Wakanda Forever Twitter Analysis: A Tribute to Chadwick Boseman

Analyzing the global reaction on Twitter to Chadwick Boseman's passing, exploring the shared grief, and studying the complex network created

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Objectives

- Understand the global X conversation about Chadwick Boseman’s passing.
- Analyze community structures and influential users.
- Investigate sentiment trends and influence propagation within the network.
- Provide data-driven visualizations of X's reaction to this deeply impactful news.

Data Collection Methodology

- How We Gathered the Data:
  - Used Twikit (not the Twitter API) to scrape tweets.
  - Focused on Chandwick Boseman, Black Panther, and Wakanda Forever.
  - Data collection period: September 19, 2020- October 29, 2022.
- Query Used:
  - (#ChadwickBoseman OR "Wakanda Forever" OR "Black Panther" OR "TChalla" OR "Marvel") (passed away OR death OR tribute OR film OR premiere OR actor OR legacy OR RIP) since:2020-09-19 until:2022-10-29

- Total tweets collected: 7879
- Metadata: Usernames, retweet counts, favorites, timestamps, and user details.

Data Preprocessing

📌 **Key Preprocessing Steps:**

🧹 **Data Cleaning**: Removed missing values, standardized text, and filtered bot-generated content.

🔗 **Network Construction**: Built a directed graph, extracted nodes/edges, and eliminated invalid connections.

🔗**Subgraph Analysis**: Isolated influential user groups, verified referenced users, and applied community detection.

📊 **Feature Engineering**: Calculated centrality metrics, engagement scores, and influence decay rates.

💾 **Data Export & Reports**: Saved cleaned network files, community analysis, and influence tracking datasets.

Network Construction

🔹 Key Insights from Twitter Network Construction

✅ **Built a Directed Graph** – Nodes represent users, and edges represent mentions, retweets, and replies.
✅ **Computed Centrality Metrics** – Identified key influencers using Degree, Betweenness, and Closeness centrality.
✅ **Applied Community Detection** – Used the Louvain algorithm to identify engagement clusters.
✅ **Analyzed Influence Spread** – Mapped how information propagates and modeled influence decay over hops.
✅ **Final Visualizations & Reports** – Created network diagrams, engagement heatmaps, and influence decay models.

Sentiment Analysis

We used the VADER sentiment analysis tool to reveal a nuanced emotional response across communities

- Predominantly Neutral:
  - Most tweets expressed neutral sentiment (scores 0.6–0.9).
  - Included factual or informative content: condolences, news sharing, and discussions of Boseman’s work
- Negative Sentiment:
  - Significant presence (scores 0.1–0.2).
  - Reflected sadness, grief, and shock over his passing.
- Positive Sentiment:
  - Less common (scores mostly below 0.2).
  - Highlighted celebrations of Boseman’s life, achievements, and legacy.

Key Insights from Community & Influence Analysis

1. **Community Sentiment Trends**
   - Neutral sentiment dominates most communities, reflecting factual discussions & condolences.
   - Some communities lean negative (grief, shock), while others are positive (celebrating Boseman’s legacy)

2. **Isolated Community Structures**
   - 97.8% of interactions happen within the same community.
   - Low cross-community engagement, indicating limited information spread and possible echo chambers.

3. **Key Influencers & Information Flow**
   - Marvel Studios is the central bridge connecting different communities.
   - Other key influencers: DiscussingFilm, FandomWire spread information widely.
   - Most other users have low influence beyond their own groups.

Influence Propagation & Sentiment Shifts Over Time

1. **Influence Decay Across Hops**
   - 📉 Engagement drops significantly after 2–3 hops, meaning most retweets happen close to the original tweet before losing momentum.
   - 🚀 Marvel Studios, DiscussingFilm, and FandomWire act as key amplifiers, but their influence weakens as tweets spread further.

2. **Sentiment Peaks & Emotional Shifts Over Time**
   - 📊 Major spikes in sentiment correlate with key events:
   - August 2021 & 2022: Peaks likely due to Boseman's death anniversary, triggering widespread emotional responses.
   - Mid-2021: Spikes during movie-related announcements, driving increased engagement and emotional discussions.
   - Fluctuations show waves of grief and celebration, indicating dynamic community reactions to cultural moments.

3. **Network Bridges & Cross-Community Impact**
   - 🔗 Marvel Studios is the strongest bridge, connecting otherwise isolated communities and driving major conversations.
   - 🛑 Low cross-community interaction (97.8% of interactions remain within the same groups), suggesting echo chambers where ideas circulate within rather than between communities.

Challenges in Twitter 'X' Network Analysis

1. **Data Issues**
   - Cleaning & Formatting Errors- Missing nodes, duplicate data, Unicode issues disrupted analysis.
   - Engagement Gaps - Missing values & conversion errors required fixes.

2. **Network & Influence Problems**
   - Tracking Influence Paths - Some key users had zero influence due to filtering inconsistencies.
   - Disconnected Communities - Isolated groups affected propagation analysis.

3. **Visualization Challenges**
   - Cluttered Network Graphs - Overlapping nodes & unclear community structures.
   - Color Mapping & Font Errors- Cluster differentiation & Unicode glyph issues.

4. **File Handling & Export Issues**
   - Format Mismatches- CSV lacked proper columns, requiring manual corrections.
   - Image Export Errors - Large network plots caused memory failures.

5. **Performance & Debugging**
   - Slow Computation - Large datasets slowed centrality & influence calculations.
   - Multiple Iterations - Refinements required for engagement & visualization accuracy .

Next Steps

🚀 **Expand Analysis** – Integrate real-time data collection & enhance network visualization.

🤖 **Leverage AI** – Use machine learning to predict engagement & influence trends.

🌍 **Cross-Platform Growth** – Extend research beyond Twitter to Reddit, TikTok, and YouTube.

☁️ **Scale & Automate** – Deploy models for real-time tracking & cloud-based analysis

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🔹 Inspiration from Chadwick Boseman – His legacy continues to inspire meaningful conversations, and this analysis is a tribute to the global impact he made.

Conclusion

🔹 **Key Takeaways**

📊 **Influence is concentrated** – Most engagement happens within a few key users before rapidly decaying.

🔗 **Communities** form around shared interests & emotions – **Sentiment trends** shaped the network's structure.

🎯 **Key influencers** like **Marvel Studios** bridge communities – Information flows through a few highly connected nodes.

📉 **Engagement** weakens beyond 2–3 hops – Influence fades quickly as it spreads through the network.

💬 **Final Thought**

Digital influence is more than just numbers—it's about voices, connections, and the stories we share. The legacy of Chadwick Boseman and the conversations sparked by his work remind us that impact transcends platforms, echoing across communities and generations.

Thank you