

# Research on Keywords in the Retail Market That Attract Customers: Based on the Current State of Digital Public Relations Operations

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## Abstract

This study verifies whether the consumer interest keywords identified in Sato and Fujisaki (2024) can also be applied to retail markets across Japan. Of the 117 nationwide markets reviewed, eight were selected for the survey. Tweets posted on X (formerly Twitter) and comments on Google Maps related to these markets were scraped. Correspondence analysis and mapping were used to visualize keyword distribution. The results confirmed that “Local Delicacies” (i.e., local specialty foods) and “Freshness” are effective keywords. Combinations of keywords—such as “Product/Brand Names” with “Local Delicacies”—were also found to be effective.

## Keywords

digital public relations, retail market, keyword selection, text mining, correspondence analysis

## 1. Introduction

Sato and Fujisaki (2024) conducted a study of the Akita Citizens’ Market. The present study expands this scope by surveying eight markets selected from a pool of 117 markets located throughout Japan. Following Sato and Fujisaki (2024), correspondence analysis was used for verification. Further, the 117 nationwide markets were divided into four types of business management structures, and the usage of digital public relations (digital PR) within these four types was surveyed.

The retail market plays an increasingly vital role in both tourism and local consumption. Information searches before visits have shifted online, and post-visit evaluations are now visible on the Internet. At present, establishing digital PR that enables continuous relationship building with consumers and consistent information dissemination is essential.

In this study, “digital PR” is treated as digital communication that encompasses relationship building and promotion at consumer touchpoints (company websites, X, Instagram, Google Maps, etc.), with a focus on public relations aimed at building relationships with stakeholders.

## 2. Prior studies

In their research on tourism resources, Matsumoto and Inoue (2020) analyzed tweets about markets in Shimonoseki City (Yamaguchi Prefecture). They demonstrated the importance of “meals” and “scenic areas” considered “photographable” for social networking platforms.

In research on tourism throughout Shimonoseki City, Matsumoto (2022) collected information related to “cafes” and investigated content that contributed to tourism promotion. The results, expressed as a frequent-word list and co-occurrence network, showed that the top menu items ordered in cafes were “coffee,” “bread,” pasta,” etc.

Sato and Fujisaki (2024) analyzed posts made to X by the market, comments on Google Maps, and questionnaire results to identify effective keywords reflecting consumer interests. A correspondence analysis showed four keywords were effective: “B-class gourmet foods,” “limited,” “food ingredients/materials,” and “freshness.” While Sato and Fujisaki (2024) focused on the Akita Citizens’ Market, it was assumed that a cross-sectional analysis of multiple markets could identify more broadly

applicable keywords. Therefore, the present study conducted a cross-sectional verification of multiple markets.

Academic research on digital PR targeting retail markets remains scarce, with existing studies predominantly focused on tourism information dissemination (e.g., analyzing tweets about markets) or specific sectors, such as restaurants and cafés. Therefore, this study conducts empirical research specifically tailored to retail markets, drawing on methodologies from adjacent fields, such as tourism promotion and social media utilization by commercial facilities.

### **3. Retail markets nationwide and markets surveyed for this study**

#### **3-1. Creation of a list of retail markets**

Yahoo! Travel (2024) and Jalan (2024) were used to create a list of retail markets for the present study. The list was compiled from November 20 through 23, 2024. After eliminating overlapping articles, 117 retail markets throughout Japan were identified on these two websites.

In this study, even markets with wholesale functions were included as “retail markets” only if they met one of the following criteria: possessing permanent retail sections where general consumers could make purchases on a regular basis, or holding regular public open days (e.g., Citizen Appreciation Day) where actual sales took place. Facilities that were wholesale-only and those that did not meet these criteria were excluded.

#### **3-2. Markets surveyed in this study**

For this study, certain retail markets located throughout Japan were selected. Markets serving only local residents were excluded. The surveyed markets were those with functions similar to the Akita Citizens’ Market—in other words, markets serving as the “kitchens and dining rooms of citizens” while also targeting tourists. In this study, such “citizens’ kitchens + tourist-directed markets” are defined as “hybrid retail markets.” Practical considerations included the use of the market’s own website, as well as X, Instagram, Facebook, LINE, YouTube, etc., to select markets engaged in digital PR operations.

Although the appeal and response may differ between local residents and tourists, we decided to analyze the data collectively because of the difficulty in securing sufficient samples across each market and platform.

#### **3-3. State of digital PR usage in retail markets**

Figure 1 summarizes digital PR usage in the 117 markets. Markets without their own domain or website were excluded.

The highest utilization rate was for proprietary websites (82 cases; 70% overall), showing that websites are actively used as PR media. Among social networking services (SNS), Instagram ranked highest (33 cases; 28%), followed by Facebook (29 cases; 25%) and X (24 cases; 21%). Meanwhile, LINE had only six cases (5%) and YouTube had seven cases (6%), indicating limited use of messaging apps and video streaming.

Figure 1 Digital PR usage rates

	Number of users	Utilisation rate
Web	82/117	70%
X	24/117	21%
Instagram	33/117	28%
FB	29/117	25%
LINE	6/117	5%
YouTube	7/117	6%

(Source) Created by the authors

### 3-4. Business management systems of small retail markets and the status of digital PR operations

The present study surveyed hybrid retail markets. Management systems of the 117 markets were analyzed and found to fall into four types. Digital PR usage for each type and related issues is presented below.

#### (1) Locally operated (public facilities and wholesale markets)

There were 14 markets of this type, often managed by local or regional governments, including regional wholesale markets. Proprietary websites were used in six of 14 cases (43%). There were no cases of X, LINE public accounts, or YouTube usage. SNS use was limited to two cases of Instagram (14%) and one case of Facebook (7%). Other than websites, this type showed almost no use of major SNS, indicating insufficient digital PR.

#### (2) Cooperative association/shopping street association (tourist markets and outer markets)

There were 44 markets of this type. Governance was organized around “vendor groups,” as with the Akita Citizens’ Market. Proprietary websites were used in 31 of 44 markets (approximately 70%). Instagram was the top SNS (13 cases; 30%), followed by Facebook (12 cases; 27%) and X (7 cases; 16%). No LINE public accounts were found, and YouTube was used in only one case (1%). Thus, video streaming and messaging apps were virtually unused.

#### (3) Private company/third sector (tourist and commercial facilities)

There were 49 markets of this type, predominantly operated by private companies in tourist complex facilities. Most had proprietary websites (43 of 49; 88%). X, Instagram, and Facebook were each used in 16 cases (33%), showing a balanced use of photograph-, text-, and community-type SNS. LINE and YouTube were used in only five cases each (10%). This type was more aggressive in multichannel strategies than others, but less active in video and chat-style platforms.

#### (4) Voluntary organization/executive committee/non-profit organization (NPO) (citizen organizations, vendors’ associations, etc.)

There were 10 markets of this type, often held at specific times in parks or streets, managed by vendors’ associations or executive committees with government support. Proprietary websites were found in two of 10 cases (20%). Instagram was used in two cases (20%), X in one case (10%), and Facebook in none. LINE and YouTube were each used once (10%). Compared with other types, this type lags farthest behind in digital PR, with considerable room for improvement in setting up proprietary websites and multichannel strategies.

From the above, digital PR use appears proportional to the capital strength and governance structure

of each market. Private company/third sector markets are the most advanced, with proprietary websites and multichannel strategies. Conversely, voluntary organization/executive committee/NPO markets lag far behind.

Trends also emerge in SNS usage. Cooperative association/shopping street association and private company/third sector markets emphasize Instagram and Facebook, which suit photo sharing and community building, while X, which prioritizes immediacy, is less used. Use of YouTube and LINE remains under 10% across all types, showing that digital PR has yet to address immersive experiences or consumer retention. Greater development could occur if the issues outlined for each type were resolved and new engagement strategies implemented.

### **3-5. Selection of markets for the survey**

“Hybrid retail markets,” as defined in this study, were selected from 117 markets across Japan. A further search identified markets from which analysis data could be collected.

Operational results were used to determine whether a market qualified as a hybrid retail market. Criteria for data collection included: (1) operation of a proprietary website, (2) use of X prior to November 2024 (the end of data collection) to provide analyzable keywords, and (3) a sufficient number of Google Maps postings, where consumer opinions and emotions are expressed. Based on these criteria, eight markets with aggressive use of digital PR were deemed suitable for this survey (Figure 2).

## **4. Scraping of analysis data**

### **4-1. Scraping tools and methods**

The paid scraping tool *Octoparse* was used to collect analysis data. Data were collected from X posts for each of the eight markets, as well as from related Google Maps comments for each market. Scraping was conducted over two days, November 26 and 27, 2024.

For X, Octoparse was set to scrape up to 366 days prior. If no posts were made within that period, the final tweet was included as data. For Google Maps, scraping used the Octoparse “Google Maps Preview Information” function.

### **4-2. Scraping results**

The results of data scraping with Octoparse are as follows: a total of 773 posts (tweets) were collected from X for the eight markets, and a total of 1,480 comments from Google Maps. Thus, sufficient data were secured for keyword analysis.

It should be noted that, while X posts were collected up to 366 days prior, at the time of the survey, one market had made no tweets. Comment trends for the eight markets showed that Tsukiji Outer Market had an overwhelming 579 Google Maps comments, followed by 195 comments for Kushiro Washou Market. On X, the leaders were Minato no Marche at Pier Bandai (277 tweets) and Shiogama Fish Wholesale Market (183 tweets), with posts emphasizing photographability and immediacy. By contrast, Yaizu Sakana (Fish) Center and Shirahama “Toretore” Fish Market had a certain number of Google Maps comments but one tweet each on X. This shows a significant discrepancy between the two platforms. It is possible these markets stopped using X or lacked staff responsible for X postings.

Among the four operational types, data were also obtained for type (4) voluntary organization/executive committee/NPO. Thus, data collection covered all four types (Figure. 2).

Figure 2 Markets surveyed in this study, and summary of scraping results

No.	Area	Market name	Main operation type	*A	*B
1	Hokkaido	Kushiro Washou Market	②Cooperative association/shopping street association	195	54
2	Iwate (Tohoku)	Shiogama Fish Wholesale Market Association	②Cooperative association/shopping street association	148	183
3	Tokyo (Kanto)	Tsukiji Outer Market	③Private company/third sector	579	95
4	Niigata (Koshinetsu)	Minato no Marche at Pier Bandai	④Voluntary organization/executive committee/NPO	139	277
5	Shizuoka (Tokai)	Yaizu Sakana (Fish) Center	③Private company/third sector	126	1
6	Wakayama (Kinki)	Shirahama “Toretore” Fish Market	③Private company/third sector	60	1
7	Kochi (Shikoku)	Kure Taisho Town Market	②Cooperative association/shopping street association	129	162
8	Fukuoka (Kyushu)	Nagahama Fish Market	③Private company/third sector	104	0
<b>Total number of scrapes</b>				<b>1480</b>	<b>773</b>

\*A: Number of scrapes of Google comments \*B: Number of scrapes of X

(Source) Created by the authors

## 5. Analysis

### 5-1. Preprocessing for analysis

As in Sato and Fujisaki (2024), the paid text analysis software KH Coder was used to perform correspondence analysis of Google Maps and X data. In Correspondence analysis, items with strong correlations are arranged in a similar direction from the graph origin, while items with weak correlations are plotted farther away. Items with greater disparity appear farther from the origin, while those with smaller disparity appear closer.

After cleansing the collected data, correspondence analysis was performed with KH Coder. The results included multiple proper nouns, such as market names. To ensure appropriate analysis, the KH Coder’s “specification of words (terms) to omit” function was used to exclude proper nouns. Since over-segmentation occurred (e.g., “breakfast” segmented into “break” and fast”, and “intermediate wholesaler” into “intermediate” and “wholesaler”), the “specification of words (terms) for forced extraction” function was applied to correct these issues.

### 5-2. Correspondence analysis after keyword corrections

Figure 3 shows the results of the correspondence analysis after the above corrections. The circle in the top left is densely packed with terms originating from Google Maps comments and markets, while the separated circles outlined with dotted lines on the right and bottom include terms originating from X and markets. Google Maps comments mainly contained terms related to purchasing experiences and cost performance (“fresh,” “delicious,” “cheaply priced,” etc.). These included important markets such as Kuroshio, Shiogama, and Tsukiji, showing that product-quality evaluations drive comment formation.

For X, terms within the dotted circle at the bottom of the Figure included “restaurant,” “fresh,” and “limited,” while terms such as “event,” “sale,” and “worth” (i.e., value for price) extended in the positive direction of component 2. These terms were clearly used in posts intended to spread information and provide market updates. Notably, the term “souvenir” appeared separately and independently from both axes, indicating that it was used only in a limited way across both platforms.

Figure 4 shows co-occurrence networks after keyword corrections. The network image shows that keywords are broadly divided into three layers. Major co-occurrences were found within the dotted-line circle. Words within the double-line circle (“fresh,” “delicious,” “eating,” etc.) are closely linked



### 5-3. Keyword normalization

To reduce measurement errors caused by inconsistencies in terms (words) between Google Maps comments and X posts, normalization of keywords was performed. In Sato and Fujisaki (2024), “custom seafood rice bowls (*katte-don*)” and “build-your-own rice bowls (*nokke-don*)” were consolidated under “B-class gourmet foods.” In the current survey, however, priority was given to region-specific concepts tied to regional tourism motivations. Accordingly, the concepts of “B-class gourmet foods” and “local foods” were integrated into the keyword “Local Delicacies” (i.e., local specialty foods). Further, “B-class gourmet foods” was normalized as a single category combining “regional/local foods” (expressing the unique character of local areas) and “famous foods.”

The questionnaire results from Sato and Fujisaki (2024) were also applied in this survey. The keywords “local foods,” “famous foods,” and “B-class gourmet foods” found in the questionnaire were similarly normalized into “Local Delicacies.” An analysis was then performed to identify effective keywords using this normalized questionnaire data.

### 6. Keyword verification results

Figure 5 shows the correspondence analysis after keyword normalization. As shown in (1) of Figure 5, the terms “Freshness” and “Local Delicacies” (the result of normalization of similar terms) were plotted near the graph origin, confirming their effectiveness as keywords for stimulating consumer interest.

Products and materials (foodstuffs and dishes) have different names in each market. Results suggested the effectiveness of combining keywords, such as using “Local Delicacies” (itself the result of normalizing “custom seafood rice bowl [*katte-don*],” etc.) together with specific product names, e.g., “Local Delicacies and custom seafood rice bowl.”

The oval at the bottom left shows “(2) Mixture of Google Maps and X,” where experience-related values shared across markets are concentrated. In this section, terms describing actions performed in and around markets (“select/choose,” “add on to,” “miso soup,” etc.) are linked with “Freshness,” “Local Delicacies,” and variations of food names offered at each market (such as “custom seafood rice bowl [*katte-don*],” “make your own rice bowl with toppings [*my don*],” etc.). This represents concrete expressions of actual foods and dishes, as well as the rice bowl topping selection process.

Since scores for each market (e.g., Kushiro Washo Ichiba, Shiogama, Niigata Bandai, Kure Taisho, Tsukiji, etc.) overlap in this area, the related keywords function as a highly reproducible core across multiple markets, thus serving as an index for evaluating keywords. “Local Delicacies” and “Freshness” — keywords effective in combination — can therefore be regarded as powerful keywords with broad utility.

Within the cluster circled with a dotted line on the right, especially noteworthy are keyword groups specific to X. These contain concentrated keywords that communicate evaluations, interjections, recommendations, and immersion, along with phrasing that spreads quickly in meme-like fashion, such as words highlighting photogenic or “Instagrammable” qualities. These can be linked with PR keywords and shared actions and can be identified as effective for communicating and sharing emotions.

As described above, this survey verified “Local Delicacies” and “Freshness” as useful keywords. It is noted that “Local Delicacies” is a keyword created by normalizing different product and ingredient names used across markets. In addition to “Local Delicacies,” synergistic effects may be obtained through posts that combine normalized keywords and multiple keywords with those communicating evaluations, interjections, recommendations, and immersion.



elicacies at these lively markets”

<https://www.jalan.net/news/article/139899/>

\*Above sites accessed November 23, 2024

Karato Market (2025) <https://www.karatoichiba.com/>

Nagahama Fresh Fish Market (2025) <https://nagahamafish.jp>

No. 1 Makishi Public Market (2025) <https://www.makishi-public-market.jp/>

Ishigaki Public Market (2025) <https://ishigaki-kousetsu-ichiba.com/>

Hakodate Morning Market (2025) <https://www.hakodate-asaichi.com/>

Ohmi Town Market (2025) <https://ohmicho-ichiba.com/>

Sapporo City Central Wholesale Market and Surrounding Markets (2025) <https://www.jyogais-hijyo.com/>

Akita City People’s Market (2025) <http://www.akitashiminichiba.com/>

Japan Sea Fish Market (2025) <https://sakanamachi.co.jp/>

Kuroshio Market (2025) <https://www.kuroshioichiba.co.jp>

Beppu Railway Station Market (2025) <https://www.jrkbm.co.jp/beppuekiichiba/>

Kochi Organic Saturday Market (2025) <https://kochiom.web.fc2.com/info.html>

Kochi City “Sunday Market (Street Market)” (2025) <https://www.city.kochi.kochi.jp/site/kanko/nichiyouchi.html>

\*Above sites accessed August 9, 2025

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