Evolving Follower Networks and Information Diffusion on Social Media for Disaster Relief Organizations

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Overview
• Humanitarian organizations utilize social media platforms to broadcast information to key stakeholders.
• Social media posts are instantly transmitted to organizations’ connections (i.e., followers), which represents audience size.
• To more efficiently distribute information, humanitarian organizations can increase their count of followers on social media.

Research Questions:
1. What mechanisms drive follower growth for organizations involved with disaster relief?
2. Are there differences before vs. a disaster?

Data
• Ecuador earthquake in 2016 was focal disaster.
• Collected data from Twitter generated during:
  - One week before the earthquake
  - One week after the earthquake
• Sample of 64 organizations local to Ecuador that were involved with disaster relief.
• These organizations belonged to five categories:
  1. Humanitarian
  2. Government
  3. Medical
  4. Emergency services
  5. News
• Data includes information about organizations’ tweets, retweets, and follower growth rates.

Results

Table 1. Overview of new follower relationships by category of organizations

<table>
<thead>
<tr>
<th>Category</th>
<th>Tweet count</th>
<th>Follower Gain</th>
<th>Internal Link %</th>
<th>Tweet count</th>
<th>Follower Gain</th>
<th>Internal Link %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>12,453</td>
<td>63,750</td>
<td>39.45%</td>
<td>21,959</td>
<td>472,705</td>
<td>81.04%</td>
</tr>
<tr>
<td>Humanitarian</td>
<td>403</td>
<td>325</td>
<td>63.08%</td>
<td>987</td>
<td>9,653</td>
<td>90.82%</td>
</tr>
<tr>
<td>Emerg. Svcs.</td>
<td>1,616</td>
<td>5,925</td>
<td>35.93%</td>
<td>2,354</td>
<td>64,518</td>
<td>92.43%</td>
</tr>
<tr>
<td>Medical</td>
<td>98</td>
<td>77</td>
<td>46.75%</td>
<td>151</td>
<td>622</td>
<td>81.67%</td>
</tr>
<tr>
<td>Government</td>
<td>3,044</td>
<td>11,980</td>
<td>44.69%</td>
<td>6,316</td>
<td>176,343</td>
<td>93.97%</td>
</tr>
<tr>
<td>News</td>
<td>7,292</td>
<td>20,543</td>
<td>37.47%</td>
<td>12,153</td>
<td>221,569</td>
<td>72.22%</td>
</tr>
</tbody>
</table>

Next Steps
• Perform statistical analysis of every candidate’s exposure and opportunity to follow one of the 64 organizations.
• Determine what factors can affect a candidate’s likelihood of establishing a new follower link.
• Possible factors include delay of receiving information and the number of times exposed to the organization.
• Evaluate how new followers help organizations distribute content
  • What percentage of new followers are retweeting after they started following?
  • Is there a difference in retweeting behavior before vs. after the crisis?
  • How does the percentage of engaged new followers compare to the percentage of engaged followers that previously existed?

Conclusions
• One way for humanitarian organizations to maximize their reach on social media is to expand their follower bases.
• Studied the follower growth patterns for organizations involved with disaster relief during the 2016 Ecuador earthquake.
• Large increase in followers after the earthquake.
  • May signal increased demand for content by the organizations in our sample after the emergency.
• Results indicated that information diffusion is a strong driver of new follower relationships.
  • Especially the case after the earthquake.
• Suggests that active and engaged followers are critical to spreading information during a disaster.

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References

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