Broker Copilot: Prioritization Scoring Algorithm

Evaluation Metrics Documentation

1 Overview

The Broker Copilot utilizes a deterministic scoring algorithm to quantify the urgency and strategic importance of each renewal. The Total Priority Score (S_{total}) is calculated as a weighted sum of four key business dimensions: Premium Value, Time Urgency, Claims Performance, and Carrier Engagement.

2 Scoring Equation

The total priority score for any given policy i is defined as:

$$S_{total}(i) = S_{premium}(i) + S_{urgency}(i) + S_{risk}(i) + S_{engagement}(i) \tag{1}$$

Where the maximum possible score is 90 points.

3 Metric Definitions

3.1 Premium Value ($S_{premium}$)

Measures the revenue impact of the client. Higher premiums are prioritized to protect significant revenue streams.

Condition (Premium $)	Business Logic	Points
$P > \$100,000$	Corporate / Key Account	**30**
$\$50,000 < P \leq \$100,000$	Mid-Market Account	**20**
$P \leq \$50,000$	SMB / Standard Account	**10**

3.2 Time Urgency ($S_{urgency}$)

Measures the proximity to the policy expiration date (d).

Days to Expiry (d)	Urgency Level	Points
$d < 30$ days	**Critical**: Immediate action required	**25**
$30 \leq d < 60$ days	**Warning**: Preparation phase	**15**
$60 \leq d < 90$ days	**Planning**: Strategy phase	**10**
$d \geq 90$ days	Safe zone	**5**

3.3 Claims Performance / Risk (S_{risk})

Evaluates the Loss Ratio (LR) to identify negotiation leverage. A lower loss ratio implies a highly profitable client (easy renewal), while a high loss ratio indicates a difficult negotiation.

Loss Ratio (LR)	Negotiation Stance	Points
$LR = 0\%$	**Perfect**: High leverage for rate reduction	**20**
$0\% < LR < 40\%$	**Good**: Standard renewal	**15**
$40\% \leq LR \leq 70\%$	**Average**: Moderate risk	**10**
$LR > 70\%$	**High Risk**: Requires loss explanation	**5**

3.4 Carrier Engagement ($S_{engagement}$)

Detects active communication signals from the email integration system.

- **Active (15 pts):** Emails detected from Carrier/Client regarding this placement.

- **Pending (5 pts):** No recent communication detected (Risk of silence).

4 Priority Classification

Based on the calculated S_{total}, renewals are classified into three strategic tiers:

$$\text{Priority Level} = \begin{cases} \textbf{High} & \text{if } S_{total} \geq 70 \\ \textbf{Medium} & \text{if } 40 \leq S_{total} < 70 \\ \textbf{Low} & \text{if } S_{total} < 40 \end{cases} \tag{2}$$