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A COMPARATIVE STUDY ON IMAGE-TEXT RELATIONS IN BIG PHARMA'S CODES OF ETHICS

Abstract

The study of image-text interconnections offers an interdisciplinary approach to understand and contextualise visuals. The present research explores image-text relations in codes of ethics (CoEs), which are corporate documents issued by corporations. Drawing from a generalised system of image-text relations (Martinec & Salway 2005), quantitative and qualitative analyses are conducted to illustrate the type of image-text relation implemented in CoEs by companies operating in the global pharmaceutical sector, the so-called Big Pharma industry. Findings suggest that visual type does not necessarily determine a fixed pattern of image-text relations in CoEs. While pictures, drawings and tables display a clear, recurring trend, graphics do not.

Key words: codes of ethics, image-text relations, corporate communication, Big Pharma.

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Author Contributions: Conceptualization, C.G.; data collection and formal analysis, E.P. and C.G.; methodology, C.G.; writing—original draft, E.P.; writing—review and editing, C.G. Both authors have read and agreed to the published version of the manuscript.

1. Introduction

Image-text combinations are ubiquitous in all sectors, including in the corporate environment. Powerful vectors of meaning, visuals, as much as words, play a fundamental role in representing company profiles. “A picture is said to be worth a thousand words because of its ability to hold as much meaning in one frame as can only otherwise be expressed in that many words” (de Laat 2004: 123). The image-text interplay should be masterfully arranged to convey corporate stance, especially in the 21st century, where global presence and appearance are key factors in conducting business. Internationally oriented companies and groups, which are generally engaged in intense competition, share their societal values to create high-profile corporate identities and cultures through the issuing of Codes of Ethics (CoEs) – corporate documents available on a company’s website.

Barthes (1997) claimed that “in advertising the signification of the image is undoubtedly intentional; [...] If the image contains signs, we can be sure that in advertising these signs are full, formed with a view to optimum reading: the advertising image is *frank*, or at least emphatic” (33). In this sense, CoEs, which could practically be considered a company’s ‘business card’, ‘advertise’ a company’s values and principles of conduct. Hence, the interconnection between the broader category of visuals (here intended as pictures, drawings, charts, and tables) and texts in CoEs, which, as stated, are documents drafted with obvious intentions, could be a significant standpoint from which to analyse and better understand a company’s ethical approach.

As a first step in this direction (see Giglioni 2021), drawing from a specific theoretical system of image-text relations, this study provides a new viewpoint and suggestions for working in a domain that has scarcely been explored to date, i.e. the analysis of CoEs in terms of image-text relations. The research focuses on a specific group of globally influential companies, namely large pharmaceutical firms and groups, the so-called Big Pharma (Pharmaceutical Research and Manufacturers of America). These companies need to conform to the law; hence, they must state their legitimacy by also releasing a set of values set out in CoEs. Within this framework, CoEs can be considered tools exploited by companies to state their awareness of social responsibility, to manifest the development of corporate ethics policies and the ability to implement these policies through suitable organisation structures and sanctions (D’Orazio 2003: 128).

Determining ‘meaning multiplication’ (Bateman 2014), i.e. the formation of new meaning through the interplay of image and text, casts light on meaning-making, composition and intent. Therefore, this paper aims to establish the type of CoEs image-text relations in the Big Pharma domain by discussing two main research questions, each connected to one hypothesis:

RQ1: What type of image-text interconnections are primarily implemented in CoEs issued by companies working in the pharmaceutical field?

Hypothesis (H1): In commitment-oriented CoEs, the image-text correlation is unequal; in particular, it is an image-subordinate-to-text relationship.

RQ2: Does visual type determine the type of correlation in the analysed CoEs?

Hypothesis (H2): Some visuals may determine the type of relation due to the use of standard visuals in code drafting.

1.1. Objectives of the Study

The major objectives of the study were:

1. To select commitment-oriented CoEs (see 3.1) issued by independent *Fortune 500* pharmaceutical, biotechnology and medical companies (see 3.3)
2. To identify the number of visual aids employed in these CoEs (quantitative survey)
3. To analyse the image-text correlation in each code based on Martinec and Salway’s model (2005) (qualitative analysis – see 2)
4. To identify image-text correlation trends in companies operating in the pharmaceutical field (qualitative analysis).

2. Theoretical framework

Information is conveyed through all sorts of media, including visuo-verbal units where visual images work in conjunction with language. Relevant taxonomies for image-text interplay have developed within semiotics (Marsh & Domas White 2003; Martinec & Salway 2005; Otto, Springstein,

Anand & Ewerth 2020; Zhang, Hwa & Kovashka 2018) based on previous research in the field (i.e. Halliday 1994; Barthes 1977; Lemke 1998; Royce 1998). Nevertheless, the synergy between visual and verbal units has been widely analysed. For instance, a ‘holistic’ approach to image-text interplay that considers multimodal units (Rose 2016), models for computational analysis of multimodal news (Cheema, Hakimov, Müller-Budack, Otto, Bateman & Ewerth 2023), and reflections on the visual/verbal divide (Bateman 2014), on transparency (Grange & Lian 2022), or on multiliteracies (Unsworth 2006) have been presented.

In addition, due to its ubiquity, the interplay between images and texts has been explored in several fields, like marketing, for example, product evaluation (Huang, Du, Xu & Hu 2022), and advertising (Zhang, Hwa & Kovashka 2018), but also in other disciplinary areas. These include education, for instance, with studies on text-image relationships at the level of design strategy (Peterson 2011, 2014) or multimedia learning (Zhao, Schnotz, Wagner, Gaschler 2020), discourse production or intent by using different types of text-image interactions on social media, e.g. Twitter (Morin, Mercier & Altani-Duault 2019; Vempala & Preot, iuc-Pietro 2019) or Instagram (Kruk, Lubin, Sikka, Lin, Jurafsky & Divakaran 2019), text-diagram relations in academic discourse (Martin 1994), literature, for graphic narratives (Spanjers 2021), and film documentaries (van Leeuwen 1991).

From this brief yet significant literature review, it is safe to say that image-text relations could be explored in all fields where the interplay between image and text occur, hence, the objective of the present study. This study makes use of Martinec & Salway’s model (2005) which “is based on combining Halliday’s (1985–1994) logico-semantic and status relations, developed to classify the relation between clauses in the clause complex, with Barthes’ (1977a [1961], 1977b [1964]) text relations, whose main object seems to be newspapers, photographs and, to a lesser extent, moving images and dialogue in film” (340).

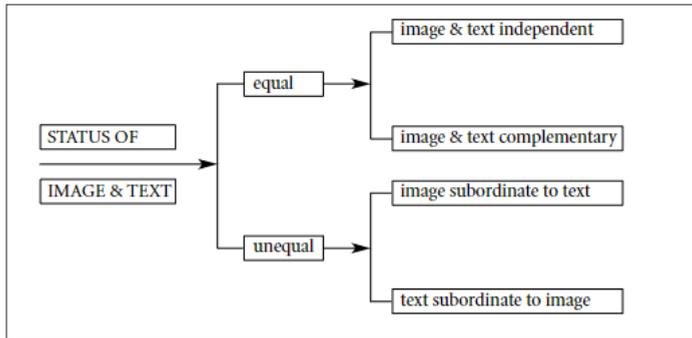


Figure 1: Martinec and Salway's model (2005: 349) for image-text relations

As claimed, Martinec and Salway suggest a taxonomy using status and semantic relations. Relevant to this study are the status and its realisations. The authors draw from Barthes's three modalities of image-text relations – anchorage (text supporting image), illustration (image supporting text), and relay (text and image with equal status). Accordingly, the units can relate to each other in an equal (whole image-whole text) and unequal (whole image-part of text) relation. They further divide the equal status into complementary, when the two units combine to form a larger syntagm, and independent, when they provide separate information (Figure 1).

3. Research design

3.1. Study context

As for previous international research on CoEs, several studies based on a wide range of approaches, small or large-scale corpora from various perspectives, have been published (e.g. Frankel 1989; Langlois & Schelegelmilch 1990; Pierce & Henry 1996; Farrell & Farrell 1998; Ekin & Tezölmez 1999; Wood 2000; Farrell & Cobbin 2000; Adams, Tashchian & Shore 2001; Schwartz 2001, 2004; Somers 2001; Pollach 2003; Wood & Rimmer 2003; Singh, Carasco, Svensson, Wood, & Callaghan 2005; Bethoux, Didry, & Mias 2007; Fairfax, 2007; Long & Driscoll, 2008; Stevens 2008; Kaptein 2004, 2011; Singh, 2011; Holder-Webb & Cohen 2012; Chua 2015; Andrade, Hamza, & Xara-Brasil 2017; Babri, Davidson,

Helin 2021). Similarly, in Italy, studies on CoEs have been conducted from different standpoints (e.g. Arrigo 2006; Lugli, Kocollari & Nigrisoli 2009; Mion, Broglia & Bonfanti 2019; Mion & Bonfanti 2019), but seldom semiotically as most research opts for a non-discursive perspective in code analysis (Gigliani 2020: 6).

On the other hand, important Italian studies stemming from discursive or linguistic frameworks can be found. These concentrate on the distinctive features of CoEs, which led to the identification of two type of codes: legalistic and commitment-oriented (Catenaccio & Garzone 2017, 2022), based on their macro- and micro-textual level analysis (Gigliani 2019, 2020) and on pedagogical implications in ESP (English for Specific Purpose) courses (Gigliani & Patat 2020, 2021; Gigliani 2022).

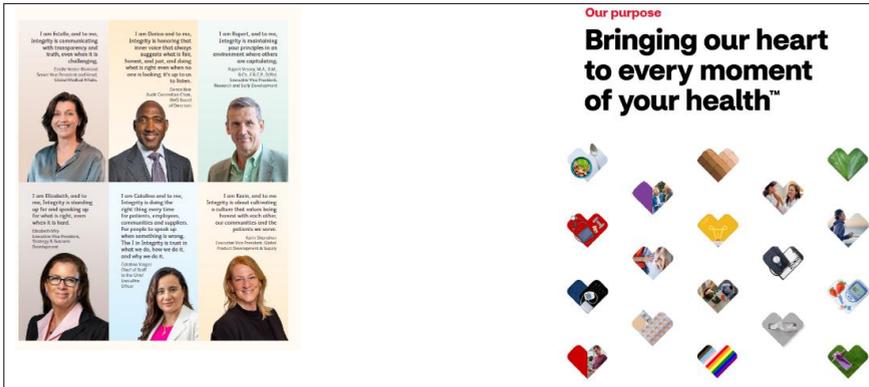
For the purposes of the present study, we focused on commitment-oriented codes that generally make wide use of visuals and present comprehension aids, *ad hoc* titles and the message of the CEO (Gigliani 2019).

3.2. Methodology

The goal of this study was to identify the trends in image-text relations in commitment-oriented CoEs released by big pharmaceutical companies. The conceptual frame was set by C.G., who decided to investigate a specific domain, i.e. Big Pharma, by concentrating on image-text relations in CoEs. Companies had to be included in *Fortune 500*, a list published by “Fortune Magazine” that highlights the largest American companies based on their total revenue. In line with the theoretical framework and the study context, the CoEs of the selected companies had to be commitment-oriented (see 3.1).

Once the study framework was finalised, data collection, i.e. retrieval of CoEs from the companies’ websites, was conducted in Spring 2023. A meeting was then held to discuss and agree on key concepts, i.e. visuals as in drawings, graphics, pictures and tables, and to decide on code inclusion and visual computing. Company logos and background pictures (whether abstract or concrete, e.g. geometric shapes) were not taken into account and, therefore, they were not counted as separate items. Significant units were considered to be formed by the association of a visual and a verbal unit. For instance, Picture 1 includes six significant units whereas visual clusters (i.e. a set of pictures) bound to a single verbal unit (Picture 2) were counted as one item. Data were processed both quantitatively (mean

and median) and qualitatively. Within the theoretical framework of image-text analysis (Martinez and Salway 2005), to ensure reliability and validity, content analysis and data processing were conducted by independent coders in line with the inter-coder reliability theory (O'Connor & Joffer 2020).



Picture 1: Example of six significant units (Bristol Meyers Squibb 25)

Picture 2: Example of one significant unit (CVS 5)

3.3. Corpus

The population for the present study is comprised of 18 commitment-oriented CoEs in English and of varying length. The CoEs were retrieved in Spring 2023 from the following company websites: Abbott Laboratories, Abbvie, Amerisource Bergen, Amgen, Biogen, Bristol-Myers Squibb, Cardinal Health, CVS Health, Eli Lilly, Gilead Sciences, Johnson&Johnson, McKesson, Merck & Co., Pfizer, Regeneron Pharmaceuticals, Vertex Pharmaceuticals, Viatrix, and Zoetis (see Corpus in References).

All codes belong to companies that made the *2022 Fortune 500 List*, an annual list of the 500 largest American companies according to total revenue for the previous fiscal year. Hence, the sample is representative of all *Fortune 500* Big Pharma companies. Despite being ranked in the *Fortune 500* list (#195), Moderna's CoE did not meet the inclusion criteria due to its legalistic nature (see 3.1).

4. Findings

Figure 1 displays the overall visual (pictures, drawings, graphics and tables) distribution based on the analysis of the 18 selected CoEs (page mean 35.4).

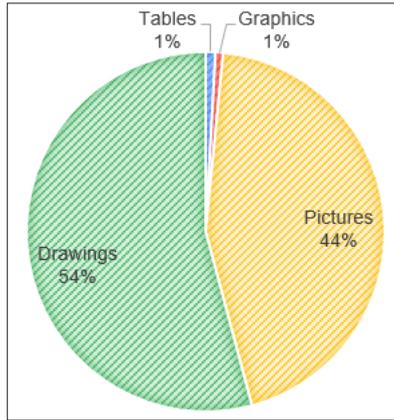


Figure 1: Visual distribution in the selected corpus

Table 1 lists the number of visuals organised according to type for each CoE.

Codes	Pictures	Drawings	Graphics	Tables	Total visual
Abbott	22	44	–	1	67
Abbvie	31	45	–	2	78
AmerisourceBergen	17	5	–	–	22
Amgen	33	2	–	2	37
Biogen	21	84	2	–	107
BristolMyersSquibb	28	1	–	–	29
CardinalHealth	11	9	–	3	23
CVS	11	9	–	–	20
EliLilly	6	2	–	–	8

Gilead	21	--	2	--	23
Johnson&Johnson	27	26	1	--	54
McKesson	45	154	1	--	200
Merck	7	1	--	--	8
Pfizer	27	57	--	1	85
Regeneron	48	39	1	--	88
Vertex	27	58	--	--	85
Viartis	35	--	--	--	35
Zoetis	37	18	--	--	55

Table 1: Number of visuals organised by type in the selected population

Overall, the 18 codes included 454 pictures and 554 drawings (median values: 27 and 13.5, respectively), seven graphics and nine tables (mean values: 0.3 and 0.5, respectively). Considering the inherently subjective nature of qualitative coding data, two pictures were not taken into account due to disagreement between coders (total visuals 1022, 100%). The least represented visual categories were graphics and tables, while the most represented category was drawings. The lowest number of visuals was found for Eli Lilly and Merck (eight respectively), whereas the largest number of visuals was found for McKesson (200). The median value for visuals was 45.5.

The relation between visual and verbal units was analysed for all visuals. Table 2 displays the content analysis performed by the two coders following Martinec & Salway's (2005) model.

Codes	e/i	e/c	un/im	un/t
Abbott	16	2	48	1
Abbvie	23	18	35	2
AmerisourceBergen	11	1	10	–
Amgen	11	1	22	3

Biogen	22	3	82	--
BristolMyersSquibb	–	1	27	1
CardinalHealth	10	–	10	3
CVS	5	1	14	–
EliLilly	2	3	3	–
Gilead	7	4	12	–
Johnson&Johnson	24	1	28	1
McKesson	28	7	164	1
Merck	4	2	2	–
Pfizer	18	5	61	1
Regeneron	27	3	56	2
Vertex	17	7	61	–
Viartis	23	3	9	–
Zoetis	21	4	30	–

Table 2: Classification of visuals based on Martinec & Salway's model (2005)

e/i: equal/independent; e/c: equal/complementary; un/im: unequal/image subordinate to text; un/t: unequal/text subordinate to image

Overall, 267 equal independent, 66 equal complementary, 674 unequal, image-subordinate-to-text and 15 text-subordinate-to-image relations were detected. Out of 333 equal relations, 268 (80.4%) were independent and 65 (19.5%) were complementary. Out of 689 unequal relations, only 15, i.e. 2.1%, were text-subordinate-to-image whereas the majority, 674 (97.8%), were image-subordinate-to-text interplay.

Pictures were likely to be in an equal independent (252, 55.7%) (Picture 3) or unequal image-subordinate-to-text relation (162, 35.8%) (Picture 4). Some (36, 7.9%) equal complementary (Picture 5) but few (2, 0.4%) unequal text-subordinate-to-image relations were detected. In terms of the pictures-equal independent ratio status, i.e. a lack of combination between the visual and verbal unit, 12 codes (66.6%) displayed a high

rate, ranging from 90.9% for Cardinal Health to 56.7% for Zoetis.¹ The biopharmaceutical Bristol Meyers Squibb was the only company whose code did not present pictures unrelated to text, with 28 pictures and one drawing for a total of 27 (93.1%) unequal, image-subordinate-to-text relations.

2.1 Inclusion and Diversity

Inclusion, encompassing diversity, is one of our core values. We value and respect inclusion and diversity and promote equal opportunities through our recruiting and promoting processes. We evaluate employees based on their skills and proficiency, irrespective of their age, ethnic origin, gender, religion or sexual orientation or any other characteristic protected by applicable employment laws.



Picture 3: Example of an equal independent relation (Gilead 8)

Dear Colleagues,

We have set forth bold goals to redefine health care to be centered around the consumer. Our success requires a strong foundation of integrity. That foundation will strengthen how we work with each other and help us earn the trust of the millions of customers who depend on us.

As CVS Health[®] colleagues, we are committed to doing what is right in every situation. This includes following the laws and regulations that govern our business, adhering to all company rules, and demonstrating our purpose and Heart & Work behaviors[™] every day.

The CVS Health Code of Conduct guides us in everything we do and ensures every colleague — regardless of role or level — understands what is expected of them. While the Code of Conduct covers a variety of issues and situations, there will be instances where there is no written rule or precedent. In those moments, remember that your actions and decisions should always reflect the spirit of the Code and be consistent with our purpose of bringing our heart to every moment of your health[™].

Thank you for reviewing the Code of Conduct and for ensuring your actions not only support our business but also deepen the trust our customers have in us.

Best regards,

Karen S. Lynch
President and CEO
CVS Health



Picture 4: Example of an unequal, image-subordinate-to text relation (CVS 2)



Picture 5: Example of an equal complementary relation (Amgen, cover)

Picture 6: Examples of drawings in an unequal, image-subordinate-to-text relation (Abbvie 34)

¹ Abbott 72.7%, Abbvie 74%, Amerisource Bergen 64.7%, Johnson&Johnson 88.8%, McKesson 62%, Merck 75.1%, Pfizer 66.6%, Regeneron 56.25%, Vertex 62.9%, Viatrix 65.7%

On the other hand, drawings (such as stylised books, question and exclamation marks, balloons, etc.) tended to be subordinate to text (510, 92%) (Picture 6). However, some equal complementary (27, 4.8%) and equal independent (15, 2.3%) relations were found. Two drawings (0.4%) were in an unequal text-subordinate-to-image correlation. There were also codes that did not resort to the use of drawings – Viatrix and Gilead – or only added a few – Amerisource Bergen with one (3.4%) and Amgen with two (5.4%). On the other hand, McKesson used a wide variety of drawings 164 (82%), followed by Pfizer with 57 (67%).

In terms of tables, in all instances (nine, 100%) the text was subordinate to the image (Picture 7), while graphics displayed variations: two (28.5%) were equal independent (Picture 8), one (14.2%) was equal complementary (Picture 9), two (28.5%) were unequal subordinate to text (Picture 10), and two (28.5%) were subordinate to image (Picture 11).

Contacts and helpline

There are many ways to contact us when you have a question or concern. We encourage employees to use the method that is most convenient. This list is your guide.

Resource	Issue	Contact information
Ethics and Compliance Helpline Share concerns confidentially and anonymously where permitted by law, 24 hours a day, 7 days a week	Any issue or concern	To report your concerns on situations that you believe might be inconsistent with our Code or possibly in violation of laws or regulations, please use the Global Helpline Portal.
Vice President, Chief Ethics and Compliance Officer	Any issue or concern	Mail: Vice President, Chief Ethics and Compliance Officer, AbbVie, Department 9304, 1 North Waukegan Road, North Chicago, IL 60064 U.S.A. Mark envelopes: "Confidential" - to be opened by the Vice President, Chief Ethics and Compliance Officer only.

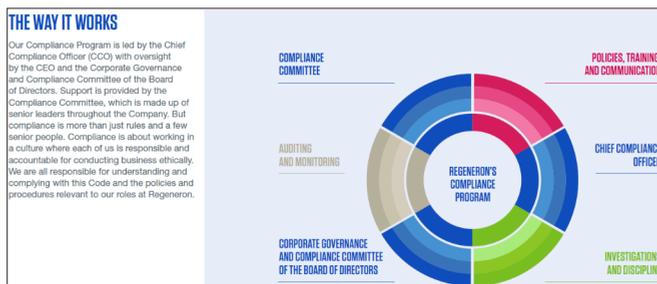
THE HEADLINE TEST

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graph TD
    Q1{Is it legal?} -- yes --> Q2{Is it consistent with our values, Code and policies?}
    Q1 -- no --> D[DON'T do it]
    Q2 -- yes --> Q3{Okay as a news headline?}
    Q2 -- no --> D
    Q3 -- yes --> P((Passed the Headline Test))
    Q3 -- no --> D
    
    CIO{Check it out} -- not sure --> Q1
    CIO -- not sure --> Q2
    CIO -- not sure --> Q3
    
    CIO --- C[Check it with:  
- Your Manager  
- Compliance Helpline  
- Corporate Compliance  
- Human Resources  
- Legal]
    
```

Picture 7: Example of a table in a text-subordinate-to image relation (Abbvie 64)

Picture 8: Example of a graphic in an equal independent relation (Biogen 52)



Picture 9: Example of a graphic in an equal complementary relation (Regeneron 8)



Picture 10: Example of a graphic in an unequal, image-subordinate-to-text relation (Gilead 3)

Picture 11: Example of a graphic in an unequal, text-subordinate-to-image relation (McKesson 9)

Table 3 displays the frequency and the most common variety of image-text relations for each code.

Codes	Most common variety of image-text relation		Number of varieties	
	equal	unequal	III	IV
Abbott	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Abbvie	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
AmerisourceBergen	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Amgen	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Biogen	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
BristolMyersSquibb	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
CardinalHealth	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
CVS	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
EliLilly	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Gilead	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Johnson&Johnson	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
McKesson	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Merck	x	□	x	□
Pfizer	□	x	□	x
Regeneron	□	x	x	□
Vertex	□	x	x	□
Viatrix	□	x	x	□
Zoetis	□	x	x	□

Table 3: The most common types of image-text relations and number of types per code

The image-text relation was considered mainly equal in 22.2% (four) and unequal in 78.7% (14) of the codes. 12 (66.6%) displayed three while six (33.3 %) showed four varieties of image-text relations.

5. Discussion

According to our findings, the CoEs issued by the 18 pharmaceutical companies in the selected corpus (3.3) are characterised by an unequal image-text relation, i.e. the visuals only partially relate to part of the text. This answers RQ1 and confirms H1. The primary scope of a code of ethics or conduct – the terms may be interchangeable as, indeed, a company’s set of guidelines is presented in a code to promote appropriate ethical behaviour (Giglioni 2020: 5) – is not merely promotional, however. As a ‘business card’, codes present company values and principles. Values, as well as principles of conduct, as abstract concepts, may be difficult to represent or be enclosed within a single visual frame. This reasoning could easily be an explanation for the prevalent visual-text relations that emerged from the present content analysis.

Moreover, as suggested in H2, there seems to be a trend in visual selection by companies, especially when it comes to pictures. Regarding this aspect, some tendencies can be highlighted. Codes of ethics are likely to include images that have a positive connotation, representing stereotyped subjects, generally avoiding any potential discrimination according to sex, age and ethnicity, in a generic work environment. This helps explain the equal independent status as quite often the selected pictures provide

information in parallel without forming a larger syntagm (see Martinec & Salway 2005: 343). To better describe this generalisation, the recurrence of some images can be addressed. Pictures 10 and 11 are taken from two and three different CoEs, respectively.



Picture 12



Picture 13

Picture 12 appears in identical form in Amgen (19) under the heading “Government inspections and requests” and in Pfizer (30) above this line: “We advance equity when we seek perspective”. On the other hand, Picture 13, with 3 different close-ups of the same building with the American flag, appears in Amgen (28) under the heading “Political activities and political donations”, in CVS (27) in “Government requests”, and in Regeneron (50) in “Communication with government officials and employees”. While Capitol Hill metonymically relates to the idea of legislation by bringing to mind the United States Congress, Picture 12 is not clearly related to the texts. Actually, a quick image search on the Internet is enough to document the overuse of this image in different working contexts (leadership development, enterprise business applications, promotion of scientific and technological activities, insurance, to cite just some). This lack of correlation, though, is found quite often when trying to relate images to texts as the selected pictures do not seem to engage with the text, thus requiring a very different conceptualisation process. This occurs with some drawings as well. They activate a precise association that is, however, unrelated to the concept that the drawing is referring to in the CoE. For example, in Biogen (14), there is a green circle with three stylised figures who have linked their hands in the centre giving the idea of collaboration and teamwork, but the verbal unit is about respecting and doing what is right for patients.

As for the least represented visual types, i.e. tables and graphics, some reflections can be put forward. Due to the nature of CoEs, unlike, for instance, annual reports that include numerical data on market expansion, revenue, number of products in relation to countries, etc., tables in CoEs do not report quantitative data. Thus, the text is likely to be subordinate to the image. Annual reports also include the number of employees and the turnover and allocated budgets, which could potentially be an interesting addition to a CoE as well.

As for graphics, when compared to other visuals, they are used less (0.6%) and with a variety of image-text relations (equal independent, equal complementary, unequal image-subordinate-to-text, and text-subordinate-to-image). This may also suggest the potential adaptability of such a visual asset in CoEs that has not been exploited by companies yet.

Hence, in terms of RQ2, it can be inferred that, rather than determining a clear-cut type of relation, visual types are likely to present a tendency in use. If, statistically speaking, due to its notably different data points in the drawings category, McKesson were to be considered an outlier, the distribution of pictures (407, 49.4%) and drawings (400, 48.6%) would be quite balanced in the selected corpus and account for the majority of visuals. Ultimately, pictures tend to be in an unequal, image-subordinate-to-text relation, while drawings are divided between equal independent and unequal, image-subordinate to text.

6. Conclusion

The present study aimed at identifying the types of relations between the visual and the verbal units presented in corporate CoEs. The analysis of 18 CoEs issued by 18 American companies operating in the pharmaceutical sector was based on Martinec and Salway's (2005) suggested model. Results indicate that visuals adopted in CoEs are mainly pictures and drawings. These visuals relate to the text with equal independent and unequal, image-subordinate-to-text relations. In terms of the former, picture selection in particular often seems to be standardised as images are mostly unrelated to the verbal unit they refer to. Images tend to convey a conformed message. Drawings, commonly stylised icons, are generally more intuitively understood, forming a larger unit of meaning, supporting the text they refer to. Tables and graphics are the least represented visuals.

Tables can be found in text-subordinate-to-image relations whereas graphics are found in all four varieties of associations. In today's overwhelmingly visual communication, considering the unprecedented innovation and technological tools at hand, companies should exploit visuals in a more effective way so as to ignite a conceptualisation process through which the association between a visual unit and a verbal unit – even if representing an abstract concept – is more immediate. Within this framework, CoEs should be considered to be another type of corporate document used to engage and interact with due accuracy with both employees and third parties.

Corpus²

- Abbott Laboratories (2015), *Code of Business Conduct*. Retrieved from <https://webstorage.abbott.com/cobc/ebook_us.html#pNum0>
- AbbVie (n.d.), *The AbbVie Code of Business Conduct*. Retrieved from <https://www.abbvie.com/content/dam/abbvie-com2/pdfs/cobc/cobc_English.pdf>
- Amerisource Bergen (2020), *Code of Ethics and Business Conduct*. Retrieved from <https://s27.q4cdn.com/189772748/files/doc_downloads/policies/2020/FY2020_COE.pdf>
- Amgen (n.d.), *Code of Conduct*. Retrieved from <<https://www.amgen.com/about/how-we-operate/corporate-governance/-/media/Themes/CorporateAffairs/amgen-com/amgen-com/downloads/dotherightthing.pdf>>
- Biogen (n.d.), *Code of Business Conduct*, Retrieved from <<https://investors.biogen.com/static-files/bfa93069-f077-472e-8083-da6bd94d98c4>>
- Bristol-Myers Squibb (n.d.), *Principles of Integrity: BMS Standards of Business Conduct and Ethics*. Retrieved from <<https://www.bms.com/assets/bms/us/en-us/pdf/principles-of-integrity.pdf>>
- Cardinal Health (n.d.), *Standards of Business Conduct*. Retrieved from <<https://www.cardinalhealth.com/content/dam/corp/web/documents/fact-sheet/cardinal-health-standards-of-business-conduct-booklet-english.pdf>>

² All links were last checked on March 1 2023.

- CVS Health (n.d.), *Code of Conduct*. Retrieved from <<https://www.cvshealth.com/content/dam/enterprise/cvs-enterprise/pdfs/cvs-health-code-of-conduct.pdf>>
- Eli Lilly (2021), *The Red Book. Code of Business Conduct*. Retrieved from <<https://www.ifpma.org/wp-content/uploads/2022/12/Code-of-Business-Conduct-2021.pdf>>
- Gilead Sciences (2022), *Code of Ethics*. Retrieved from <https://s29.q4cdn.com/585078350/files/doc_downloads/gov_docs/11/GILD-Code-of-Ethics-2-November-2022.pdf>
- Johnson & Johnson (2020), *Code of Business Conduct. Live Our Credo, Know Our Code*. Retrieved from <<https://www.jnj.com/code-of-business-conduct/english.>>
- McKesson (n.d.), *Code of Conduct*. Retrieved from <<file:///C:/Users/ellen/Downloads/Code%20of%20Conduct.pdf>.>
- Merck & Co. (n.d.), *Code of Conduct. Our Values and Standards. The Basis of Our Success*. Retrieved from <https://www.merck.com/wp-content/uploads/sites/5/2023/01/Code-Of-Conduct_MERCK_4-3_US_English.pdf.>
- Pfizer (n.d.), *Breakthrough that change people's lives. The Blue Book: Pfizer's Code of Conduct*. Retrieved from <https://cdn.pfizer.com/pfizercom/investors/corporate/Pfizer_2023BlueBook_English_v5_03092023.pdf.>
- Regeneron (2022), *Code of Business Conduct and Ethics*. Retrieved from https://www.regeneron.com/downloads/code_of_business_conduct_and_ethics.pdf.
- Vertex (n.d.), *Code of Conduct*. Retrieved from <https://www.vrtx.com/sites/global/files/Vertex-Code-of-Conduct.pdf>.
- Zoetis (n.d.), *Code of Conduct. The Way We Do Business*. Retrieved from <https://www.zoetis.com/_assets/pdf/code-of-conduct-zoetis.pdf.>

References

- Adams, J.S., Tashchian, A. and Shore T. H. (2001). Codes of ethics as signals for ethical Behavior. *Journal of Business Ethics*, 29.3, 199–211. DOI:10.1023/A:1026576421399

- Andrade, J., Hamza, K. M. and Xara-Brasil, D. M. (2017). Business ethics: International analysis of Code of ethics and conduct. *REMark*, 16.1, 1–16. DOI:10.5585/remark.v16i1.3529
- Arrigo, E. (2006). Code of Conduct and Corporate Governance. *Symphonya, Emerging Issues in Management*, 1, 93–109. SSRN: <https://ssrn.com/abstract=2213238>
- Babri, M., Davidson, B. and Helin, S. (2021). An Updated Inquiry into the Study of Corporate Codes of Ethics: 2005-2006. *Journal of Business Ethics*, 168, 71–108. <<https://doi.org/10.1007/s10551-019-04192-x>>
- Bateman, J. (2014). *Text and Image: A Critical Introduction to the Visual/Verbal Divide*. London: Routledge. Barthes, R. (1977). *Image-Music-Text*. London: Fontana Press.
- Bethoux, É., Didry, C. and Mias, A. (2007). What Codes of Conduct Tell Us: corporate social responsibility and the nature of the multinational corporation. *Corporate Governance*, 15.1, 77–90. DOI:10.1111/j.1467-8683.2007.00544.x
- Catenaccio, P and Garzone, G. E. (2017). Poster session held at *Association for Business Communication 82nd Annual International Conference*. Dublin: Ireland.
- Catenaccio, P and Garzone, G. E. (2022). *Ethics in Professional and Corporate Discourse: Linguistic Perspectives*. Berlin: Frank and Timme.
- Cheema, G. S., Hakimov, S., Müller-Budack, E., Otto, C., Bateman, J. A. and Ewerth, R. (2023). Understanding image-text relations and news values for multimodal news analysis. *Frontiers in Artificial Intelligence*, 6, 1–29. <<https://doi.org/10.3389/frai.2023.1125533>>
- Chua, F. C.-K. (2005). *Discourse analysis of corporate codes of ethics*. A thesis presented in partial fulfilment of the requirements for the degree of Doctor of Philosophy in Accountancy. Manawatu, Massey University, New Zealand.
- D’Orazio, E. (2003). Codici etici, cultura e responsabilità d’impresa. *Notizie di POLITEIA*, XIX.72, 127–143. ISSN 1128–2401
- De Laat, S. (2004). Picture Perfect (?): Ethical Considerations in Visual Representation, *Nexus*, 17, 122–149.
- Ekin, M.G. S. and Tezölmez, S. H. (1999). Business Ethics in Turkey: An Empirical Investigation with Special Emphasis on Gender. *Journal of Business Ethics*, 18.1, 17–34. DOI 10.1023/a:1006021607288

- Fairfax, L. M. (2007). Easier said than Done: A corporate law theory for actualizing social responsibility rhetoric. *Florida Law Review*, 59.4, 771–828. <https://digitalcommons.law.umaryland.edu/fac_pubs/481>
- Fortune Magazine, *Fortune 500*. (29 July 2023) < <https://fortune.com/ranking/fortune500>>.
- Farrell, B. J. and Cobbin, D. (2000). A content analysis of codes of ethics from fifty-seven national accounting organizations. *Business Ethics: A European Review*, 9(3), 180–190. DOI 10.1111/1467-8608.00189
- Farrell, H. and Farrell, B. J. (1998). The language of business codes of ethics: Implications of knowledge and power. *Journal of Business Ethics*, 17(6), 587–601. DOI <<https://doi.org/10.1023/A:1005749026983>>
- Frankel, M. S. (1989). Professional Codes: Why, how, and with what impact? *Journal of Business Ethics*, 8 (2-3), 109–115. DOI 10.1007/bf00382575
- Giglioni, C. (2019). Legalistic and commitment-oriented corporate codes of ethics: distinctive macro textual and lexico-syntactic traits. *Ostrava Journal of English Philology*, 11.2, 5–21. ISSN: 1803-8174.
- Giglioni, C. (2020). Italian corporate codes of ethics: legalistic or commitment-oriented?. *BRNO Studies in English*, 46.1, 5–20. DOI <https://doi.org/10.5817/BSE2020-1-1>
- Giglioni, C. and Patat, E. (2020). Pedagogical implications of teaching codes of ethics at tertiary level: An Italian case study. *E-JournALL, EuroAmerican Journal of Applied Linguistics and Languages*, 7.2, 51–69. <<https://orcid.org/0000-0003-0994-8415>>
- Giglioni, C. (2021). Interconnections between visual and verbal units in corporate codes of ethics: a comparative study. Paper presented at the 6th International Conference Asia-Pacific LSP & Professional Communication Association. *Multimodality and Beyond: Addressing complexity and emerging needs in LSP*, 3–5 July, 41.
- Giglioni, C. and Patat, E. (2021). *Teaching codes of ethics at tertiary level: further steps in the research*, 5th International Conference Contemporary Challenges in Teaching the Language of the Profession, 1–2 July 2021, Zagreb.
- Giglioni, C. (2022). Further Research on Pedagogical Implications of Teaching Codes of Ethics at Tertiary Level. *Lingue e Linguaggi*, 52, 97–109. DOI 10.1285/i22390359v52p97
- Grange, H. and Lian, O. S. (2022). ‘Doors Started to Appear:’ A Methodological Framework for Analyzing Visuo-Verbal Data

- Drawing on Roland Barthes's Classification of Text-Image Relations. *International Journal of Qualitative Methods*, 21, 1–12. <<https://doi.org/10.1177/16094069221084433>>
- Halliday, M. A. K. (1994). *An introduction to Functional Grammar*. London: Arnold.
- Holder-Webb, L. and Cohen, J. (2021). The cut and paste society: Isomorphism in codes of ethics. *Journal of Business Ethics*, 107.4, 485–509. DOI:10.1007/s10551-011-1060-1
- Huang, Z., Du Y., Xu, F. and Hu, C. (2022). How Does the Horizontal Position of Pictures and Text Affect Product Evaluation? Based on Left and Right Position Effect. *Frontiers in Psychology*, 13, 1–11. <<https://doi.org/10.3389/fpsyg.2022.841480>>
- Kaptein, M. (2004). Business Codes of Multinational Firms: What Do They Say? *Journal of Business Ethics*, 50, 13–31. <https://doi.org/10.1023/B:BUSI.0000021051.53460.da>
- Kaptein, M. (2011). Toward effective codes: Testing the relationship with unethical behavior. *Journal of Business Ethics*, 99.2, 233–251. DOI:10.1007/s10551-010-0652-5
- Kruk, J., Lubin, J., Sikka, K., Lin, X., Jurafsky, D. and Divakaran, A. (2019). Integrating Text and Image: Determining Multimodal Document Intent in Instagram Posts. *arXiv*, 1–11. <<https://doi.org/10.48550/arXiv.1904.09073>>
- Langlois, C. C. and Schlegelmilch, B. B. (1990). Do corporate codes of ethics reflect national character? Evidence from Europe and the United States. *Journal of International Business Studies*, 21.4, 519–539. DOI:10.1057/palgrave.jibs.8490340
- Lemke, J. L. (1998). Multiplying Meaning: Visual and Verbal Semiotics in Scientific Text. In J.R. Martin and R. Veel (Eds), *Reading Science*, London: Routledge, 87–113.
- Long, B. S. and Driscoll, C. (2008). Codes of ethics and the pursuit of organizational legitimacy: Theoretical and empirical contributions. *Journal of Business Ethics*, 77.2, 173–189. DOI 10.1007/s10551-006-9307-y
- Lugli, E., Kocollari, U. and Nigrisoli, C. (2009). The Codes of Ethics of S&P/MIB Italian Companies: An Investigation of Their Contents and the Main Factor that Influence Their Adoption. *Journal of Business Ethics*, 84, 33–45. DOI <<https://doi.org/10.1007/s10551-008-9692-5>>

- Marsh, E. E. and Domas White, M. (2003). A taxonomy of relationships between images and text. *Journal of Documentation*, 59.6, 647–672. DOI:10.1108/00220410310506303
- Martin, j. R. (1983). Conjunction: The Logic of English Text. In J.S. Petofi and E. Sozer (Dds), *Micro Macro Connexity of Texts*, Hamburg: Helmut Buske Verla, 1–72.
- Martin, J. R. (1994). Macro-genres: The Ecology of the Page. *Network 21*, 28–52.
- Martinec, R. and Salday, A. (2005). A system for image-text relations in a new (and old) media, *Visual Communication*, 4.3, 337–371. DOI:10.1177/1470357205055928
- Martinec, R. (2013). Nascent and mature uses of a semiotic system: the case of image-text relations, *Visual Communication*, 12.2, 47–172. DOI:10.1177/1470357212471603
- Mion, G, Broglia, A. and Bonfanti, A. (2019). Do Codes of Ethics Reveal a University’s Commitment to Sustainable Development? Evidence from Italy *Sustainability*, 11.4, 1–18. <<https://doi.org/10.3390/su11041134>>
- Mion, G. and Bonfanti, A. (2019). “Drawing up codes of ethics of higher education institutions: evidence from Italian universities. *International Journal of Educational Management*, 33.7, 1526–1538. DOI:10.1108/IJEM-08-2018-0264
- Morin, C., Mercier, A. and Altani-Duault, L. (2019). Text-Image Relationships in Tweets: Shaping the Meaning of an Epidemic. *Societies*, 9.12, 1–18. <<https://doi.org/10.3390/soc9010012>>
- O’Connor, C. and Joffe, H. (2020). Intercoder Reliability in Qualitative Research: Debates and Practical Guidelines. *International Journal of Qualitative Methods*, 19, 1–13. <<https://doi.org/10.1177/16094069198999>>
- Otto, C., Springstein, M., Anand, A. & Ewerth, R. (2020). Characterization and classification of semantic image-text relations. *International Journal of Multimedia Information Retrieval*, 9, 31–45. <<https://doi.org/10.1007/s13735-019-00187-6>>
- Peterson, M O. (2011). *Comprehension with instructional media for middle school science: Holistic performative design strategy and cognitive load*. (Doctoral dissertation). Raleigh, North Carolina, USA: North Carolina State University.
- Peterson, M. (2014). *The Integration of Text and Image, Its Cognitive Impact for Learning with Media, and Science Instruction: a Ph.D. in Design*

- Study, *Connecting Dots: Research, Education + Practice*, Cincinnati, OH: University of Cincinnati, 124–137. <<https://textimage.org/indices/pdf/A-PhD-in-Design-Study.pdf>>
- Pierce, M. A. and Henry, J. W. (1996). Computer ethics: The role of personal, informal, and formal codes. *Journal of Business Ethics*, 15.4, 425–437. DOI 10.1007/bf00380363
- Pollach, I. (2003). Web: A discourse analysis of selected company websites. *Business & Society*, 42.2, 277–287. <<https://doi.org/10.1177/00076503030420020>>
- Royce, T. (1998). Synergy on the Page: Exploring Intersemiotic Complementarity in Page-Based Multimodal Texts. *JASFL Occasional Papers*, 1(1), 25–50.
- Rose, G. (2001). *Visual methodologies: An introduction to the interpretation of visual materials*, London/Thousand Oaks/ New Delhi: Sage.
- Schwartz, M. (2001). The Nature of the Relationship between Corporate Codes of Ethics and Behaviour. *Journal of Business Ethics*, 32.3, 247262. DOI 10.1023/a:1010787607771
- Schwartz, M. S. (2004). Effective Corporate Codes of Ethics: Perceptions of Code Users. *Journal of Business Ethics*, 55.4, 323–342. DOI 10.1007/s10551-004-2169-2
- Singh, J. B. (2011). Determinants of the effectiveness of corporate codes of ethics: An empirical study. *Journal of Business Ethics*, 101.3, 385–395. DOI 10.1007/s10551-010-0727-3
- Singh, J., Carasco, E., Svensson, G., Wood, G. and Callaghan, M., A comparative study of the contents of corporate code of ethics in Australia, Canada and Sweden. *Journal of World Business*, 40.1, 91–109. DOI:10.1016/j.jwb.2004.10.007
- Somers, M. J. (2001). Ethical codes of conduct and organizational context: A study of the relationship between codes of conduct, employee behavior and organizational values. *Journal of Business Ethics*, 30.2, 185-195. DOI:10.1023/A:1006457810654
- Spanjers, R. (2021). 3 Text-Image Relations. In S. Domsch, D. Hassler-Forest and D. Vanderbeke (Eds.), *Handbook of Comics and Graphic Narratives*, Berlin-Boston: De Gruyter, 81–98. <<https://doi.org/10.1515/9783110446968-004>>
- Stevens, B. (2008). Corporate ethical codes: Effective instruments for influencing Behavior. *Journal of Business Ethics*, 78.4, 601–609. DOI:10.1007/s10551-007-9370-z

- Unsworth, L. (2006). Image/Text Relations and Intersemiosis: Towards Multimodal Text Description for Multiliteracies Education. *ISFC, 33rd International Systemic Functional Congress*, 1165–1205. <<https://hdl.handle.net/1959.11/2206>>
- Van Leeuwen, T. (1991). Conjunctive Structure in Documentary Films and Television. *Continuum*, 5.1, 76–114. DOI: 10.1080/10304319109388216
- Vempala, A. and Preoțiuc-Pietro, D. (2019). Categorizing and Inferring the Relationship between the Text and Image of Twitter Posts. Proceedings of the 57th Annual Meeting of the Association for Computational Linguistics, Florence, Italy, July 28 – August 2, 2019, Association for Computational Linguistics, 2830–2840. <<https://aclanthology.org/P19-1272>>
- Zhang, M., Hwa, R. and Kovashka, A. (2018). Equal But Not The Same: Understanding the Implicit Relationship Between Persuasive Images and Text. *arXiv*, 1–14. <<https://doi.org/10.48550/arXiv.1807.08205>>
- Zhao, F., Schnotz, W., Wagner, I. and Gaschler, R. (2020). Text and pictures serve different functions in conjoint mental model construction and adaptation. *Memory & Cognition*, 48, 69–82. <<https://doi.org/10.3758/s13421-019-00962-0>>
- Wood, G. (2000). A Cross Cultural comparison of the Contents of Codes of Ethics: USA, Canada and Australia. *Journal of Business Ethics*, 25.4, 287–298. DOI:10.1023/A:1006034209956
- Wood, G. and Rimmer, M. (2003). Codes of ethics: What are they really and what should they be? *International Journal of Value-Based Management*, 16.2, 181–195. DOI:10.1023/A:1024089509424

Received: 13 September 2023

Accepted for publication: 18 November 2023