Unravelling Visuals: A Comprehensive Image Analysis of Cover Pages for Tourism & Retail

Irene Ryan, Kanchana Weerasinghe, Matus Miglierini

Department of Microdata Analysis, Högskolan Dalarna – Sweden

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Asif M Huq

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Abstract

Corporate Social Responsibility (CSR) activities have become increasingly crucial for companies to meet the expectations of all stakeholders. CSR reports serve as a vital communication tool between the company and its stakeholders. Therefore, it is imperative to design the cover page of the report appropriately. A well-designed cover page will capture the attention of stakeholders and effectively communicate the company's commitment to social responsibility. To stay competitive in today's world, businesses must prioritize CSR activities and reporting practices that reflect their dedication to making a positive impact on society. The objective of this research is to observe the tourism and retail sectors and explore their GRI report(s) cover page practices and unveil their preferences related to image and color application.

Keywords: Corporate Social Responsibility, CSR, Global Reporting Initiative, GRI, Image preprocessing, Visualization, Tourism, Retail

1. Introduction

Corporate Social Responsibility (CSR) guides business' efforts to address societal challenges while balancing economic growth and environmental interventions. CSR is essential as it fosters trust among stakeholders, enhances brand reputation, and contributes positively to communities and the environment (Porter & Kramer, 2007). Whereas, Global Reporting Initiative (GRI) reports, often considered 'explicit' CSR documents, provide detailed accounts of a corporation's social and environmental impacts (Matten & Moon, 2008). High-quality CSR reporting correlates with stronger financial performance, indicating that CSR is not merely a cost center but also a driver of value creation (Michelon & Pilonato & Ricceri, 2015). According to García-Sánchez & Araújo-Bernardo (2019), we can divide companies into ones which usually use a symbolic approach in their reports, and companies which tend to follow reporting guidelines closely. Breitbarth, Harris & Insch (2010) explored the use of pictures and images in the CSR reports: "With CSR being strongly associated with immediate and future human life, it is no surprise that images are also used as 'outcome documentation', i.e. showing how firms' claimed contributions positively influence people's lives.".

As CSR is relevant to all sectors, in the tourism and retail sectors it ensures that businesses demonstrate their commitment to sustainable practices like carbon footprint, conserving water and energy, minimizing waste generation, and eco-friendly measures in sourcing, packaging, and distribution processes, since 'the tourism and retail sectors show a significant impact on the economy and society' (Azila, Azrul, Sri Endah & Gareth, 2020). As shopping activities continue to flourish in the tourism industry, it carries a significant impact on the country's economic, psychological, and social conditions (Jin, Moscardo & Murply, 2017).

This paper seeks to delve into the realm of CSR reporting, focusing on the cover pages of CSR reports. By conducting image analysis on cover pages, we selected the tourism and retail sectors, drawn by their notable similarities in CSR strategies centered on sustainable practices and responsible marketing. Our objective is to examine how these industries leverage distinct objects and colors to communicate their messages and to track the evolution of these messages over time, across various company sizes and regions. As per our study, the tourism and retail industries strategically employ a diverse color palette, including green for nature, blue for trust, earth tones for warmth, white for purity, violet for creativity, and black for authority. Cover pages often feature objects like people, landscapes, vehicles, logos, and animals.

2. Methodology

This section provides an overview of the process initiated to achieve our aim, which is illustrated in Figure 1.
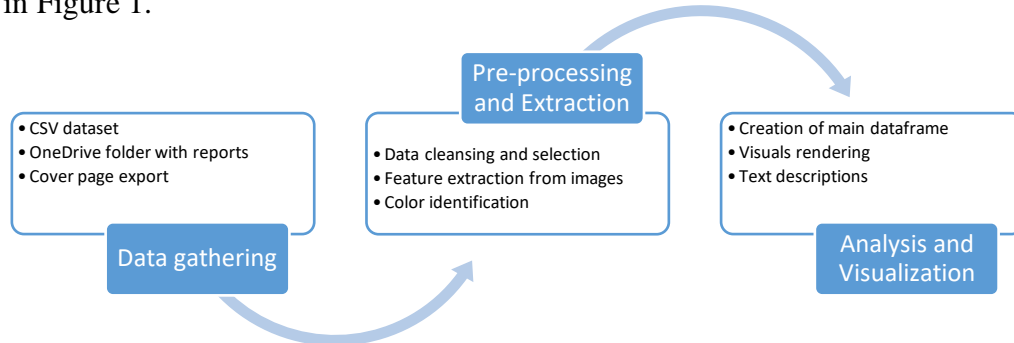

**Figure 1: Process Flow Diagram**

2.1. Data Collection

We were given a dataset of approximately 19,000 GRI reports and the reports in PDF format stored in OneDrive folder. We developed a Python script and with the help of the CSV file we programmatically retrieved the relevant PDF documents only for the sectors under consideration. These PDF files were loaded into the 'fitz' python library to extract and download the cover page of the report and finally stored in a PNG format.

2.2. Data Pre-processing and Extraction

Only reports from sectors 'Retailers' and 'Tourism/Leisure' were considered for analysis. This provided us with 854 records and after additional automated data manipulation and eliminating the ones with missing data, the final number of reports considered for this research is 793. The distribution of reports over the years and across different regions is presented in Figure 2.
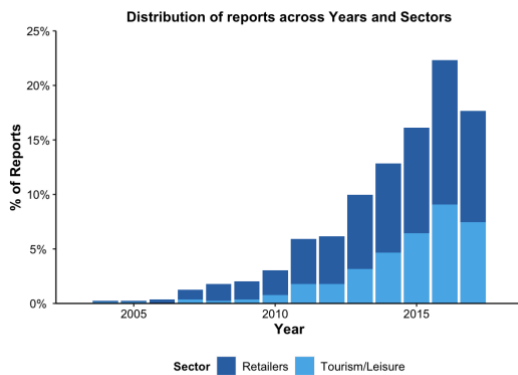
Figure 2: Distribution of reports by Year across the two sectors
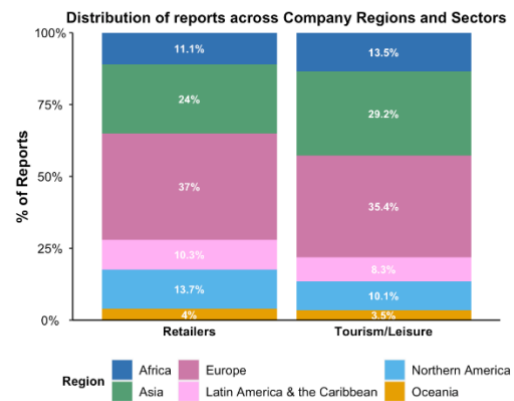
Figure 3: Distribution of reports by Region across the two sectors

Based on the plot in Figure 2, it is evident that there is a rising trend in CSR reporting, with retailers taking the lead in terms of the number of reports. When examining region-wise percentages of reports in Figure 3, it is apparent that Europe makes a substantial contribution, followed closely by Asia. Assuming the dataset was accurately collected, it indicates an increasing recognition of the importance of CSR reporting in these two industries.

Features extraction was done in three steps. First, we looked for the presence of images on the cover pages and stored the information as a nominal value. Second, we analyzed the overall coverage of colors in the image and iterated through every pixel of each cover page and the store the result of the output in the percentage format for each color. The colors we were interested in are the predominant colors used in conveying CSR messages, ensuring a well-rounded representation across the visual spectrum. We used a range to capture the colors into categories instead of specific RGB values. Third, by using image processing techniques, we looked for objects falling under selected categories: humans, animals, and vehicles which were identified in the introduction as frequently used elements in these two industries.

2.3. Analysis and Visualization

After extracting all the features, we constructed a data frame where we stored all the information about each report. We then performed analysis and looked for correlations, trends, and sector differences. Furthermore, we used R and 'ggplot' library to visualize these relations and data that we gathered, while keeping the theme of the figures consistent and following Tufte's visual principles. Finally, writing down the textual description of each finding was crucial to give a comprehensive result for the aim we framed in the beginning.

3. Results and Discussion

3.1. Color Trend Analysis

In CSR reports, both the tourism and retail industries often use a combination of colors that reflect their brand identities, values, and the messages they want to convey, as we stated in the first chapter. Based on the analysis of both Figures 4 and 5, it is evident that white color is predominantly used in the coverages of the tourism and retail industries, irrespective of company size. White is employed to convey notions of purity, simplicity, and transparency. The second most frequently used color is violet, symbolizing creativity, imagination, and artistic expression, aligning with the nature of these industries.
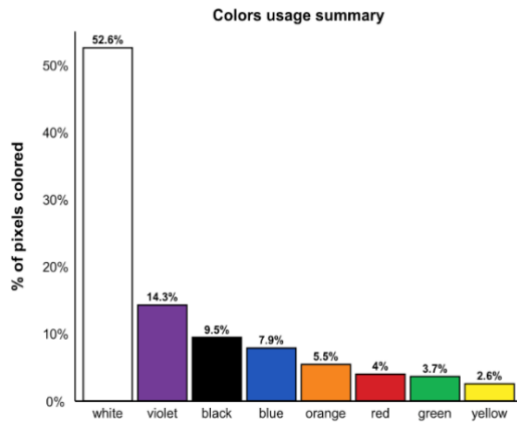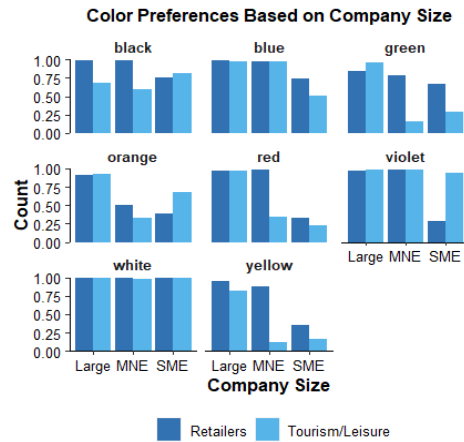
Figure 4: Color Preferences

Figure 5: Color Usage by Company Size

Black is a prominent choice in many reports, indicating authority and dominance in the market. Additionally, blue is commonly used to signify trust, reliability, and stability, portraying a sense of dependability. According to Figure 5, green is more prevalent in the retail industry, especially in larger companies. However, its appearance is comparatively less frequent in reports according to Figure 4, even though it was expected to be an outstanding color, given its strong association with nature.

3.2. Object Trend Analysis

Common objects that are often used on cover pages to convey a message include pictures of people (such as employees and customers), landscapes, eco-friendly vehicles and transportation, logos, and images of animals - specifically endangered species or wildlife. For analyzing these objects, we have utilized YOLO, a python library that has a high-level of accuracy in identifying people, vehicles, and animals.
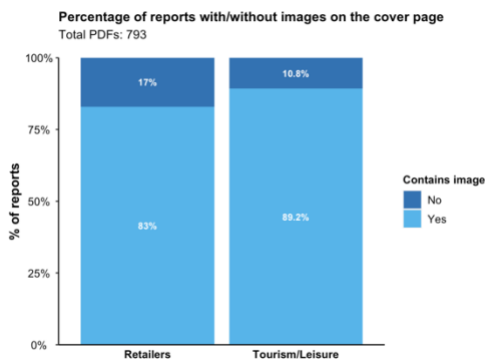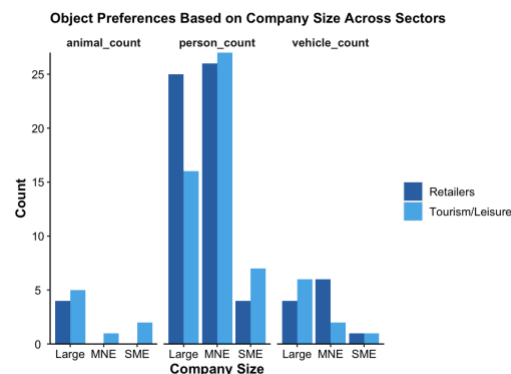

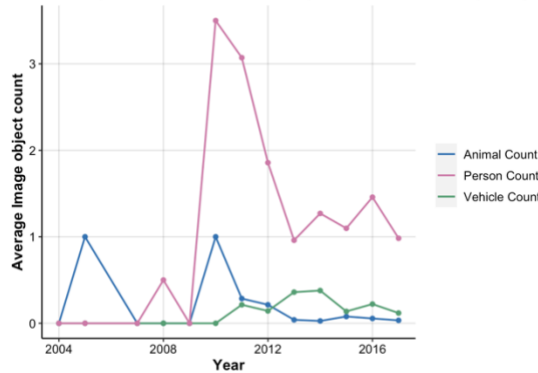
Figure 6: % of Image Usage
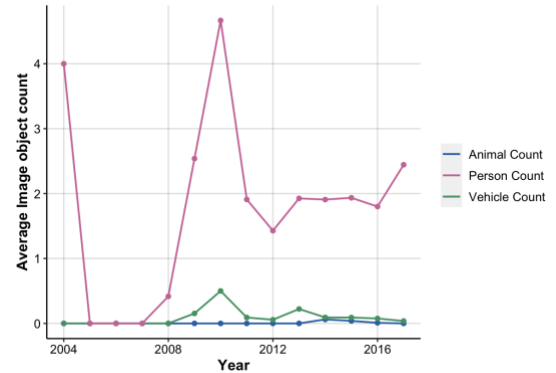

Figure 7: Object Preferences

Based on the insights from Figure 6 a significant trend emerges where most CSR reports opt for the inclusion of images, surpassing the use of text alone. Specifically, 83% of reports incorporate images in retailers while 89.2% in tourism industry. This finding highlights a prevailing inclination across industries to use images on cover pages. Figure 7 further elucidates that, irrespective of industry or company size, the most prevalent object featured in these images is a person. Following closely, the object category related to vehicles secures the second-largest representation among the three identified objects, aligning with observed patterns in industry behaviors.

Figure 8: Year wise Object Count with respect to Tourism Sector

Figure 9: Year wise Object Count with respect to Retail Sector

According to the Figure 8, the tourism industry graph depicts relatively stable animal count, consistently low vehicle count, and shows a notable spike in person count around 2010, indicating a shift in focus towards human presence in report's cover page images. Conversely, Figure 9 shows consistently low animal and vehicle counts, but with a more pronounced surge in person count around 2010, suggesting a stronger emphasis on human presence in retailer industry CSR images compared to the tourism sector. Despite these differences, both industries share a trend of increased person counts around 2010, while animals and vehicles maintain minimal presence throughout the years.

4. Limitations

Based on the presented graph, it's evident that the distribution of documents over the years lacks consistency, thereby affecting the direct analysis of extracted object counts from the cover pages. To rectify this imbalance, we employed Inverse Document Frequency (IDF) normalization. This technique was utilized to alleviate the impact of the varying number of reports collected on the object count extracted from the reports' cover pages.

Upon observation, we discovered that the YOLO object identification library struggles to accurately recognize objects like persons, vehicles, and animals when they are depicted as illustrations. To tackle this challenge, we explored the option of training the model specifically for such cases. However, we determined that this endeavor would be exceedingly time-consuming and resource intensive. Therefore, we decided to adhere to the default accuracy of the algorithm.

5. Conclusion

In our comprehensive analysis encompassing CSR reporting trends, color palette choices, and featured objects on cover pages (person, animal, vehicle), a compelling narrative emerges that sheds light on the commonalities between the tourism and retail sectors in their CSR strategies. The uniform use of colors such as white, violet, black, blue, and green reflects the similarities in their CSR approaches. Both recognize the importance of sustainability, transparency, creativity, authority, eco-friendly practices, and responsible marketing. Moreover, the choice of featured objects, particularly the prominence of people, highlights a common emphasis on the human aspect of CSR initiatives. This unified narrative underscores the synergy between tourism and retail industries in championing corporate social responsibility, a vital aspect of their business ethos and commitment to sustainable practices.

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