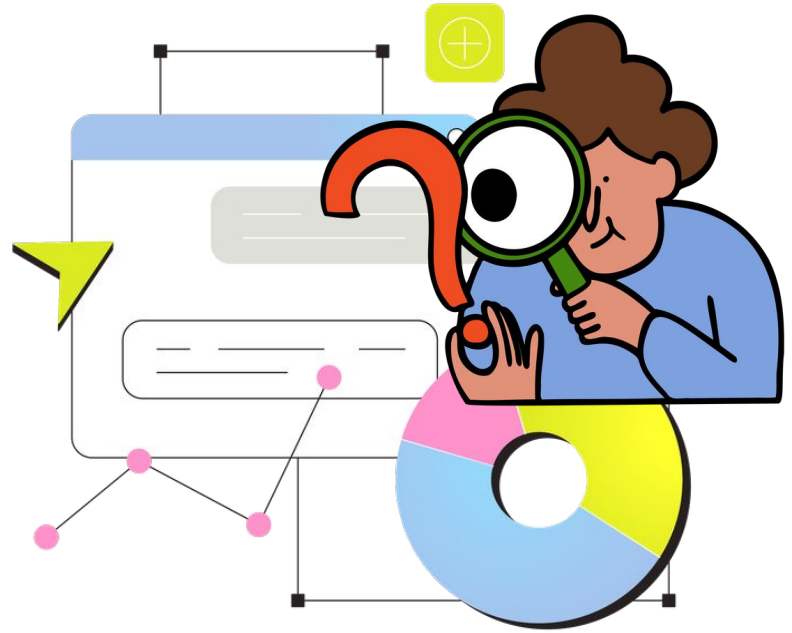
Bruna Querido

- Data & Experimentation Specialist, focused on CRO and analytics strategy
- Partnering with brands to translate messy data into meaningful decisions
- Experienced in GA4, BigQuery, and structuring reliable measurement foundations
- Passionate about experimentation culture and building scalable insights



Executive Summary

- **Why data doesn't always make sense:**
How to identify and troubleshoot GA4 tracking and interpretation issues.
- **When segments break and funnels don't add up:** What's really behind those numbers that disappear or shift.
- **How BigQuery helps you see more clearly:** Not just about SQL — it's about thinking with data, especially when it's unreliable.



“Are my numbers right?”

Diagnosing GA4 Data Reliability

Why metrics don't always match between tools

- Frequently, we configure a metric in the A/B test tool or another database and then see a mismatch between numbers
- ➔ By how much is this mismatch normal?
What data can we rely on?

Scenario	Commonly Accepted Difference*
Robust, well-tested implementation	< 5%
Standard client-side tracking (average setup)	5% - 10%
Mixed tracking (client + server), multiple integrations	Up to 15% (if explained)

VTEX				Google Analytics 4			
Dia	Transações	Receita	DeltaTransações	Dia	Transações	Receita	DeltaReceita
22-03	9	R\$ 2.766,64	-55,56%	22-03	4	R\$ 1.772,74	-35,92%
23-03	17	R\$ 8.385,37	-17,65%	23-03	14	R\$ 7.382,43	-11,96%
24-03	73	R\$ 157.852,37	-32,88%	24-03	49	R\$ 80.514,75	-48,99%
25-03	37	R\$ 113.834,97	-48,85%	25-03	19	R\$ 34.877,85	-69,36%
26-03	57	R\$ 116.176,80	-24,56%	26-03	43	R\$ 56.362,96	-51,46%
27-03	39	R\$ 82.241,17	-17,95%	27-03	32	R\$ 41.187,76	-49,92%
28-03	128	R\$ 222.401,24	-72,66%	28-03	35	R\$ 84.611,62	-61,96%
29-03	12	R\$ 10.630,97	-8,33%	29-03	11	R\$ 17.295,79	62,69%
30-03	14	R\$ 12.761,66	-7,14%	30-03	13	R\$ 16.803,24	31,67%
31-03	54	R\$ 234.694,17	-11,11%	31-03	48	R\$ 217.306,82	-7,41%
01-04	37	R\$ 47.126,82	-18,92%	01-04	30	R\$ 46.425,78	-1,46%
02-04	41	R\$ 55.492,51	-7,32%	02-04	38	R\$ 58.319,21	5,09%
03-04	42	R\$ 53.984,29	-14,29%	03-04	36	R\$ 43.823,67	-18,82%
04-04	34	R\$ 82.469,79	-11,76%	04-04	30	R\$ 110.970,25	34,56%
05-04	10	R\$ 7.597,31	-10,00%	05-04	9	R\$ 6.784,82	-10,69%
06-04	5	R\$ 9.640,80	0,00%	06-04	5	R\$ 11.763,64	22,02%
07-04	48	R\$ 136.038,48	-16,67%	07-04	40	R\$ 132.104,76	-2,89%
08-04	67	R\$ 196.499,19	-25,37%	08-04	50	R\$ 144.202,95	-26,61%
09-04	61	R\$ 122.352,90	-13,11%	09-04	53	R\$ 109.980,48	-10,11%
10-04	49	R\$ 75.238,45	-12,24%	10-04	43	R\$ 43.895,60	-41,66%
11-04	50	R\$ 71.596,06	-2,00%	11-04	49	R\$ 92.617,18	29,36%
12-04	27	R\$ 60.845,41	-7,41%	12-04	26	R\$ 52.590,76	-13,28%
13-04	38	R\$ 60.830,93	-18,42%	13-04	31	R\$ 52.793,36	-13,21%
14-04	61	R\$ 73.213,91	-6,56%	14-04	57	R\$ 70.920,86	-3,13%
15-04	54	R\$ 89.308,69	-11,11%	15-04	48	R\$ 87.980,91	-1,49%
16-04	52	R\$ 103.390,44	-7,69%	16-04	48	R\$ 77.758,76	-24,79%

* Google Support: "Slight discrepancies of less than 10% are normal" - [Google Analytics Help](#)
[Simo Ahava](#) (specialist in GTM/GA): practical analysis and explanations about client-side losses
[MeasureSchool](#) / Julian Juenemann: GA reliability

Events missing? Duplicated conversions?

Unexpected drops?

Segmento	B	A
ID da Transação	Total de compradores	Total de compradores
Totais	584	568
1 1523562966097	0	3
2 1523562966099	3	0
3 1523672966597	3	3
4 1523682966745	3	0
5 1523702966947	3	3
6 1523702966953	3	0
7 1523712967084	0	3
8 1523732967228	0	3
9 1523742967279	0	3
10 1523742967311	0	3
11 1523742967317	3	3

Segmento	B	A
ID da Transação	Total de compradores	Total de compradores
Totais	50	45
1 1533723191774	0	1
2 1533763192093	1	0
3 1533773192186	0	1
4 1533823192621	1	0
5 1533973193098	1	0
6 1534023193460	1	0
7 1534063193708	1	0
8 1534083193817	0	1
9 1534093193869	1	0
10 1534123194016	0	1
11 1534203194165	0	1

How to spot tracking and configuration issues in GA4

- Does my GA4 have personalized dimensions?
- If so, how are they named?
- How do they receive my parameters?
- Is it free or paid?
- Do I have to be concerned with sampled results?
- Do the numbers make sense with my e-commerce?
- If not, when did this start?
- Is there a specific segment where this is happening?



Personalizado

- ☐ access_cluster
- ☐ access_type
- ☐ action_place
- ☐ affiliation
- ☐ attrib_change_fromto
- ☐ attrib_classification
- ☐ attrib_lastnotsuspect
- ☐ attrib_origins
- ☐ Blueconic
- ☐ category_id
- ☐ category_name
- ☐ chatbot_action
- ☐ component_name
- ☐ content_id
- ☐ content_load_time
- ☐ content_type
- ☐ coupon_code
- ☐ cta_text

A practical checklist for common mistakes

(with real-world examples)

- ✓ Transactions > Buyers
- ✓ Sessions > Users
- ✓ Funnel percentages*:
 - 40-70% - attention;
 - 40-60% - interest;
 - 8-15% - decision
- ✓ Number of a specific vision < numbers of the general vision
- ✓ New + returning users can be equal, lower or higher than the general number of users, without the segmentation

The same for other segmentations, like payment type, product type

Mês	Data Início	Usuários	Sessões	Adições ao Carrinho	Compradores	Transações	Taxa de Engajamento
Maio	06/05/2025	6.945	8.969		63	56	70,45%
Maio	07/05/2025	6.909	9.093		49	42	68,94%
Maio	08/05/2025	6.616	8.696		42	42	69,96%
Maio	09/05/2025	6.406	8.272		26	28	68,75%
Maio	10/05/2025	4.519	5.307		11	10	68,48%
Maio	11/05/2025	3.959	4.683		5	5	71,75%
Maio	12/05/2025	8.377	10.676		53	48	71,50%
Maio	13/05/2025	7.806	10.192		48	32	69,45%
Maio	14/05/2025	7.691	10.154		53	49	70,49%
Maio	15/05/2025	7.036	9.187		31	21	69,76%
Maio	16/05/2025	6.464	8.355		25	22	70,53%
Maio	17/05/2025	4.811	5.771		37	31	72,15%
Maio	18/05/2025	4.833	5.945		38	28	72,50%
Maio	19/05/2025	8.625	11.463		68	61	69,75%
Maio	20/05/2025	8.917	11.623		58	45	68,91%
Maio	21/05/2025	8.859	11.517		66	54	68,32%
Maio	22/05/2025	8.928	11.714		66	49	68,26%
Maio	23/05/2025	7.565	10.198		41	32	66,92%
Maio	24/05/2025	5.135	6.139		21	15	69,93%
Maio	25/05/2025	5.162	6.205		30	18	69,35%
Maio	26/05/2025	8.442	11.085		58	43	69,52%
Maio	27/05/2025	8.287	10.903		53	41	68,83%
Maio	28/05/2025	8.241	10.790		47	39	68,35%
Maio	29/05/2025	7.332	9.650		31	24	68,86%
Maio	30/05/2025	6.987	9.128		30	24	67,59%

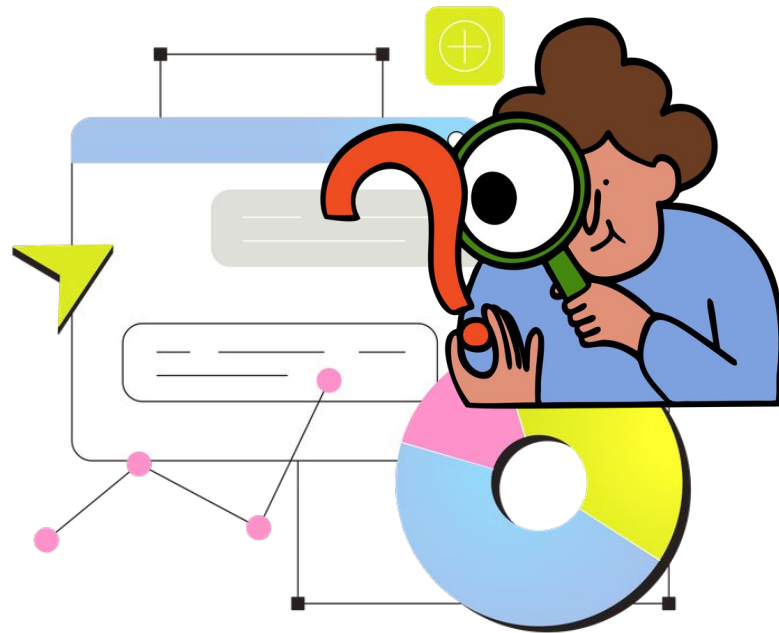
* Contentsquare Benchmark Report:
[contentsquare.com](https://www.contentsquare.com)

Baymard Institute – Cart & checkout:
[baymard.com](https://www.baymard.com)

IRP Commerce KPIs: [irpcommerce.com](https://www.irpcommerce.com)

Dynamic Yield Benchmarks: [statista.com](https://www.statista.com)

Shopify eCommerce Reports: [shopify.com](https://www.shopify.com)



Segment Crosses & Filters

When It Just Doesn't Work

“This filter has removed all my data” — what now?

Why does that occur?

- If you want to see just the users that did a specific thing on the product page and went to the cart:
- ➔ Use segmentation.
- If segmentation still shows no data, it means users didn't do what you thought.

Configurações

1

EXIBIR LINHAS

50

LINHAS ANINHADAS

No

COLUNAS

+

Soltar ou selecionar dimensão

INICIAR GRUPO DE COLUNAS

1

EXIBIR GRUPOS DE COLUNAS

5

VALORES

⌵

Total de usuários

+

Soltar ou selecionar métrica

TIPO DE CÉLULA

Gráfico de barras

FILTROS

Nome do evento corresponde exatamente a apply_coupon

+

Soltar ou selecionar dimensão ou métrica

Segmento		Versão B	Versão A
Nome do evento	coupon_code	Total de usuários	Total de usuários
Totais		1,709	1,637
1	apply_coupon SEJABEMVINDO	404	409
2	apply_coupon ELETRO200	408	349
3	apply_coupon ELETRO100	236	222
4	apply_coupon UD20	186	169
5	apply_coupon MELJUZ5	180	172
6	apply_coupon GANHOU20	173	145
7	apply_coupon sejabemvindo	150	163
8	apply_coupon ELETRO300	151	127
9	apply_coupon ELETRO50	141	119
10	apply_coupon GANHE15	127	117
11	apply_coupon VOLTEIS	104	93
12	apply_coupon CUPONOMIA10	85	105
13	apply_coupon eletro200	98	86
14	apply_coupon volteis	86	89
15	apply_coupon ELETRO500	97	74
16	apply_coupon OFERTA5	80	80
17	apply_coupon eletro100	79	62
18	apply_coupon OFERTA15	69	67
19	apply_coupon ESPECIAL6	74	61
20	apply_coupon ELETRO400	78	53
21	apply_coupon SURPREENDIA10	57	58

K

M

M

M

Teste com Se...

T

+

Não há dados para essa combinação de segmentos, valores, filtros e período. Tente editar as variáveis ou configurações ou removê-las.

Limitations in GA4 when crossing dimensions (user vs. session vs. event)

Normal data collection vs. cohort comparison

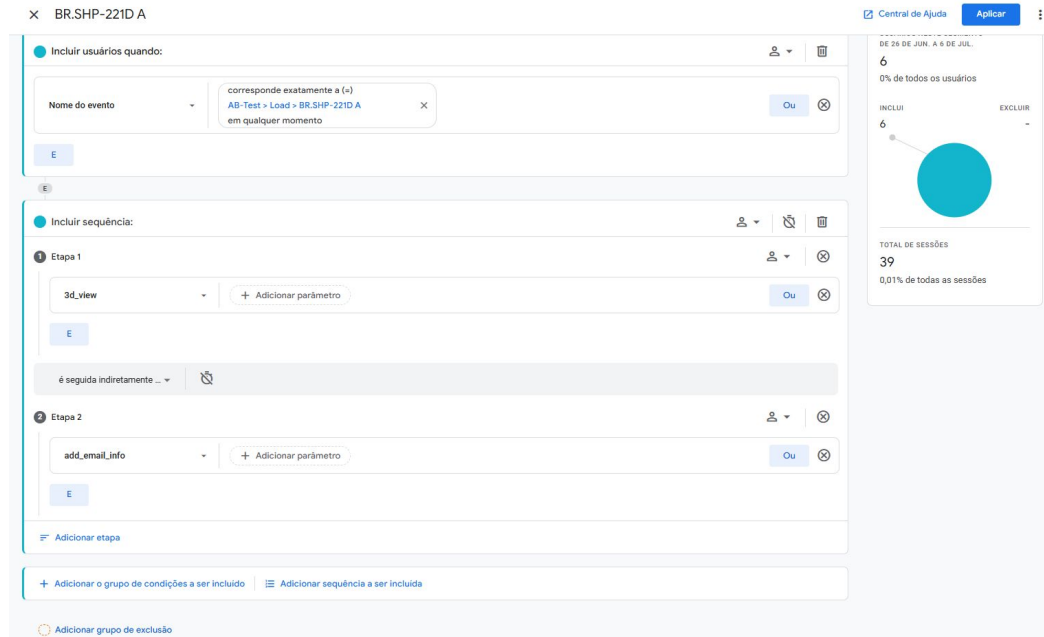
- By default, you collect complete data
- Cohort comparisons trigger sampling
- Reason: GA4 property isn't a paid account

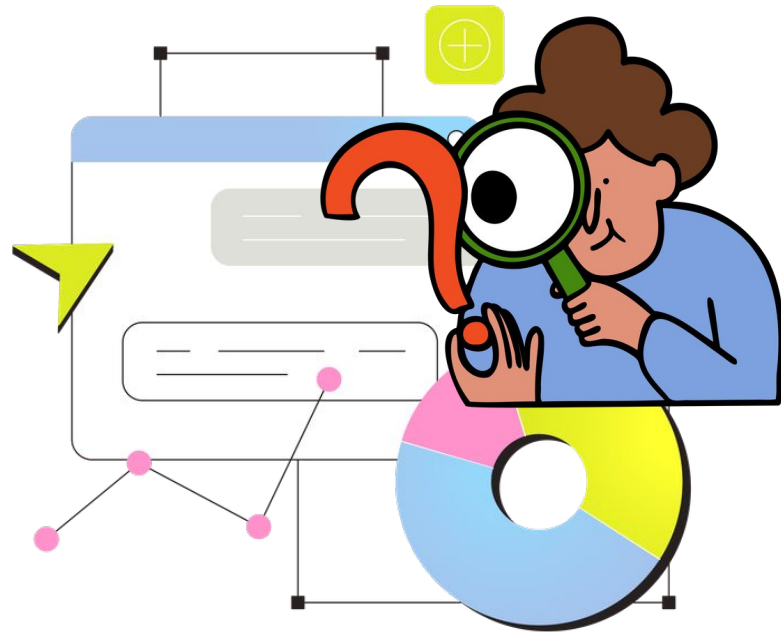
Filtering issues with multiple events/pageviews

- Attempting to filter users who performed 2–3 events or visited 2 pages
- Can result in missing data or outright errors

Solution: GA4 segmentation

- Use the Sequence, Inclusion, and Exclusion options in GA4 segmentation.
- This basic solution solves most crossing problems.





Funnel Analysis

When Steps Don't Add Up and Users Vanish

Why funnels break even when the tracking looks “correct”

- Event names might be correct, but data structure matters more
- Each step depends on:
 - How the event was captured (parameters, timing, session context)
- Common issues:
 - Steps performed out of order
 - Missing intermediate events (due to browser or network issues)
 - Session interruptions that break continuity
 - Inconsistent implementation by different teams (same event name, different parameters)

These issues create the illusion of “correct tracking” while silently breaking analysis

How to structure events and parameters for consistent flow tracking

Design events with **intention and clarity**

Define each step with:

- **Consistent naming conventions**
- **Required parameters** (e.g., `item_id`, `step`, `flow_id`)

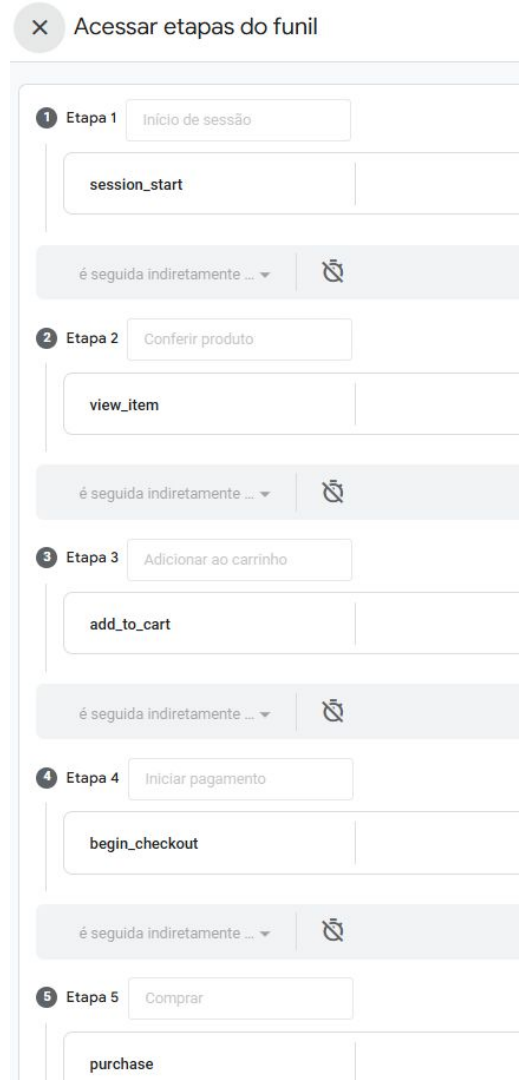
Avoid relying only on **pageviews or clicks**

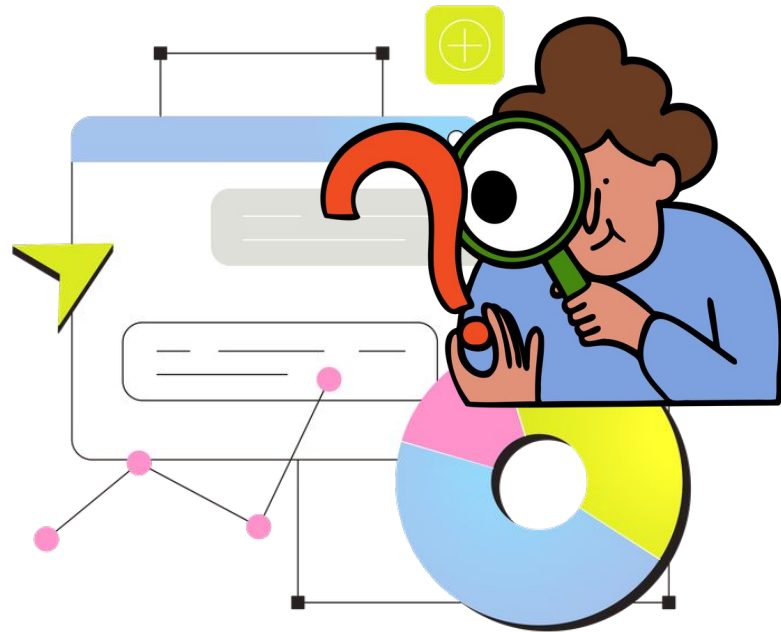
Use **custom events** for funnel milestones (e.g., `begin_checkout`, `add_payment_info`)

Structure events around **user intention**, not just technical triggers

This approach leads to:

- Clearer funnel logic
- **Fewer errors** during reporting and analysis





A/B/x Tests

Is Your Test Broken or Just Inconclusive?

Distinguishing between setup issues and statistically null results

Is the Test Broken or Just Inconclusive?



A test with no result $\neq$ test failure



Common setup issues:

- All users in same variant
- Only one step tracked
- Conversions not captured



The key: Know when it's a tracking issue vs. a real result

Real examples: when segmentation hides the true impact of a test

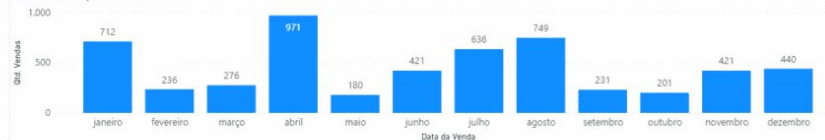
- ⇒ When should I configure the test based on users? And on sessions?
- ⇒ How should I segment my cohorts?
- ⇒ Do I have a high variance of traffic sources, returning users or other cases in my test?

Varição no Tempo

Análise para demonstrar como uma determinada variável se comporta no tempo.

Data da Venda	Qtd. Vendas
janeiro	712
fevereiro	236
março	276
abril	971
maio	180
junho	421
julho	636
agosto	749
setembro	231
outubro	201
novembro	421
dezembro	440
Total	5.474

Qtd. Vendas por Data da Venda



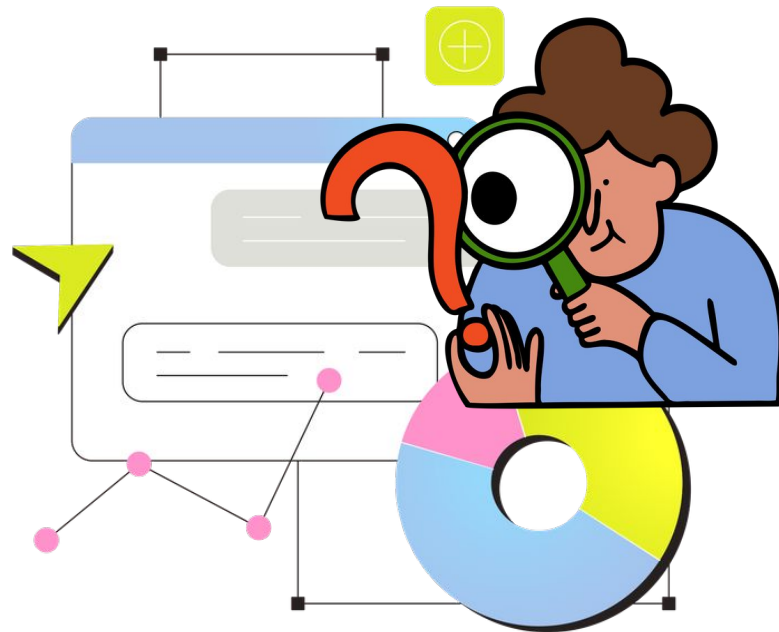
Qtd. Vendas por Data da Venda



Qtd. Vendas por Data da Venda



If you focus too much on the details,
you miss the big picture.



Closing Discussion

Before You Build Dashboards, Fix Your Data

What are the questions your data still isn't answering?

Dashboards often show what's easy to measure — not what truly matters.

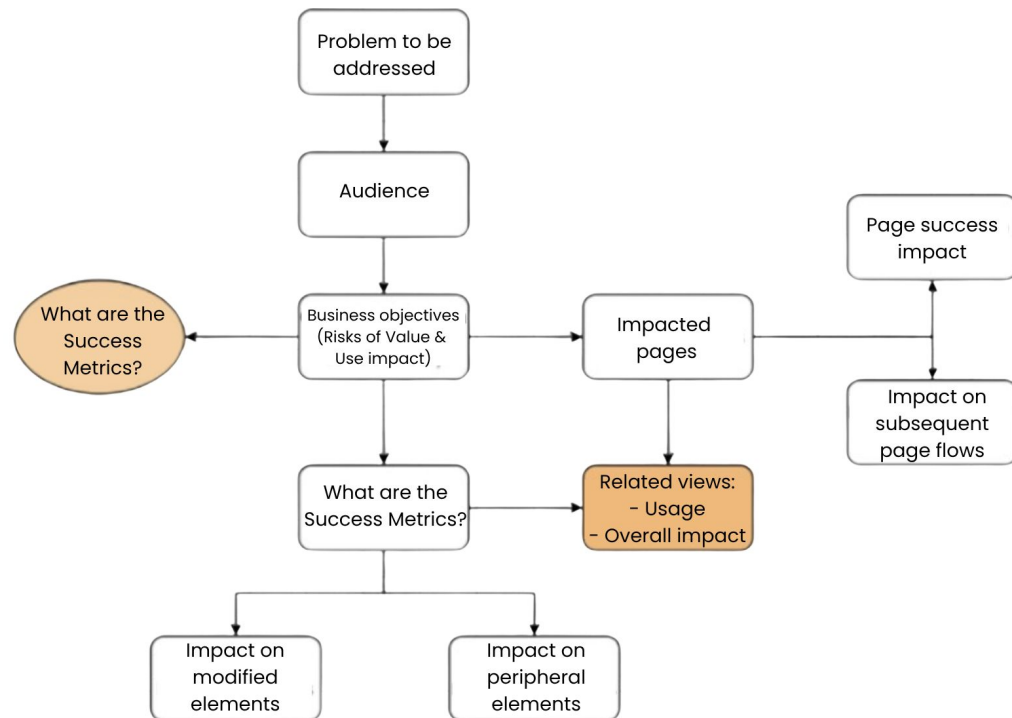
What decisions do you wish you could make, but don't trust the data for?

These blind spots reveal where your current setup is falling short.



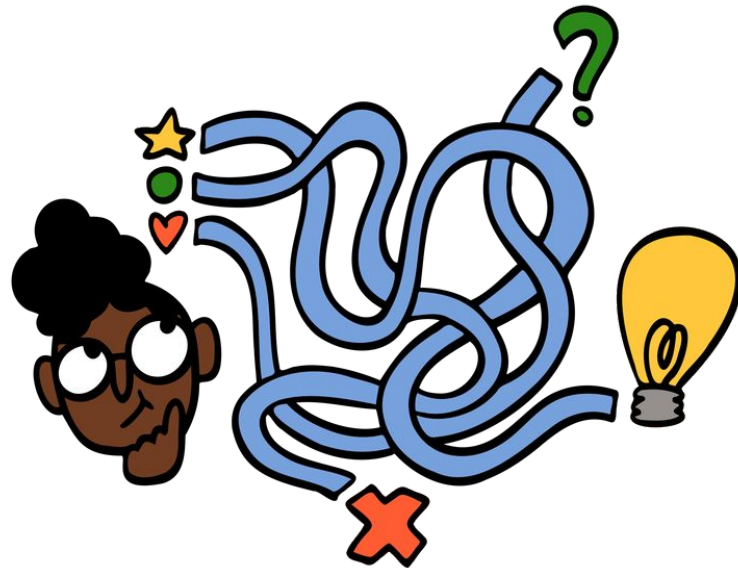
What aren't you tracking that you probably should be?

- The most powerful insight may hide in uncollected events
- Are you tracking failures, bounces, micro-interactions, or content viewed but not clicked?
- Audits often show what's missing is more critical than what's visible



How to prioritize fixes and structure cleaner measurement foundations

- Map your business questions, then validate if your data supports them
- Fix critical gaps first: broken conversions, undefined events, inconsistent parameters
- Document your tracking plan and review it regularly
- Clean data isn't just technical hygiene—it makes analysis, testing, and optimization worthwhile



How BigQuery can help unlock combinations GA4 won't allow

(no SQL needed)

- What if I did the segment, and I still can't cross 2 metrics?
- There are limitations based on configuration, permissions and type of data in GA4.
- In those cases, the only solution is to use raw data (e.g., BigQuery)
- BigQuery lets you cross different sources, metrics, and data types freely

Consulta sem título

Executar Salvar Fazer o download Compartilhar Programação Abrir em

```

1 WITH itens_classificados AS (
2   SELECT
3     i.usuarios,
4     i.sesoes,
5     i.pedidos,
6     i.item_id,
7     i.item_revenue,
8     i.payment_type,
9     CASE
10      WHEN i.item_revenue < 130 THEN 'Abaixo de 130'
11      WHEN i.item_revenue BETWEEN 130 AND 1300 THEN 'Entre 130 e 1300'
12      WHEN i.item_revenue > 1300 THEN 'Acima de 1300'
13      ELSE 'Indefinido'
14    END AS faixa_valor_item,
15     r.rotulo
16  FROM
17    `dp6-magazineluiza-gap_CRO_Webstore.AIM_MGLU_KPIs_025D_Items` i
18  LEFT JOIN
19    `dp6-magazineluiza-gap_CRO_Webstore.AIM_MGLU_KPIs_025D` r
20    ON i.sesoes = r.sesoes
21  WHERE
22    r.rotulo IS NOT NULL
23    AND REGEXP_CONTAINS(r.rotulo, r'^Mglu\.[025D]')
24    AND i.pedidos IS NOT NULL
25 )
26

```

Consulta concluída

Resultados da consulta

Informações do job		Resultados	Gráfico	JSON	Detalhes da execução	Gráfico de execução	
Linha	rotulo	faixa_valor_item	total_usuarios	total_sesoes	total_compradores	total_transacoes	
1	Mglu.025D A	Abaixo de 130	42842	47622	42842	49765	
2	Mglu.025D A	Acima de 1300	8214	8958	8214	9427	
3	Mglu.025D A	Entre 130 e 1300	29260	32720	29260	34542	
4	Mglu.025D A	Indefinido	4	4	4	4	
5	Mglu.025D B	Abaixo de 130	42419	47115	42419	49368	
6	Mglu.025D B	Acima de 1300	8206	9017	8206	9556	
7	Mglu.025D B	Entre 130 e 1300	29363	32867	29363	34692	
8	Mglu.025D B	Indefinido	1	1	1	1	

Before

Consulta sem título

Executar

Salvar

Fazer o download

Compartilhar

Programação

Abrir em

```
1 WITH itens_classificados AS
2 SELECT
3   i.usuarios,
4   i.sesoes,
5   i.pedidos,
6   i.item_id,
7   i.item_revenue,
8   i.payment_type,
9   CASE
10    WHEN i.item_revenue < 130 THEN 'Abaixo de 130'
11    WHEN i.item_revenue BETWEEN 130 AND 1300 THEN 'Entre 130 e 1300'
12    WHEN i.item_revenue > 1300 THEN 'Acima de 1300'
13    ELSE 'Indefinido'
14  END AS faixa_valor_item,
15   r.rotulo
16 FROM
17   'dp6-magazineleuiza-gap_CRO_Webstore.ATM_MGLU_KPIs_025D_Items' i
18 LEFT JOIN
19   'dp6-magazineleuiza-gap_CRO_Webstore.ATM_MGLU_KPIs_025D' r
20 ON i.sesoes = r.sesoes
21 WHERE
22   r.rotulo IS NOT NULL
23   AND REGEXP_CONTAINS(r.rotulo, r'^Mglu\..025$')
24   AND i.pedidos IS NOT NULL
25
26
```

Consulta concluída

Resultados da consulta

Informações do job	Resultados	Gráfico	JSON	Detalhes da execução	Gráfico de execução	
Linha	rotulo	faixa_valor_item	total_usuarios	total_sesoes	total_compradores	total_transacoes
1	Mglu.025D A	Abaixo de 130	42842	47622	42842	49765
2	Mglu.025D A	Acima de 1300	8214	8958	8214	9427
3	Mglu.025D A	Entre 130 e 1300	29260	32720	29260	34542
4	Mglu.025D A	Indefinido	4	4	4	4
5	Mglu.025D B	Abaixo de 130	42419	47115	42419	49368
6	Mglu.025D B	Acima de 1300	8206	9017	8206	9556
7	Mglu.025D B	Entre 130 e 1300	29363	32867	29363	34692
8	Mglu.025D B	Indefinido	1	1	1	1

Varify

VIA RIFY.IO

Plan: Pro Account

0

DASHBOARD / Test Results

Demo A/B Test

Test Results

Last Update: Thu, Jun 12, 2025, 1:54 PM

Experiment-ID21305

Visitors0

Start date23.5.2025

Days Running20

Statusactive

Variation Overview

1. OriginalTraffic: 50%Variation-ID:-

2. Variation 1Traffic: 50%Variation-ID:31367

Space for your notes or a hypothesis

23.5.2025 - 12.6.2025

Update Results

Add GA4 goal

Add BigQuery goal

Let's connect!

Try our BigQuery integration for free to compare your GA4 and BigQuery data - we'll help with the setup.



Join our
exclusive
Community



Thomas B. Kraus

CEO - Varify.io
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Bruna Querido

Data Leader - AIM
bruna.q@aimconversion.com

