The Wounded U.S. Newspaper Industry Lost $7.5 Billion in Advertising Revenues Last Year (2009) — TechCrunch

Viafoura is an online engagement platform providing the following services for its clients:

- **K-means Clustering (User Behaviour Clusters):**
  - Uses sample descriptive data about user activity (e.g.: # of comments in the sports section of a news website)
  - Groups users into clusters based on common interests and similar behaviours (see Clustering Visualization)

- **Regression Analysis (User Ranking Formula):**
  - Measures various activities on the platform based on three indices: Difficulty, Engagement and Frequency
  - Uses qualitative market research (surveyed 100 participants) to gauge audience perception of the indices for all tasks (see Table 2)
  - For each cluster, use regression to get multipliers for each user activity, where time spent, number of clicks, etc. is the response
  - By combining the user cluster profile and the score generated for each activity within the clusters, a label is then assigned (see Table 1)

For Online Audience Engagement Platforms

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**Client representative:** Ali Ghafour - Founder and CTO, Viafoura

**Prototype**

A prototype for the user profiling dashboard has been developed as proof-of-concept. Capabilities include:

- Automatically fetches user data from the Viafoura platform database
- Implements K-means clustering and regression algorithms
- Produces graphical summary of user groups and individual profiles

**Conclusion**

Numerical methods and an overall statistical approach is an objective approach in determining user categories and a general ranking system for users on news platforms. This information, when presented to users graphically, will give them a better idea of their identity in the community as well as how they can improve their rank or diversify their activity, ultimately increasing advertisement exposure and revenue. This is also useful for news website administrators to tailor advertising to specific user groups as well as to monitor how overall activity levels progress.

**Table 1: User label generation**

<table>
<thead>
<tr>
<th>Primary Proportion</th>
<th>Secondary Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sports</td>
<td>Business</td>
</tr>
<tr>
<td></td>
<td>Club Owner</td>
</tr>
<tr>
<td>Business</td>
<td>Shop Owner</td>
</tr>
<tr>
<td>A&amp;E</td>
<td>Team Mascot</td>
</tr>
</tbody>
</table>

**Table 2: User survey results**

- For Online User Loyalty
- Time Spent on Website
- Increased Ad Generated Revenue

**Development of User Behavior Clusters**

**Development of User Ranking Formula**

**Viafoura and Project Definition**

**Objective Comments**

- Top Ranked Comments
- Karla J

**Gamification Elements, Leader Boards**

- Gamification Elements, Badges and Virtual Points

**Online User Loyalty**

- Video and Audio on Viafoura

**Project Objectives**

- Industrial Engineering Methods
- Reward Mechanics and User Profiling Analytics

**Results**

**Clustering Visualization**

**Categorical Scoring**

**Cluster Breakdown**

- Lurker
- Regular Joe
- Top Commenter
- Guru
- Expert Commenter
- Fashionista, Techie
- Badges Unlocked This Week
- 500 Comments
- First Video!
- Tech Expert!