

Mini Project #2

Illinois Business Consulting



Agenda

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Team introduction



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USDC Transaction Behavior Across Retail, Institutional, and Median Flow Patterns





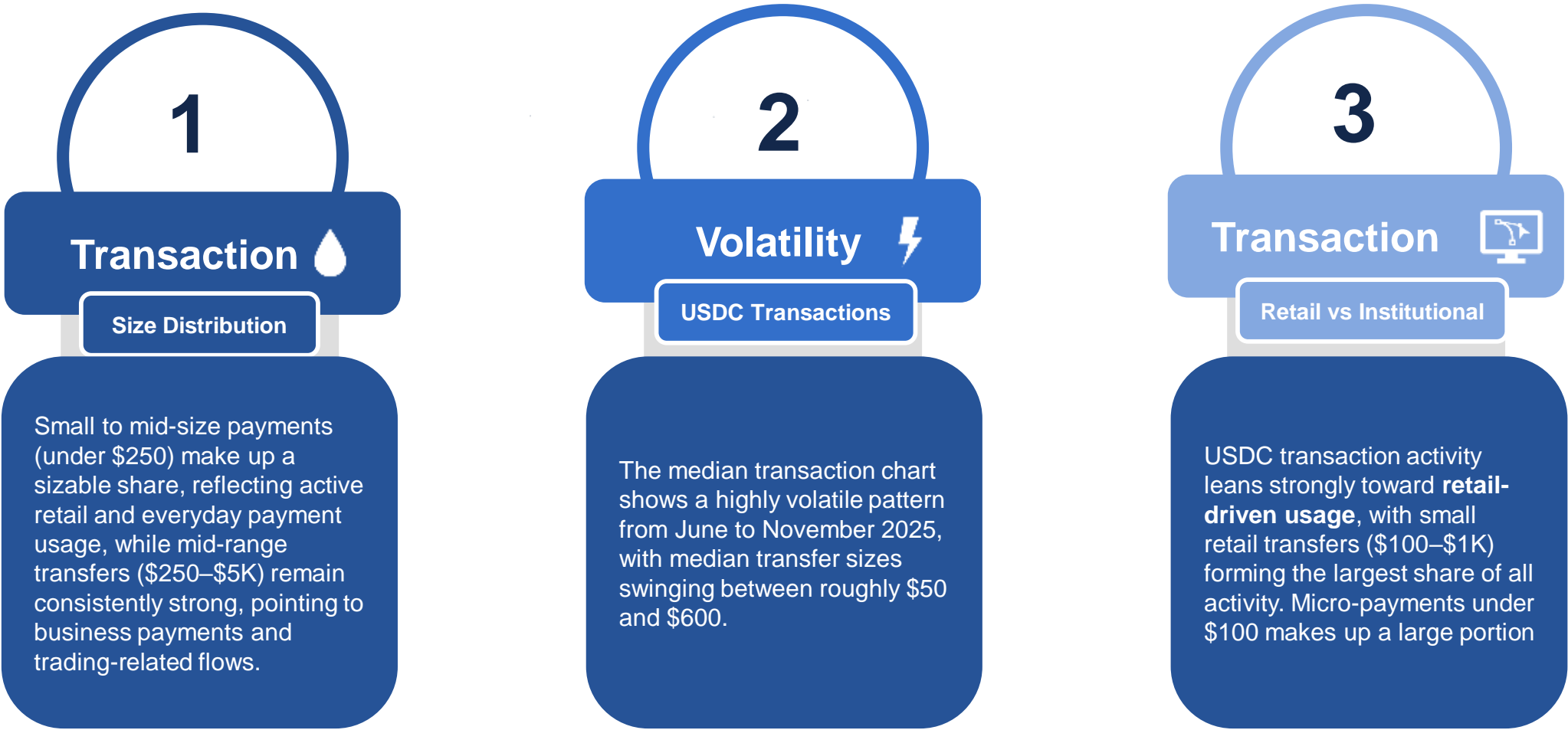
Executive Summary

3 key findings + a clear recommendation

USDC Transaction Behavior Across Retail, Institutional, and Median Flow Patterns



USDC Key Trends across transaction and volatility



USDC Transaction Insights



Key usage patterns



Tailor more products and features toward retail users.

Since retail transactions dominate both in count and diversity of size, product teams should focus on enhancing user-friendly features—such as cheaper transfers, **smoother UX**, and **retail-focused integrations (e-commerce, remittances, wallets)**.



Develop targeted solutions to grow institutional volume.

Institutional transfers are smaller in share. Offering better APIs, treasury tools, compliance modules, or cross-border settlement infrastructure **could help increase higher-value institutional activity.**



Monitor median transaction volatility to optimize fees and liquidity.

The median transaction size fluctuates heavily over time, signaling shifting user behavior. Using these trends to adjust fee strategies, liquidity provisioning, and analytics alerts can **improve reliability and predictability** for both users and partners.

Methods

Data/tables and time window you used; any key limitations

Description of the Ethereum.Transactions Table



Ethereum.Transactions



This table provides a detailed **breakdown** of Ethereum transaction-level data, including timestamps, gas metrics, **sender/receiver addresses**, **fees**, and **execution details**.

It serves as the **foundational dataset** for analyzing transaction costs, behavior

Query results New query												
block_time	block_number	value	gas_limit	gas_price	gas_used	max_fee_per_gas	max_priority_fee_per_gas	priority_fee_per_gas	nonce	index	success	from
2015-08-07 23:58	50609	1000000000000000000	30000	55026047415	56829				6	0		0x34e9b629ac9fa63b39a08f8d0c9b0d6791fa5bf
2015-08-07 21:54	50138	5000000000000000000	90000	1158719309287	21612				0	0		0xf2fbb6d987f8b0cc3a689aba847f3e1f643c53b6
2015-08-07 22:43	50327	5000000000000000000	50000	1171602790622	21612				0	0		0x24434a3e32e54ecf272fe3478b6f8f512f675520
2015-08-07 23:05	50401	7000000000000000000	50000	1171602790622	21612				2	0		0xae48155a668370f929ba384f7e001047e49d46
2015-08-07 23:58	50573	4600110000000000000	50000	1171602790622	21612				0	0		0x23ba3064da583da256f420873c37679690e02f00
2015-08-07 22:39	50316	1000000000000000000	90000	59093220570	21544				0	0		0x08a0a05437262a1b65f41a978cb16cb1f0cfcfe0
2015-08-07 22:39	50316	1000000000000000000	21000	5965531423	21000				0	1		0x5cb4a151541fcd1f86244dde8d709de47535bec3
2015-08-07 22:21	50249	1000000000000000000	50000	112295614472	50000				0	0		0xfc372f6927cb396d9cf29803600110eae632cc52
2015-08-07 22:21	50249	1000000000000000000	90000	57630418384	21612				0	1		0x3e76a62db187aa74f63817533b306cead0e8cebe
2015-08-07 23:25	50483	2000000000000000000	90000	1091074696460	21000				0	0		0x1c356cfd95fe0b714633c28d5c132dd84a9b436

to	block_hash	data	hash	type
0x109c4f2ccc82c4d77bde15f306707320294aea3f	0x1e50bf55cb1ef8664a315210d24a9643f03e5921fc5bfa8d8a853b87f492aec5	0x	0x8dc26afbe18d035a00e09ed579033283114fa594a1de16670c66ad3010c32df1	Legacy
0x2910543af39aba0cd09dbb2d50200b3e800a63d2	0x8dd400764cb107b870b5864a83e2436fb392fe25e4bfe81745de595f04dc05e6	0x454e54573347503438	0xad943d88a2b3a739ec1e924eae3c59edc27cf28ad6d8133d0b3264a811a6468c	Legacy
0x2910543af39aba0cd09dbb2d50200b3e800a63d2	0xe9e14d2b06a9e25584a51c727ec4cce045f1b5a1d0b095beb332b0c226ffc180	0x454e354d5154544630	0x1b5b7488ac8fd80cf0bdd9a57f2e77ae405abe5f35161a8078379d974b32ed48	Legacy
0x2910543af39aba0cd09dbb2d50200b3e800a63d2	0x371914ca490619bd8dfe27854aad73960363c01bda57b7f21b9781dc3a52ff1a	0x454e32374555303430	0xb5c2c956c70724031ac66ac8236ff2ac5fb9ddb9cb06d2a3a62f60ea80184d27	Legacy
0x2910543af39aba0cd09dbb2d50200b3e800a63d2	0x1a0cf44179ebdce06baa45665f24981f4b4ba6d05b07b57454086df5787f43da	0x454e55594451543547	0x0577cc85af22f73f0fb16c5f5aff6ae5c54cdbefa01b6b40582d20ad6be0b8f	Legacy
0x644d27243cd3e3f0c41676abfcb1fa6fba1a400c	0x2c2952ae2d87cc310b1fb92f9ee03645815dc5303d4704087434ee3a3088de61	0x0123456789abcdef	0xd0851aab364ac1d28ad1c23c7651c9affeb09ba88b8a094122eff1e7b5595b0	Legacy
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0x109c4f2ccc82c4d77bde15f306707320294aea3f	0x07c84194730ce4bb7f6e18cae97d89441479917c892cd6c81afee1c7b63ee530	0x	0xc7b726f297f9eb9b7d17864b31ed3b2f527672fcd71d6fcd2728abaa6397851	Legacy
0x2910543af39aba0cd09dbb2d50200b3e800a63d2	0x07c84194730ce4bb7f6e18cae97d89441479917c892cd6c81afee1c7b63ee530	0x454e45554350585a30	0x58a2cf5eaf3920ff4387b0e4c206169140ff9f8a998a5becff3bf4f6f3b91a57	Legacy
0x1da881fae84444ebef7b72f3267a4e67aa61fae9	0xe6553e60c059b1042946d69cfe12a42c703c4c354d5a4153cf8667efe38aebc	0x	0xc94bfe30d490c03fbf3b013cbaf1acd01d4f381e09ac999f00dcdcc8e999494e	Legacy

I



It serves as the core dataset for analyzing USDC (or any ERC-20) movement, user behavior, and on-chain transfer patterns

contract_address	evt_tx_hash	evt_tx_from	evt_tx_to
0xdac17f958d2ee523a2206206994597c13d831ec7	0x485a2f53dceb5cd65cd2d833ee702f7eb9e9182f155e307a95c9ee74b5011d0a	0xbca34ed5875079cc561840f3409a790769821dbc	0xdac17f958d2ee523a2206206994597c13d831ec7
0xdac17f958d2ee523a2206206994597c13d831ec7	0x3731135be87ae0bfdfb0de24432af003025d05035575ddae8ea82861de412d6c	0x8f0d024e780b7e2fd633a4d6d43631a96e8cb059	0xdac17f958d2ee523a2206206994597c13d831ec7
0xdac17f958d2ee523a2206206994597c13d831ec7	0x2ef8b6e28fb8eb295ed8535097e43da184e67afff2b1872b703bdcc556619b33	0xe955e61fb93b0871953d5c55f8afd416ebaafda4	0xdac17f958d2ee523a2206206994597c13d831ec7
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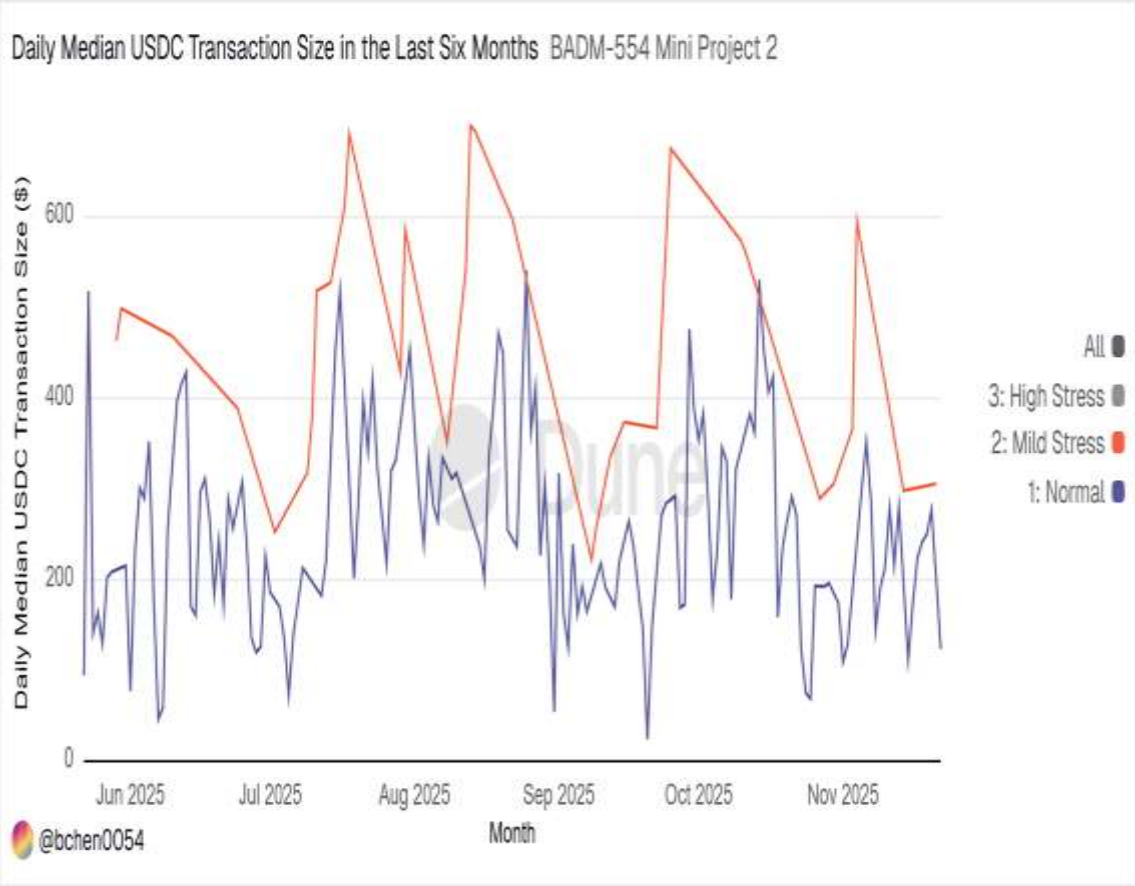


Deep Dive Charts

Median USDC Transaction Size



Median Transaction Size in Last 6 Months



Key Points



Volatile Trends

The chart tracks **daily median USDC transaction sizes** over the last six months, showing significant volatility throughout the period.



Stress Premium

Normal stress periods (blue line) fluctuate heavily, ranging roughly from \$50 to \$450, with no long-term upward or downward trend.



Higher Transfers

Mild stress periods (orange line) show consistently higher transaction medians, often clustering between **\$400 and \$650**



Stress Response

Users move **larger USDC amounts during mild stress**, likely driven by higher liquidity or safety needs.



Aligned Spikes

Peaks in both lines often align, showing that stress periods amplify overall transaction volatility.

USDC Transactions across Retail Market



USDC Transactions



Key Points

Micro Transactions

Micro-transactions dominate, with transfers under \$100 making up 35.3% of all activity—showing strong peer-to-peer usage.

Medium Retail Transfers

Medium retail transfers (\$500–\$2K) account for 16.8%, matching common international remittance ranges.

Sized Transfers

Institutional-sized transfers (> \$2K) represent only 28.4% of activity, confirming that USDC is primarily used by retail users.

Overall Summary

- USDC's volume profile aligns closely with **emerging-market remittance demand**, supported by over 20 million micro-transactions.

Ethereum USDC Transaction Costs: October-November 2025



Future Directions



Key Points

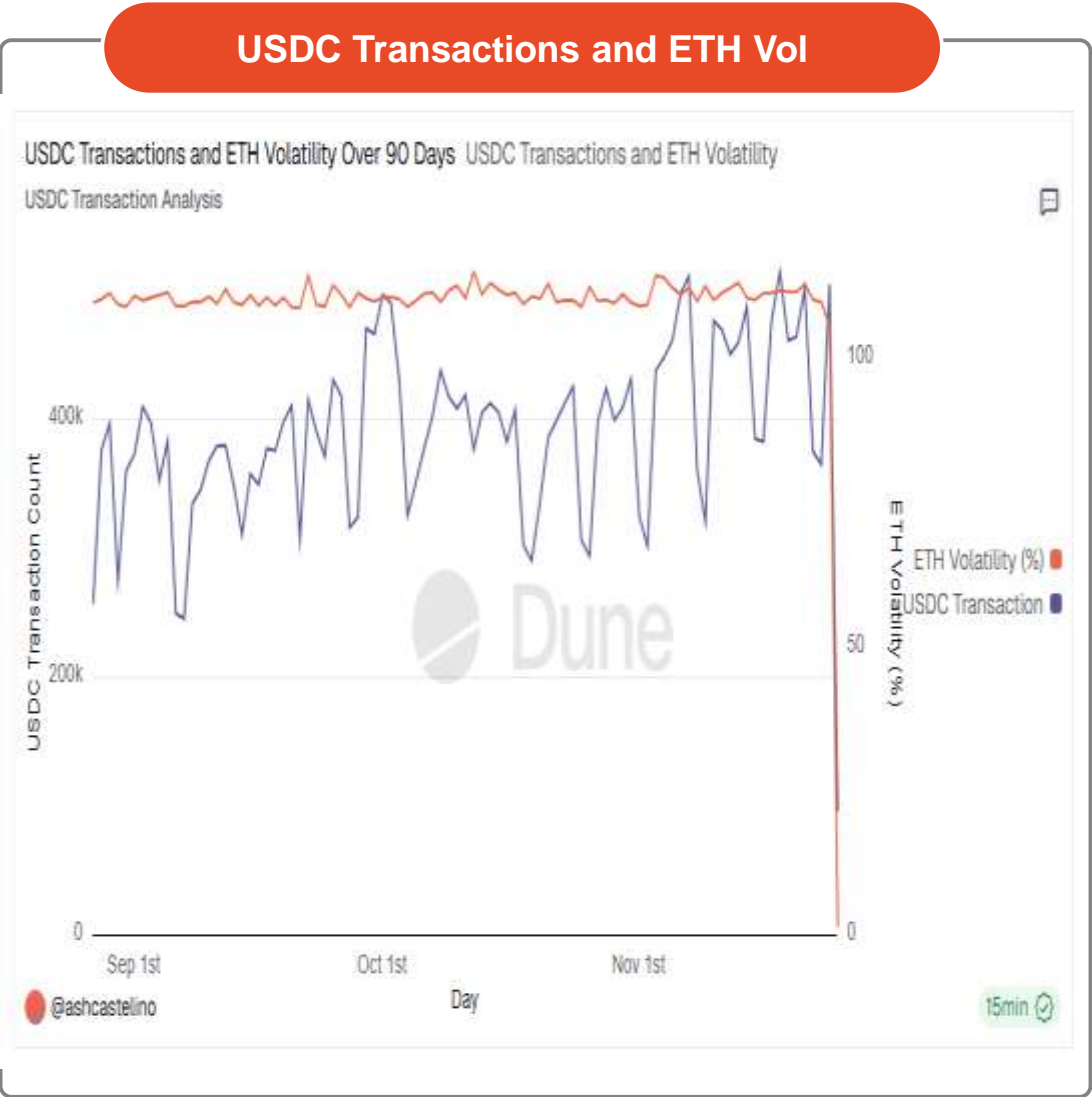
Reduction in Fees Cost : Fees dropped approximately 75% from the starting point (0.0039 ETH on Oct 26) to recent levels, with November averaging around 0.0015-0.0020 ETH per transaction.

Complex installation & maintenance: Transaction costs peaked at 0.0052 ETH, more than double the surrounding days' averages, indicating a brief period of network congestion or high demand.

Lowest Fees in November : The most economical period for USDC transfers was November 1-2 and November 15, with fees dropping to around 0.0005-0.0006 ETH, representing optimal times for cost-conscious transfers.

Summary: While most days show relatively consistent fees in the 0.0012-0.0027 ETH range, the data demonstrates that transaction costs can unexpectedly double or halve day-to-day, making timing important for optimizing transfer costs.

USDC Transaction Activity Remains Stable Despite ETH Price Volatility



Key Points



USDC Transactions Stability

Daily transaction counts consistently range between 200K-400K throughout the 90-day period, demonstrating steady stablecoin usage regardless of market conditions.



ETH Volatility

Ethereum price volatility hovers around the 100% level for most of the period, indicating a sustained high-volatility environment without major disruptions to USDC activity.



No Correlation between ETH and USDC

Despite significant ETH price swings, USDC transaction volumes maintain their pattern, suggesting stablecoin activity is largely independent of underlying network asset volatility.



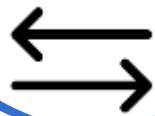
Sharp decline in late November

Both metrics show a notable drop at the end of the period, with USDC transactions falling dramatically and ETH volatility decreasing, potentially indicating a market-wide shift or data collection cutoff.







Conclusion

USDC Retail Adoption & Remittance Opportunity



The transaction breakdown clearly shows that USDC is functioning primarily as a **retail-driven digital dollar**, with micro-transactions and mid-sized retail transfers representing the bulk of activity. This aligns closely with behaviors seen in emerging markets—where users rely on stablecoins for **low-cost peer-to-peer payments, savings protection, and cross-border remittances**.

 USDC Adoption Is Retail-Led	 Use Cases	 Strategic Next Steps	 Further Analysis
1	2	3	4
<p>Micro-transactions under \$100 dominate activity, signaling strong peer-to-peer usage.</p> <p>Mid-sized retail transfers match common remittance behavior in emerging markets.</p> <p>Institutional activity remains limited, reinforcing the bottom-up nature of adoption</p>	<p>Transfer sizes mirror global migrant remittance patterns (especially \$500–\$2K).</p> <p>Low-value, high-frequency transactions reflect daily financial needs in EMs.</p> <p>Over 20M micro-transactions suggest USDC is already functioning as a digital dollar for many users.</p>	<p>Identify high-potential remittance corridors (Latam, Africa, Southeast Asia).</p> <p>Evaluate partnerships with local fintech's, mobile money apps, and wallets.</p> <p>Assess local regulatory openness toward stablecoins to determine market entry feasibility.</p>	<p>Conduct wallet clustering or regional mapping to pinpoint geographic adoption hotspots.</p> <p>Examine transaction timing patterns (weekly, monthly) to understand user financial rhythms.</p> <p>Compare USDC transfer costs vs. traditional remittance fees to quantify user savings.</p>



Thank You!



Appendix

References



Github - <https://github.com/ashcastelinocs124/BADM550-miniproject-2.git>

Dashboard - <https://dune.com/ashcastelino/project-2-badm554>

AI Usage



- 1) Team used AI for brainstorming to draft initial ideas on how we wanted our queries to be
- 2) Used AI at times to help us with our queries
- 3) We used AI to enhance our thinking to make us understand the important concepts, as most of us were new to these concepts
- 4) Used AI to create our readme.md for our Github, after we were finished with the code to help others check our repo for future reference

