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CONNECTING VISUAL DESIGN AND HOFSTEDE'S CULTURAL DIMENSIONS:
THE UNITED STATES, LATIN AMERICA AND SPAIN

by

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B.A. University of Miami, 2002

A thesis submitted in partial fulfillment of the requirements
for the degree of Master of Arts
in the Department of English
in the College of Arts and Humanities
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ABSTRACT

My thesis discusses whether culture can be used to predict visual design preferences in documentation and whether cultures with similar attributes demonstrate similar visual design preferences. The visual design of a document is an important element in effective communication to an audience. If the audience is outside the United States, it is important to understand the attributes of that culture to create documents that are most effective for the audience. Cultural theorist Geert Hofstede describes cultural attributes in terms of six cultural dimensions: individualism versus collectivism, high versus low power distance, high versus low uncertainty avoidance, masculinity versus femininity, long-term versus short-term orientation, and indulgence versus restraint. This thesis explores whether we can identify visual design preferences in high uncertainty avoidance cultures and high power distance cultures, such as Spain and Latin American countries.

To explore this topic, a study was done on sample report documents from a single company which operates in the United States, Latin America and Spain. Choosing only one company to collect samples from provided a way of discounting different corporate cultures as an influence on standards, tools and how documents are developed. As a framework for comparison of the documents, Kostelnick's visual design matrix was used to analyze the documents for graphics, data displays, document unifiers, decoding devices, and cuing devices. The results show that some elements of visual design can be predicted by cultural attribute, and there is a correlation between different cultures and their preference for similar design elements.

For U.S. technical communicators working on documents for Latin American and Spanish audiences, documents need to be shorter in length with simple data displays and need to use more cuing devices to be effective for audiences in these cultures. This study also shows that for technical communicators designing documents for audiences in other cultures, studying the audience and the specific attributes of that culture will provide direction on how to design an effective technical document for that audience.

For my grandmother, Margaret Boyle, who taught me hard work and valued education above all things and died a week before I was accepted into my Master's program.

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Thank you to CB Richard Ellis for their participation in this research. A special thanks to Donna Groves for her assistance and support in this study and my career both in real estate and as a technical communicator.

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CB Richard Ellis – CBRE

CHAPTER ONE

INTRODUCTION

The advancement of technology has changed the way we do global business, from the ability to move cargo from China to the U.S. in hours to the ability to communicate instantaneously with clients around the world. Companies need to be willing to interact with clients and business partners around the world. The challenges of doing business on this scale present geographic, technological, linguistic and cultural challenges. All of these challenges can affect a technical communicator attempting to work in a multinational company.

As Emily Thrush notes in “Bridging the Gaps: Technical Communication in an International and Multicultural Society,” business is changing with companies marketing products to consumers in other countries (272). Making assumptions that the documents we create in the United States are good enough for the rest of the world no longer works with the increased amount of competition in the multinational marketplace. Effective communication of information is absolutely necessary for businesses to compete in an increasingly competitive marketplace. In “Global Issues, Local Concerns” Nancy Hoft points out that creating effective international technical documents requires us as technical communicators to change our assumptions and processes to work with global audiences (145).

Becoming better technical communicators starts with understanding the audience we are trying to reach. Karen Schriver writes that audience analysis should take into account both the technical communicator and the intended audience. Audience analysis includes assessing an

audience's different levels of knowledge, values, and beliefs about the subject matter. A comparative analysis of documents puts document designers in a more knowledgeable position to make decisions about the content and visual aesthetics most appropriate for a specific audience (163).

In the case of an international audience, audience analysis means understanding the audience's culture. Understanding different cultures is not as simple basic audience analysis, but requires understanding less obvious things about groups of people. It is not even easy to define what culture is. Hofstede calls it "the way we do things here" (145). In *Beyond Culture*, Edward Hall writes that there are three things that anthropologists agree on about culture: culture is learned, all elements of a culture are related to each other and affect each other, and culture defines groups of people (18).

Geert Hofstede compares culture to how computers are programmed by calling culture the "software of the mind." At a young age, people are exposed to the environment and people around them. They learn from those experiences how to react to the world. Hofstede points out that this does not mean that an individual cannot react in unexpected way, but rather the identification with a specific culture is a predictor of how an individual will react (5). Understanding and using these predictors can help technical communicators to develop effective rhetorical analyses of documents when charged with international documentation projects.

Understanding the basic predictors of how a member of a culture might react is not enough for technical communicators to develop documentation for these audiences. Both those in academia and practitioners are paying more attention to the needs of technical communicators who are faced with producing international documentation, as can be seen from the increased

number of academic journal articles and translation/localization companies. Some regions of the world are receiving more attention from researchers than others. In his study of international business communication and technical communication articles Peter Cardon notes that very little research has been done on Latin America and Western Europe compared to Anglo and Asian cultures (415). The lack of research in Latin America and Western Europe leaves technical communicators with a limited amount of information specific to the field of technical communication available to them to create effective documents for these audiences. This thesis will examine Latin America and Spain as well as the United States in an effort to provide practical information for use in the development of documents for international audiences.

This thesis will examine the use of visual design in Latin America, Spain and the United States. In recent years, the visual design needs of different cultures have been addressed by designing documents which cannot be associated with a specific culture or misinterpreted by a culture. However, using universal graphics does not necessarily make a document as effective as it can be for a particular audience. Patrick Hoftman asserts that localizing graphics is as important as localizing the words in a document (91). What the audience prefers to see in a document is most likely going to make the document the most appealing and rhetorically effective document for that audience. The assertion that knowing the visual design preferences of an audience will allow a technical communicator to make the document more useful requires a detailed understanding of the culture to develop effective documents.

This thesis examines the relationship of visual design elements to culture by examining documents from Spain, Latin America and the United States. Chapter Two provides a literature review of previous research in visual design, intercultural communication theory, and

international visual design. Chapter Two also present the research questions and hypotheses the study this thesis is based on. Chapter Three reviews the methodology and process of how the study was conducted. Chapter Four presents the findings of the study conducted. Chapter Five discusses the findings presented in Chapter Four, implications of the study, limitations of the study and areas of further research.

CHAPTER TWO

LITERATURE REVIEW AND RESEARCH QUESTIONS

Many elements of document design can be used to localize or globalize a document. One approach that technical communication professionals use to help reduce the amount of localization and translation needed is to use universally recognizable visual design elements. Hoft states that effective page design created for international audiences should do several things, including allowing for easy and minimal localization and minimal translation (137). Patrick Hofman notes in “Localising and Internationalising Graphics and Information” that companies view using universal graphics as one way to reduce the amount of translation by reducing the number of words on a page.

However, visual design has as much rhetorical importance as text in delivering a message in a document. In “The Language of Visuals: Text + Graphics = Visual Rhetoric Tutorial,” Nicole Amare and Alan Manning point out that whatever visual elements are used in a document, they must align with the needs of the audience (68-69). Using visual elements that are considered universal does not necessarily mean a document is as effective as it could be for a specific audience. Sales and marketing professionals who are attempting to communicate complex information also depend on the visual design of a document not just to avoid miscommunication or distraction, but to help persuade the audience to conduct business with them. Using visual design elements that are not just universally understandable but are appealing to a specific culture can assist in delivering a message to an audience in that culture.

To move from using universal visual design to using design which targets a specific culture requires audience analysis and study of the visual design preferences of the target culture. The rest of this literature review focuses on approaches to studying visual design, a cultural framework for doing audience analysis, and the previous work done applying that framework to visual design.

Kostelnick's Language of Visual Design

In their book *Visual Language: Strategies for Professional Communicators*, Charles Kostelnick and David Roberts address the various layers of document design. They describe a matrix developed by Kostelnick that is repeatedly used by technical communicators for analyzing the visual design elements in documentation. This matrix provides a framework for analyzing the visual design of documents which is useful for researchers as well as practitioners. It provides a systematic approach to cataloging and analyzing the visual elements in a document. By having a systematic matrix to analyze documents all elements of importance can be catalogued. Additionally, using a systematic matrix allows the researcher to see if there are trends in the use of visual design elements.

Kostelnick's visual design matrix consists of twelve cells, four cells down and three cells across to produce a grid. It starts at the smallest elements of design at the top left corner and moves down to the largest overarching elements. Across the top are the three categories of design elements. The three categories are textual, spatial and graphic. Textual refers to the look of text on the page, but not the content. Spatial elements refer to the layout of elements on a page

in relation to each other. Graphic elements encompass lines, data displays, pictures, colors (Kostelnick and Roberts 87).

The four levels Kostelnick and Roberts describe are intra, inter, extra, and supra levels. Intra level addresses the most basic elements of a document with textual formatting including fonts, spacing between letters and punctuation marks (87-88). The Inter level of document design assists readers at the comprehension level by addressing headings, paragraphs, and cues like bullets (88-91). The extra level of document design addresses larger elements including texts using in data displays, orientation of data, and data display conventions such as pie charts (92-93). The supra level of Kostelnick's matrix deals with the largest elements of a document's design including textual layout, page orientation as well as pictures and color (95-97). As Kostelnick notes, the matrix is useful because it assumes documents contain unique levels of each cell in the matrix (97). Table 1 has been adapted from Kostelnick's matrix (Kostelnick and Roberts 86; Kostelnick "Visual Language" 33).

Table 1 Kostelnick's Matrix of Visual Design

	Textual (Alphanumeric/ Symbols)	Spatial	Graphic
Intra	1 <i>Micro-level textual form:</i> style, size, weight, and posture of letters, numbers, and symbols	2 <i>Local spacing:</i> spacing between characters, spacing between words, vertical spacing between lines	3 <i>Marks:</i> punctuation marks, symbols (\$), underscoring, and other treatments to text
Inter	4 <i>Serial and segmenting devices:</i> headings, letters, numbers, or letters that signal items in a list	5 <i>Vertical/ horizontal arrangement of text:</i> line endings, leading, indentations; text arranged into lists, tables, organizational charts	6 <i>Cueing devices:</i> Bullets, icons, line work and arrows on tables, charts, diagrams
Extra	7 <i>Decoding devices:</i> Legends, captions, labels, numerical description of data	8 <i>Configuration of schematic and pictorial sign systems</i> <i>Data display:</i> size of plot frame; space between bars, lined Pictures: size, viewing angles, perspective	9 <i>Schematics:</i> line weights or shading on data displays details on pictures— line drawings vs. photographs use of color for pictures or data displays
Supra	10 <i>Macro-level serial and segmenting devices:</i> Page header and footers Navigation bars Major section or chapter headings or numbers Tab labels—internal and external to the page Titles on the cover Initial letters signaling the start of an article or major text segment	11 <i>Cohesion of entire documentation over several planes:</i> Page breaks, size, orientation of pages, section dividers, embossing, placement of data displays	12 <i>Coding marks unifying pages or sections of text:</i> Color or texture of paper, page borders, pictures or icons placed behind the text or spread over the whole document for cohesion, lines in page headers or footers

Kostelnick’s visual design matrix is referenced in technical communication literature reviews and as a tool to teach about visual design. Kostelnick’s visual design matrix is useful in providing a common language to discuss visual design elements in technical communication

research. It is commonly referenced, but seldom applied directly as a framework for analyzing documents in research settings. For instance, in “The Rhetoric of Typography: Effects on Reading Time, Reading Comprehension, and Perception of Ethos” Eva Brumberger references the matrix as a framework for analyzing text as a visual design element in a document (15). As an educational tool, Kostelnick’s matrix has been used in classroom settings. In spring 2006 a Rutgers University course entitled “Information Design” used the matrix repeatedly through the course as part of assignments to analyze documents (Information Design). Russell Carpenter’s thesis “Designing for a Japanese High-Context Culture: Culture’s Influence on the Technical Writer’s Visual Rhetoric” is one of the few examples of Kostelnick’s matrix used as a tool in document analysis for a research study. The topic of Carpenter’s research involved comparing Japanese and American automobile industry documents for trends in visual design by identifying extra and supra level elements as described in Kostelnick’s matrix. The application of Kostelnick’s matrix in Carpenter’s study inspired the usage of the matrix in this thesis.

The application of Kostelnick’s visual design matrix to international technical communication, as done in Carpenter’s study, is an important step towards understanding if there are significant differences between visual design preferences in different cultures. This question is becoming more important as research continues in international technical communication. In “Cultural Adaptation and Information Design: Two Contrasting Views,” Kostelnick connects the concepts of visual design and international communication. He proposes that there are two different approaches to looking at documents, one from the global view and the other the cultural view. The global view proposes that visual perception is universal and everyone has an equal perception of objects. The cultural model, which Kostelnick believed was gaining popularity

when the article was published, proposes that visual perception is affected by the culture the person is from and the unique experiences of that person (Kostelnick, 1995, 183).

As noted previously, there are two approaches to developing documents for international audiences: globalizing (also called the universal approach) or localizing documents. Researchers, such as Charles Kostelnick, have noted that there has been a shift from globalization of visual elements in documents to localization visual elements in documents (Kostelnick, Cultural Adaptations, 183). This movement toward a cultural focus has placed and increased importance on cultural studies for technical communicators. Thrush points out that we base what we put into documents on what we think the audience already knows, which is difficult in intercultural situations (274). Without an in-depth audience analysis of the specific culture included in the study the visual design analysis will not have the same significance.

Geert Hofstede's Dimensions of Culture

Geert Hofstede, a cultural researcher, produced one of the most significant studies of culture to the field of technical communication in the past forty years. The four original dimensions of culture were written about in the early 1980s in his articles "National Culture in Four Dimensions" and "The Culture Relativity of Organizational Practices and Theories" and were based on a survey conducted in the 1970s with IBM employees. The four original dimensions are individualism versus collectivism, high versus low power distance, high versus low uncertainty avoidance and masculinity versus femininity ("Cultural Relativity" 78). The original findings were later reexamined with input from colleagues in Asian countries which identified Western cultural bias. The long-term versus short-term orientation was added as the

fifth dimension (Hofstede, *Cultures and Organizations* 239). The sixth and final dimension, which was added after examining data from the World Values Survey, is indulgence versus restraint (281). The last two dimensions do not include all countries that were included in the original IBM study because the data is based on subsequent surveys done using different sample sets. Since the initial surveys in the 1970s, the analysis has been reproduced six times (1990, 1995, 1998, 2001, 2002, 2002) with similar results for the first five dimensions of culture from Hofstede's model. Hofstede asserts that the countries might have changed since the original analysis in the 1970s to the latest surveys but that all the countries are moving relative to each other and that is why countries have not moved in the index (34).

Each dimension of culture can provide an insight into how members of the culture might respond under different circumstances, allowing a technical communicator to design aspects of a document to account for the predicted reaction. The different circumstances technical communicators are attempting to design a document for are tied to the rhetorical situation. Kostelnick and Roberts describe a rhetorical situation as consisting of three basic elements: audience, purpose and context. The audience is who are going to use the document, the purpose is what the document is attempting to do, and context is what circumstances the document will be used in (5). The cultural dimensions will give insight as to how the audience might respond to the purpose of the document and the context in which they are using it.

The purpose of a technical document is usually to inform and often to persuade. In the case of formal reports, which this thesis studies, the primary purpose of these documents are to inform. However, as Dan Jones and Karen Lane point out all technical documents contain a level of persuasiveness in them (43). Reports contain information which the author intends for the

audience to accept as true. If there are reasons that the audience might not accept the information as true they will stop reading the report. Information which may not be accepted can be a claim which is not supported. In visual design an audience may stop reading a report due to the lack of ethos and credibility with poor formatting.

Understanding international audience preferences for visual design can help a technical communicator create visually persuasive documents. Hofstede's cultural dimensions are helpful in understanding the values of different cultures that might influence their visual design preferences.

The two dimensions that this thesis examines are the dimensions of power distance and uncertainty avoidance. These dimensions were chosen specifically because of their potential benefit to understanding what design elements in reports might establish ethos or credibility with an audience. The power distance dimension provides insight to the cultural response to information presented from those perceived as superiors or subordinates. The uncertainty avoidance dimension can provide insight into how to design for an audience which is skeptical of unfamiliar sources of information.

Looking only at the dimensions of uncertainty avoidance and power distance also allows the study to focus on a small set of countries which have significant differences in their scores on the two dimensions. The cultures selected for this study demonstrate a difference in both their scores for uncertainty avoidance and power distance dimensions were the United States, Spain, Panama, Venezuela, Mexico, Brazil, Peru and Chile. The difference of dimensions scores coupled with the developing business development between the US, Latin America and Spain make this choice beneficial to businesses needing to create reports targeting those markets.

Additionally, little research has been done on Spain and Latin American visual design preferences, demonstrating a need for further research in this area of technical communication research. In “Designing Business Communication Along the Shifting Cultural Continuum, the New Face of Mexico” Elizabeth Tebeaux notes that visual design is taught less often in Mexico than the United States. The lack of visual design education in Mexico might also be true for other countries in Latin America, which might account for the lack of research done on visual design in this area of the world. Spain has received even less attention from technical communication researchers. This is likely to be related to the lack of manufacturing in Spain, which primarily imports electronic products. Further research needs to be done on visual design in these cultures. Understanding the cultural dimensions of power distance and uncertainty avoidance independent of the context of visual design research is important.

Power Distance

The dimension of power distance refers to the way a society handles inequality. According to Hofstede, all cultures deal with inequalities of power, respect and wealth. Power distance is how the society perceives and prefers such inequalities that power distance measures (54). In actuality, power distance is how the less powerful people in a culture accept inequality and expect to be treated in an organization.

In the original survey with IBM employees in the 1970s, Hofstede questioned employees in more than 30 countries to collect information on their perceptions and expectations of the world they lived in. Through analysis of the questions and statistical results, Hofstede identified three areas of the questionnaire that point to the cultural dimension of power distance.

1. Frequency of employees being afraid to express disagreement with their managers
2. Subordinates' perception of the boss's actual decision-making style (ranging from options such as aristocratic or paternal)
3. Subordinates' preference for their boss's decision-making style

These areas led to the index of countries on the power distance index. Low power distance countries have, as Hofstede describes, interdependence among boss and subordinate with little emotional distance between them. High power distance countries are those where subordinates are dependent on their bosses. In some high power distance societies, subordinates would prefer bosses' decision making style to be more collaborative while other societies appreciate the distance between boss and subordinate.

The countries examined in this thesis are graphed in Figure 1 by their power distance index score.

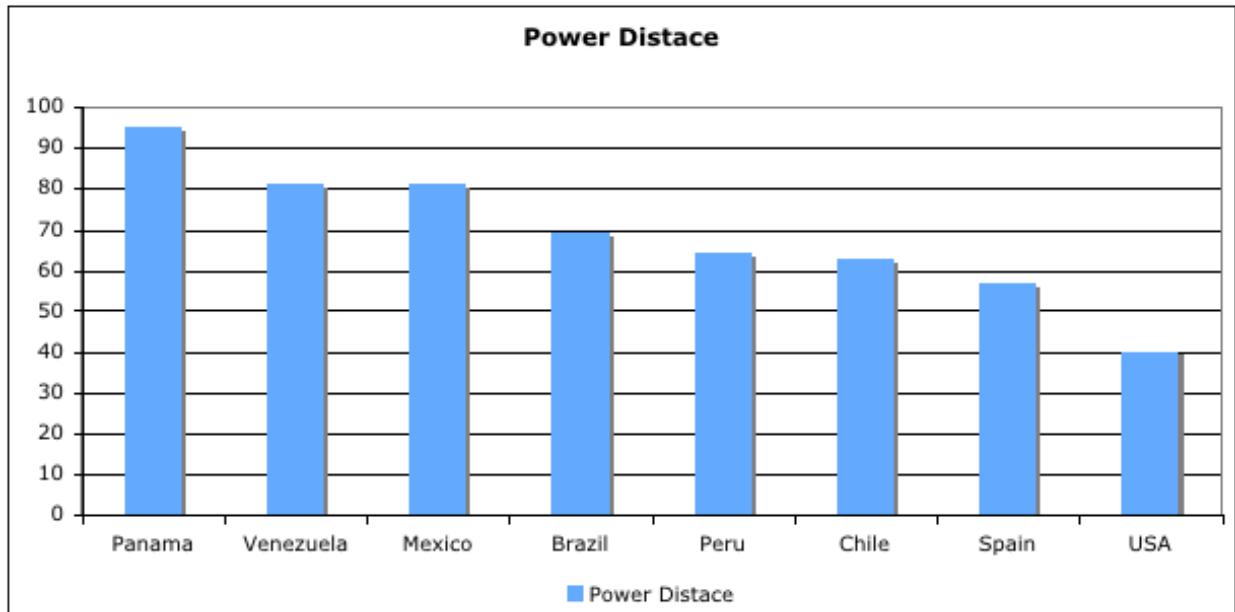


Figure 1 - Power Distance of US, Spain and Select Latin American Countries

The United States, as shown in Figure 1, has a lower power distance index at 40. This is lower than the selected Latin American countries and Spain which range from 57 to 95. At the high end of power distance dimension score is Panama, which is ranked 3-4 out of the 76 rankings, has the highest power distance index in this study. The next closest countries are Venezuela and Mexico. Spain is the lowest of the Spanish/Latin cultures with a score of 57.

According to Hofstede, some of the general considerations of dealing with people from a lower power distance culture, like the United States, include minimizing inequalities between people. He also points out that lower power distance index can mean taking into account the ability for interdependence between more and less powerful people. In countries with high power distances, inequalities among people are expected and desired, status should be balanced with restraint, less powerful people are dependent on more powerful people, and the emotional distance between people in power and those not in power is accepted (72).

Uncertainty Avoidance

The dimension of uncertainty avoidance gauges how much a society feels threatened by unknown or vague circumstances (191). Uncertainty is a very subjective feeling and is dependent on the person's knowledge and experiences. As Hofstede notes a lion tamer might feel completely comfortable with lions surrounding him, something anyone else might fear. Yet, many travel highways at high speeds which is statistically more dangerous than the lion tamer's environment (189). As with the other dimensions of culture, uncertainty avoidance is a value learned from other members of a culture. It is the culture on a whole imparting the value of avoiding unknown outcomes which defines uncertainty avoidance as cultural dimension.

As with the power distance dimension, Hofstede developed the index of uncertainty avoidance based on a correlation seen in the original IBM survey responses to the following three questions:

1. How often do you feel tense at work?
2. Do you agree with the statement: company rules should not be broken—even when the employee thinks it is in the company's best interest?
3. How long do you think you will continue to work for IBM?

Individuals who are stressed at work want their coworkers to follow the company rules, likely by other people, and a long-term career (191). They wanted things to be predictable and know what is going to happen resulting in a strong uncertainty avoidance. Thus, weak uncertainty avoidance cultures are those that accept the unknown or ambiguous situations more easily.

Countries examined in this thesis are graphed according to their uncertainty avoidance index in Figure 2.

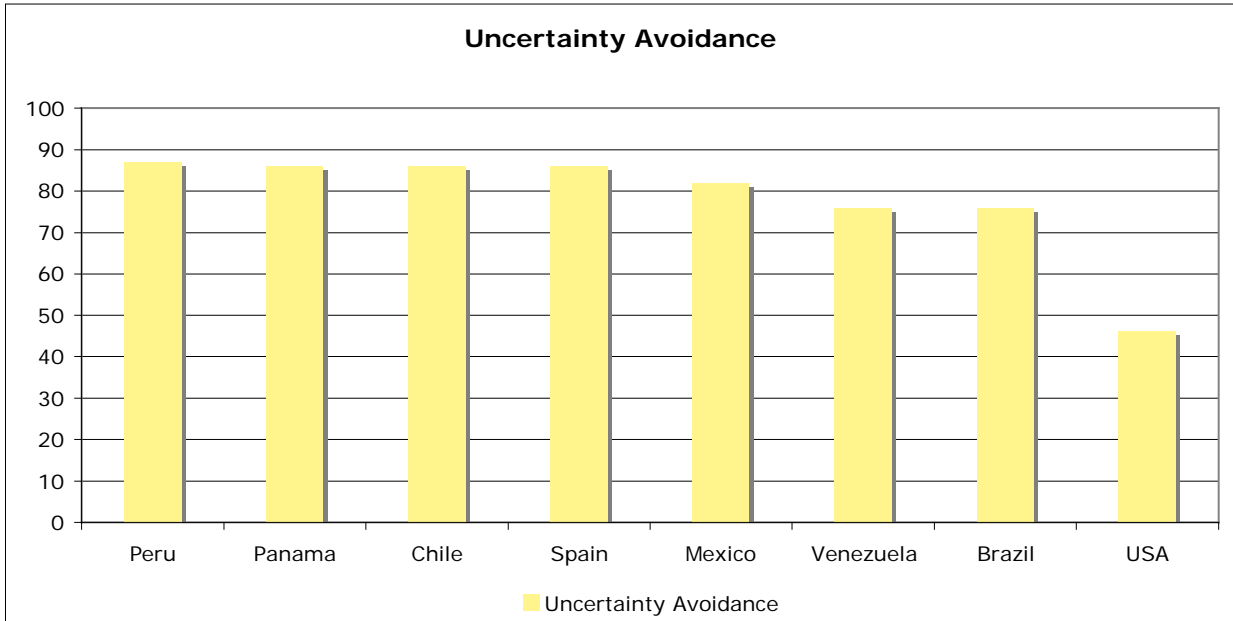


Figure 2 - US, Spain, and select Latin American countries Uncertainty Avoidance Index

As shown in Figure 2 the United States has a lower uncertainty avoidance index at 46 than the selected Latin American countries and Spain which range from 76 to 87. The United States score of 46 ranks it 64 out of 76 with countries such as the United Kingdom, Ireland, Singapore, and Jamaica all having lower scores than the United States. Peru’s score of 87 makes it the highest scoring culture in this study for uncertainty avoidance.

Hofstede suggests that lower uncertainty avoidance cultures, such as the United States, the feeling of uncertainty about outcomes is accepted as part of the day-to-day lifestyle, stress and anxiety are lower, aggression and emotions should not be shown, and agreeableness scores are higher. Low uncertainty avoidance cultures are even noted as being more comfortable with taking risks without knowing the outcomes. For cultures like Peru with high uncertainty

avoidance the feeling of uncertainty is considered a threat. These high uncertainty avoidance countries also experience more stress and anxiety, show more aggression and emotions, score higher on neuroticism, and are more willing to take risks where they know possible outcomes rather than taking risks they don't know all the possible outcomes (203).

Hofstede has applied his cultural theories primarily to organizational and business structures. However, his work falls short in applying the cultural theories to visual design preferences, which is important to technical communicators. Technical communication researchers have applied Hofstede and other cultural theories to technical documentation and visual design.

Hofstede and Visual Design

Only a handful of studies have been done in the past ten years directly connecting Hofstede's cultural theories to document design research, all of which examined website design. Much of the information on specific dimensions is inconclusive and sometimes it is contradictory or uses only a very small sample of websites to produce findings. Table 2 provides an overview of findings from the different studies comparing high and low power distance while Table 3 summarizes the finding of weak and strong uncertainty avoidance cultures.

Table 2 Power Distance and Visual Design Study Findings

Authors	High Power Distance Design Features	Low Power Distance Design Features
<i>Marcus and Gould (2000)</i>	Strong axial symmetry Official seals Photos of administration and leaders Top level menu placement to see explanation of official seal	Pictures of students Asymmetric layout Photos of both genders
<i>Cook and Finlayson (2005)</i>	Structured access to information Prominence given to expertise Important on security barriers	Less structured information Shallow hierarchies in mental models Prominence on citizens/customers Less barriers to information More freedom to explore site
<i>Callahan (2006)</i>	Use of symmetry, logos, authoritative people (faculty), buildings,	Use of asymmetry, use images of students, more images of students than buildings
<i>Kang and Mastin (2008)</i>	Complex design layouts Narratives from leadership Banner ads	Provided specialty menu options Advanced search engines Family oriented menus
<i>Gevorgyan and Porter (2008)</i>	Prioritize design features such as ownership information and photos Vision statement, quality assurance Linear and straight forward design Ease of finding information	No analysis provided

Table 3 Uncertainty Avoidance and Visual Design Study Findings

Authors	High Uncertainty Avoidance Design Features	Low Uncertainty Avoidance Design Features
<i>Marcus and Gould (2000)</i>	Simplicity, clear metaphors Limited choices Restricted data Forecast before decision made Simple navigation	
<i>Cook and Finlayson (2005)</i>	Simplicity Limited choices Strong mapping & predictability Redundant cues	Complexity Maximal choices Maximal content Less predictable navigation Lots of navigation links
<i>Callahan (2006)</i>	Prefer drawings over pictures, more images of buildings	
<i>Kang and Mastin (2008)</i>	Creative design	Preferred simple design
<i>Xu (2010)</i>		Security features in websites

In 2000, Aaron Marcus and Emilie West Gould wrote the article “Crosscurrents: Cultural dimensions and global web user-interface design” reviewing individual web sites and correlating elements on the site to Hofstede’s dimensions. The analysis was done by selecting sites they felt demonstrated these features best, regardless of country or industry studied. They based their analysis on Hofstede’s cultural model and argued that high power distance cultures would have highly structured access to information, emphasis on social and moral order, a pronounced focus on authority, and more division of access to information or sections based on social roles. Based on their analysis of websites, they concluded that high power distance cultures frequently use specific elements such as axial symmetry, official seals, photos of people in power and images of buildings more often than low power distance cultures would use these elements (36).

Conversely, based on the web sample from the Netherlands, which is a low power distance culture, low power distance cultures would use more images focused on students, more asymmetric layouts, and images of both genders (37). They predicted that high uncertainty avoidance cultures would favor simplicity, provide clear results before users take an action on a website, use very clear navigation, provide help systems that focus on preventing user error and use repetitive colors or typography. Low uncertainty avoidance cultures would attempt to maximize content and choices in sites. Low uncertainty avoidance cultures would provide more paths to information and more complex site structure. Sites created in these cultures would also focus less on user tasks and preventing user errors while more emphasis on explanation of concepts. The choice of color and typography made to maximize information communication would be used frequently by low uncertainty avoidance cultures (41). This study done early in the field of Internet communication research and is also set up rather anecdotally. However, it provides a strong introduction into the elements likely to be associated with the different dimensions of culture.

In 2005 Jack Cook and Mike Finlayson conducted a study which looked at government websites in Indonesia and Ireland and analyzed elements of the sites in relation to each of the five dimensions of culture (19). The results of the analysis of the two websites were very similar to the suggestions provided by Marcus and Gould. High power distance cultures are anticipated to have highly structured sites, more images, a focus on authority figures, complex information structures, and barriers to accessing information based on social position. The high uncertainty avoidance website showed simplicity and limited choices in navigation. The site also had a strong predictability in where navigation would lead by providing repetitive and redundant cues

for the user. The authors also looked at the different ways to approach creating sites for different cultures. The first approach the authors suggest is creating cultural neutral sites by carefully choosing every element of the website to be sure not to offend any culture. As the authors point out “if such a feat were even possible, the resulting site would be so devoid of appeal, it likely would have no audience to offend” (Cook and Finalyson 20). The other option suggested is completely localizing sites for every culture. Localization of every site gives the most flexibility to work on appealing to a single culture without dismissing another, but logistically this action is more complicated. The authors suggest finding a balance and creating some elements which are statistic and those that are customized from region to region (20-21).

Ewa Callahan conducted a broader and more systematic examination of websites and their correlation to Hofstede’s cultural model in 2006. Callahan’s study examined all five dimensions of Hofstede’s model by choosing native language university websites at random for each cultural dimension. The sites were selected from universities which were located in a country at either the high end or the low end of Hofstede’s dimensions to represent the contrasting spectrum of the dimensions. The sites were then analyzed using content analysis methods for visual design elements by identifying eleven categories to test the websites against fourteen hypothesized design preferences. The findings showed that all but the hypothesized on uncertainty avoidance were somewhat supported, but that there was not a strong statistical correlation. Callahan proposed and found some evidence to support that higher power distance cultures would use more symmetry, logos, images of people in authority and images of buildings. The study did not support Callahan’s hypotheses on uncertainty avoidance design preferences but it did show that countries with high uncertainty avoidance scores had fewer

images of students (rather than faculty or administration) and more pictures depicting buildings. The conclusion that Callahan drew from the study is that design elements are a reflection of a culture but should not be a predictor of the culture (267).

Doo Syen Kang and Teresa Mastin conducted a study of tourism public relations sites from forty-four countries and looked at them for elements including content, design, interactivity, technology, and creative strategy in relation to Hofstede's cultural dimensions. The authors noted that high power distance countries used banner advertisements, complex layouts, news-casting style/layout, and question and answer sections. Low power distance countries were noted to provide advanced search engines to search within the site (55). High uncertainty avoidance countries were found to make more creative designs while low uncertainty avoidance index countries preferred simple designs (56). No additional information was provided to explain what elements of websites helped to draw this conclusion. Additionally, the information on uncertainty avoidance is contradictory to Cook and Finneylsen's conclusion that low uncertainty avoidance cultures would prefer more complex designs to maximize content.

A study by Gennadi Gevorgyan and Lance Porter conducted with Chinese and U.S. students and their perceived importance of different website features also used Hofstede's cultural dimensions as a framework for their analysis. Less focused on reporting specific design elements, the study provides only a little insight into specific design features tested. The study was conducted by a survey of American and Chinese university students living in the United States on their design preferences. The study exclusively focused on power distance and uncertainty avoidance dimensions to determine if culture would affect people's web design preferences (28). They hypothesized that Chinese students would prioritize power distance

oriented design features more than American students, and the American participants would prioritize uncertainty avoidance oriented features more than Chinese students (30). Only the first hypothesis was proven correct. The study did not describe specific elements of websites that they tested in the survey with students but only made some general comments on what would be effective elements for high power distance cultures. The authors suggest high power distance cultures would prefer website ownership information to be displayed, vision statements, linear and straightforward designs with top-down structures (34-35). The study does not provide any suggestions for design preferences for low power distance cultures.

Qiongyan Xu, a graduate student at Ohio University, conducted research for her thesis *Chinese- and English-Language Homepages of Fortune Global 500 Companies: A Cross Cultural Content Analysis* on Chinese and English language websites in 2010. The study was focused on specific features on websites in Fortune 500 company sites to determine which of those features can be linked to the collectivism-individualism and uncertainty avoidance dimensions of Hofstede's cultural model. The elements selected for study for uncertainty avoidance included customer service, security, guided navigation, local stores, free trials or downloads, and toll free numbers. However, the research did not support the author's hypothesis that Chinese websites would demonstrate these elements more frequently than American websites (30). According to the data on uncertainty avoidance design elements in the study, the only design element that occurred more frequently in the Chinese websites than the US websites was toll free numbers with 23 occurrences in Chinese sites compared to 9 in US sites. The US websites actually contained more security features with 86 occurrences compared to the 63 occurrences in Chinese websites. Customer service, security, guided navigation, cultural

traditional design themes, location of local stores and free trials or downloads occurred equally in both Chinese and US websites. This lack of significant differences in design features between a high and low uncertainty avoidance culture contradicts the work done by researchers prior to this study. It also draws into question whether these specific elements actually are indicators of cultural preference or are just necessary for effective communication regardless of culture.

Previous Research Limitations

The previous research conducted using applying Hofstede's model of cultural dimensions to visual design of documents has many limitations. While the use of the Internet has increased over the past twenty years, which has helped to further the development of international technical communication, the research cited exclusively uses websites as samples. The nature of website interactivity and structure differs greatly from documents intended for print. In *Technical Communication*, Jones and Lane write, "reading documents online, whether they are online articles, illustrations, help files, Web pages, or advertisements, requires more effort than reading the same material on paper. This difference occurs because the physical characteristics of screens differ greatly from a piece of paper" (272). As a result, many of the conventions of websites differ from those in print documents. Web conventions include some of the same elements, such as headers, but many are different, such as the use of navigation, underlining links (Jones and Lane 238-239). With virtually no studies conducted using print media in relation to Hofstede's cultural dimensions, there is an opportunity to develop a deeper understanding of cultural preferences in visual design.

Additionally, some of the previous research relies on anecdotal sampling of websites to suggest trends in cultures. While random selection of websites is appropriate in some studies, the purpose of a document, its intended audience and who developed the site all have an impact on the design and delivery of a document. Some of the studies focused exclusively on websites from universities or Fortune 500 companies which allow reasonable assumptions to be made about the audience and development of the site. Using universities or Fortune 500 companies does not take into account the different organizational cultures that might be different from company to company or university to university. The differences in organizational culture were addressed by Hofstede by selecting only one company to collect information from. Using only one company in the research allowed Hofstede to discount company culture and consider only the differences between countries (Hofstede 56).

Contradictions and inconclusive results from previous research also leaves an area that needs to be further explored. Proposed design elements that might be associated with high uncertainty avoidance and high power distance cultures have not been conclusively linked together. For instance, Xu's study analyzed sites for seven website design elements and found that only two of the design elements occurred more frequently in one country over another. It is possible that the specific elements were too common for Fortune 500 companies and they would occur in websites regardless of culture. Another contradiction in the findings of the previous research has to do with the suggestion that there would be a cultural preference for simplistic website design. Marcus and Gould suggested that high uncertainty avoidance cultures would prefer simplistic design over a more complex visual design. Kang and Mastin later suggested that low uncertainty avoidance cultures would prefer simplistic designs while high uncertainty

avoidance cultures would appreciate more creative designs. Contradictions such as these suggest that it is necessary to produce more studies and gather more consistent data before drawing any conclusions.

Many of the studies had used either a limited number of documents or countries for their sample. Marcus and Gould's study as well as Cook and Finlayson's study both used one country per cultural dimension and one sample document per county, resulting in a total of four documents analyzed. Cullen's study used two countries per cultural dimension and two sample documents per county resulting in six documents analyzed. By studying only countries at the highest and lowest end of the uncertainty avoidance on Hofstede's index, for instance, the researcher is able to see larger contrasts in the documents. However, limiting the analysis to the highest and lowest culture on a specific cultural dimension leaves open whether the information is only true for those specific countries or if it can be applied for all the cultures which exhibit the same cultural dimension. Other studies also looked at many countries but with one sample per country, such as the study done by Kang and Mastin. Using a single document as a sample for a country is questionable since it is probably too small of a sample size to show trends.

Finally, none of the studies exclusively targeted Latin America countries or Spain. Almost no research has been done on these countries. Since many of the studies chose countries based on their placement as the highest or lowest index position on Hofstede's cultural dimensions, the Latin American countries and Spain did not qualify. Guatemala was dismissed from one previous study for not having enough universities with websites. Latin America and Spain have received very little research attention also due to their lack of manufacturing.

Without local manufacturing producing products that need documentation, the technical communication field has remained very small.

Research Questions and Hypotheses

With the limitations of small document sample sizes, small country samples, contradictory results and lack of focus on Latin America or Spain the following research questions were developed for this thesis:

Can aspects of a culture, such as Hofstede's dimensions of uncertainty avoidance and power distance, be used to predict visual design preferences in documentation?

Will cultures with similar attributes, such as Latin America and Spain, demonstrate similar visual design preferences?

While previous research has had limitations, I based the following hypotheses on the previous done research applying Hofstede's cultural dimensions to visual design and Kostelnick's matrix of document analysis.

H1: Cultures with higher power distances will include a greater number of graphics and data displays at the inter and extra levels as described by Kostelnick (cells 6 and 9).

H2: Cultures with high power distances will create documents which contain less text on a page or will be shorter in length reflecting the supra level. (Indicators of this might be larger font size, Kostelnick cell 1, or spacing between lines, Kostelnick cell 2).

H3: Cultures with high uncertainty avoidance will create documents which include more logos and graphics at the supra level as described by Kostelnick (cell 12).

H4: Cultures with high uncertainty avoidance will use an increased level of alphanumeric/symbols at the extra level in documents to aid in decoding and headings (cells 7 and 10) to aid navigation through a document.

H5: Cultures with similar cultural attributes will demonstrate similar visual design preferences.

These five hypotheses provided a context to develop a study of documentation which used Kostelnick's visual design matrix to examine specific elements which can be linked to dimensions of Hofstede's cultural theory.

CHAPTER THREE

METHODOLOGY

To explore effectively the questions of whether there are specific visual design preferences of different cultures and whether similar cultures will have similar design preferences, documents from the United States, Spain and Latin America were collected and analyzed. These areas of the world were chosen because they represent the dimensions of uncertainty avoidance and power distance. Uncertainty avoidance and power distance are two cultural attributes which are likely to predict audience responses to informational technical documents, such as reports. The United States is at the low end of the scores for both uncertainty avoidance and power distance. Spain and the Latin American countries are at the higher end.

These cultures were chosen because of the need for further research on Latin American and Spanish visual design preferences. Much of the focus of visual design research has been focused on other areas of the world, most notably on Asian cultures. While Asia been experiencing an unprecedented economic growth over the past several years and manufacturing has relocated from the United States to Asia, Latin America has demonstrated similar growth patterns on a smaller scale. With the growing economies in Latin America and increased trade between Spain through the United States, understanding the visual design preferences of all these areas of the world is beneficial to technical communicators.

Kostelnick and Robert's matrix of visual design was used to collect information from sample documents. This matrix was chosen because its structure examines the largest to smallest

visual elements across three categories of design elements. This matrix provided a framework to organize the information and presented in a concise way for comparative analysis.

The remainder of this chapter reviews the process by which this study was conducted. The first half of this chapter reviews the document collection process. The second half of this chapter reviews how the documents were processed and analyzed for their visual design content.

Documents Collected

To conduct the study, sample reports were collected from a single company which operates offices in Latin America, Spain and the United States. Choosing only one company to collect samples from provided a way of discounting different corporate cultures as an influence in standards, tools and how documents are developed. Hofstede's cultural study used survey information from only one company, IBM, which he notes allowed the researcher to discount company culture and consider only the differences between countries (Hofstede 1983, 56).

The company chosen was CB Richard Ellis (CBRE), which was founded in 1906 by Colbert Coldwell as Tucker, Lynch & Coldwell in San Francisco after the 1906 earthquake. Benjamin Arthur Banker joined the company in 1914 as a partner. The company officially changed its name to Coldwell Banker in 1936. Through several acquisitions, Coldwell Banker expanded across the United States. In 1989 employees and others invested in the company to buyout the commercial real estate side of the business. The commercial real estate side of the company exclusively focused on leasing and the sale of office, industrial, retail and multifamily. Commercial real estate remains the core product type the company focuses on still. The independent company renamed itself as CB Commercial in 1991. Additional company

acquisitions through the 1990s expanded the services and the company worldwide, the most notable merger of CB Commercial with Richard Ellis, a London-based company. This merger of two of the most prominent companies in the commercial real estate industry led to the rebranding of the company to CB Richard Ellis (CBRE). In 2005 it was the first commercial real estate company named to the Fortune 500. CB Richard Ellis is now the largest commercial estate company in the world in terms of revenue with approximately 31,000 corporate employees and operates more than 300 offices worldwide. The company operates 166 offices in the United States, 14 offices in Latin America and 7 offices in Spain. The selection of CBRE as the subject company was based on the company's ability to provide the sample documents from Latin America, Spain and the United States.

The request for sample documents was made on November 29, 2010 to the CBRE Research department. This department is responsible for collecting real estate data on the office, industrial, and retail markets. The CBRE research department then analyzes the information and produce reports about the commercial real estate markets for sales professionals, clients and the media. The research department was chosen because of the centralized corporate structure making the request for samples easier. The marketing department, which produces fliers, brochures, proposals and other types of property sales support materials, is run by the local office and does not have a centralized leadership structure that would make requesting information easy. Another reason the CBRE research department was selected was that it was believed that the sample documents were consistently produced and widely available. The documents requested were anticipated to have similar subject, all discussing trends and markets in commercial real estate. The conventional commercial real estate market report contains both text

and visual information, such as data displays and tables. Additionally, market reports are generally published on a standard quarterly schedule making the reports regularly available. Some markets only publish once or twice a year, but the majority of the cities with research departments produce at least one report on a quarterly schedule.

The request for sample documents went to 15 cities. Five cities in the U.S., three cities in Spain, and seven cities in Latin America were queried to see if they were willing and able to participate in the study. Two cities never responded to the request for information and were dismissed from the study. When the request for sample documents was made to the managers in the research department they provided additional samples for other cities within the same country or provided regional reports. Based on the number of reports submitted by the three other U.S. cities, it was determined that there were enough U.S. documents available for analysis so Nashville, Tennessee was dropped from the study. This decision was made based on the number of sample documents made by other cities for their country. Many of the countries did not have the ability to submit as many reports as the U.S. cities did. The smaller availability of sample documents from Spain and Latin America is possibly because their research departments are smaller, have less training, or they lack the resources to produce the reports. Table 4 includes a list of the individual cities that contributed and were included in the study.

Table 4 Cities Contributing to the Study

United States	Spain	Latin America
Philadelphia, Pennsylvania Seattle, Washington San Diego, California	Madrid Barcelona	Lima, Peru Rio de Janeiro, Brazil Santiago, Chile Panama City, Panama Caracas, Venezuela Guadalajara, Mexico Mexico City, Mexico

The request to CB Richard Ellis outlined three types of sample documents needed and requested basic biographical information on the authors for the study. The three types of reports requested were a standard quarterly market report, a custom report, and marketing piece. The biographical information included just the title of the person or persons who created the document and what country they were from. If any of the documents had been developed by a non-native author, they would have been dismissed from the study. Asking for basic biographical information on the document creators ensured that all of the documents had the potential to reflect the culture they were representing. None of the documents were developed by non-native authors.

Standard market reports are produced by the local markets on a quarterly basis. The overall visual design of the report is dictated by a template, which is used worldwide. The template sets the majority of the corporate branding with headers, side bars and basic graph styles. The content of the reports can be customized in each market, but the generally the length of the report and many of the features of the report are included in the template. Reports must be published on the corporate template, but the local report writers are able to customize the

contents within corporate guidelines. The reports have to be approved by regional managers before being published. The corporate template is four pages; the subject of the report is the status of the local real estate market. The report customarily has sections covering trends, economic indicators, pricing, and occupancy levels. Usually these sections are accompanied by data displays and tables. Some of the information and content can be customized to local market preference, but the intention of the report is that it can be used in any part of the world in a presentation and look consistent with the CB Richard Ellis brand. The audience for the standard report includes the media, building owners, the local government, real estate developers, city planners, banks, and businesses which occupy space in the buildings. The primary purpose of the standard report is to inform the audience of the current status of the commercial real estate market. The report is meant to provide only an overview of the current market situation as opposed to providing more detail on individual building statistics or forecasting the future of the market. Additionally, the purpose of the report is to promote CB Richard Ellis as a knowledgeable source in the commercial real estate market. In turn, placing CBRE as a knowledgeable source on the commercial real estate market is anticipated to generate business for the sales professionals working to sell, lease or finance buildings.

Custom reports are often based on a corporate template similar to the standard reports. However, the custom report templates allow for greater flexibility in their layout and content. The audience of the custom report depends on the topic of the report and is similar to the standard report audience. However, custom reports usually target only one or two of the following: building owners, the local government, real estate developers, city planners, banks, and businesses which occupy space in the buildings. The secondary audience is almost always

the media. The purpose of the custom report is to inform the audience of special trends or topics in the commercial real estate market and to demonstrate CBRE as a knowledgeable source on the commercial real estate market. As with the standard reports, custom reports should result in more business for CBRE sales professionals. As opposed to the standard report, the topics of the custom reports have a wider variety. Special topics in real estate can be a niche market, like medical office buildings, or a trend in the market, like the increase of sublease space. The topics of the reports are dictated by the local management and sales professionals. The custom reports are not required by the corporate CBRE research department, so the production of these reports can be sporadic and inconsistent. Markets which do not have the time, money and support to produce these reports did not have any reports to supply for this study. The only market that did not have a custom report to supply was Venezuela, which had only one standard report to provide as well. Even though there would not a great supply of custom reports available, it was important to include them in the study because of their ability to be customized by the local markets more than the standard reports. Since the standard reports have more corporate conventions to them, the opportunity to look at reports that do not have as many corporate conventions would allow the researcher to see a greater variety of visual design preferences in reports.

The request to the CBRE research department was also made to include a marketing piece. The marketing department is responsible for creating these documents and the genre of document can range from brochures to proposals. The request specifically cited proposals for new business of offering memorandums. The primary audience for the proposal for new business would typically be a business or building owner. Depending on who requested the report, the

audience would also be a bank or real estate developer. The primary audience for an offering memorandum is a potential buyer of commercial real estate. The primary purpose of the proposal for new business is to persuade the audience to hire CBRE as their representative to buy or lease commercial real estate on their behalf. The primary purpose of the memorandum is to persuade the audience to purchase the building being described. Even though the audience and purpose of these types of documents varies from the standard and custom reports, the conventions of proposals and pitch materials in commercial real estate including much of the same information in similar formats to the custom reports. Requesting the marketing materials was also to ensure there would be enough document samples available to analyze. However, only nine documents in total were submitted. They came from Seattle, San Diego, Panama City, and Caracas. While the request for sample documents specifically noted a request for proposals for new business or offering memorandums for the sale of a building, the majority of the samples provided were flyers. Proposals and offering memorandums generally contain a large amount of research information, including data displays and tables. Having similar content in the form of data displays and tables would make comparing the marketing samples to the standard reports and custom reports possible. After reviewing the variety of marketing sample documents, it was determined that the available samples were not similar enough to each other and the report samples to do a comparative and comprehensive analysis. Additionally, with less than 30 percent of the markets willing to provide this type of sample document, it was determined that not enough samples were available to do an analysis of this type of document.

In total 48 sample documents were submitted for the project from eight countries. Five sample documents were excluded because they were created as presentations to be viewed on a

screen. One document was excluded because it was a corporate template for a proposal which was not filled in or customized for a client. Samples from one U.S. market, Nashville, were excluded after evaluating how many Spanish and Latin American markets were able to provide samples. Having too large a sample from the U.S. might make it more difficult to compare to the smaller samples in other countries.

After reviewing the sample documents it was decided that a minimum of one standard report would be analyzed from each market. If available, the second sample document analyzed would be a custom report. Peru and Panama both had their only custom report samples excluded from the study because they were designed to be projected as presentations. A second standard report was used for those two countries. Venezuela did not submit a custom report for the study and only provided a marketing sample as the second sample document. No other report was available for analysis for this market. It was decided to keep Venezuela in the study even though all the other countries had a minimum of two documents to be analyzed because of the importance Venezuela plays in the Latin American political and economic structure.

After all exclusions and reviews of the samples, 22 documents were analyzed as part of the study. Table 5 lists the contributing countries, document titles, document category, product type, document length, and page orientation.

Table 5 - Sample Document Descriptions

City	Document Title	Report Type	Product Type	Document Length	Page Orientation
Philadelphia	Industrial MarketView 4Q10	Standard	Industrial	4	Portrait
Philadelphia	Port Activity Autumn 2007	Custom	Industrial	13	Portrait
Seattle	Seattle Office MarketView 3Q2010	Standard	Office	4	Portrait
Seattle	Puget Sound Life Sciences Market Report	Custom	Office	7	Portrait
San Diego	San Diego Retail MarketView 3Q2010	Standard	Retail	4	Portrait
San Diego	San Diego Medical Office Building Report 2Q10	Custom	Office	2	Portrait
Madrid	Madrid 3Q10 Office Snapshot	Standard	Office	1	Portrait
Barcelona	Barcelona October 2010 Office Snapshot	Standard	Office	1	Portrait
Spain Regional	Panorama de Mercado Mercados Regionales	Custom	Office, industrial and retail	10	Portrait
Lima	Lima Industrial MarketView 3Q2010	Standard	Industrial	4	Portrait
Lima	Lima Office MarketView 3Q2010	Standard	Office	4	Portrait
Rio de Janeiro	Rio de Janeiro, Brazil	Custom	Office	1	Landscape
Sao Paulo, Brazil	Sao Paulo Office MarketView 3Q2010	Standard	Office	4	Portrait
Santiago, Chile	Santiago Office MarketView	Standard	Office	4	Portrait
Santiago, Chile	Mercado de Oficinas Clase A en Santiago Centro	Custom	Office	15	Landscape
Panama City, Panama	Panama City Industrial MarketView 3Q2010	Standard	Industrial	4	Portrait
Panama City, Panama	Panama City Residential MarketView 3Q2010	Standard	Residential (Multifamily)	4	Portrait
Caracas, Venezuela	Caracas Office MarketView 3Q2010	Standard	Office	4	Portrait
Guadalajara, Mexico	Guadalajara Office MarketView 3Q10	Standard	Office	4	Portrait
Mexico City, Mexico	Mexico City Office MarketView 3Q2010	Standard	Office	4	Portrait
Mexico Regional	Mexico Overview Office and Industrial 3Q10	Custom	Office, Industrial	4	Landscape

Design Analysis Process

Once the sample documents were chosen, application of Kostelnick's visual design matrix was used to collect the visual design information from each document. Kostelnick's matrix was used to ensure that each document would have a certain amount of consistent data available for analysis. It was decided to use Kostelnick's matrix of visual design to catalogue visual design information from all the documents, focusing on specific details which would help support or refute the hypotheses in this thesis. The elements visual design collected for thesis use Kostelnick's matrix include spatial and graphic elements at the supra and extra levels as well as cuing and decoding devices.

Kostelnick's Matrix of Visual Communication

Kostelnick's matrix of visual communication was chosen as a framework to analyze the sample documents. The matrix covers the smallest to the largest visual design elements which may be present in a document. Kostelnick's matrix provides four levels of design across three categories of visual design elements. After reviewing the original hypotheses for this thesis, specific visual design elements were chosen to be catalogued. Visual design elements which were identified to be catalogued include the number of data displays, pictures, drawings, cuing devices, decoding devices, font sizes, and words.

Table 6 - Visual Design Elements Catalogued As Part of the Matrix

How many bullet point sets are in the document	How consistent with company branding is the entire report
How many icons, symbols and logos are in the entire document	How many titles or captions appear above or below images
Weight of lines on tables (1/4, 1/2, 3/4, 1)	How many labels are contained in data displays (Calculation of based on the information in data display elements below)
Style of table: alternating colors, lined, lined with colors	Number of columns
How many drawings in document	Numerical average of margins in document
How many pictures in document	Number of data displays which have numerical values directly on the data displays (not including legend)
Numerical spacing between lines	Number of headers and numbers which introduce a section of text
Numerical width of columns	The average font size used for blocks of text.
Total number of graphs within entire document	Word count of the first page main text. Excludes side bar or text within graphs on that page.
Total number of tables within entire document	Note on any specific graph style that places emphasis on an aspect of the data display
How many variables are being displayed on a data display	How many graph types are used within the document? List of options below.
Numerical average of gutter space between columns	How many pages is the document in length
Graph Types	Additional Graph Attributes
Pie	3D
Bar	Percentage of graphs which have secondary axis
Bar/Line	Icons and Symbols (Contributes to how many icons, symbols and logos are in the entire document)
Stacked bar	Textual company logo
Line	Cropped C graphic logo
Stacked bar/line	Symbols and icons outside of drawings and pictures
Data display label elements (Contributes to how many labels are contained in data displays)	
Source label	Legend present (for pie graphs - labels attached to pie pieces)
values for y-axis	Current time period value in legend
label for y-axis	Legend position
values for secondary y-axis	
label for secondary y-axis	
values for x-axis	
label for x-axis	
title of chart present	
tick marks present	
Gridlines (solid or dashed)	

Kostelnick and Roberts note that pictures aid in the development of building trust and confidence in a document by providing clarity and a tone which would promote ethos (347). Building ethos is significant to the purpose of document which the primary purpose is to inform and persuade. The significance of photos in documents led to collecting information on the frequency of icons, symbols, logos, pictures, and drawings. CB Richard Ellis has two types of logos associated with its brand, a textual graphic logo and a purely graphic logo which resembles a cropped letter C. The number of times these logos were used combined with the number of other icons or symbols outside of drawings and pictures were catalogued.

The frequency of data displays, data display types, and tables were counted in each report. Kostelnick and Roberts comment that not all data displays are the same and that some make comparing data more difficult than others. The potential that some data displays make comparing data difficult is why noting that what type of graph was used was important. While a report might be providing a lot of data in the form of graphs, the report might be providing data displays that make processing that data easy.

Table line weights, table design, titles, captions, data display labeling and style are all cuing devices which are meant to help provide clarity for the reader. As Kostelnick and Roberts note in their work "Visual Design Language," clarity is an essential component to effective graphs (290). The use of more cuing devices is also a possible indicator of a design preference of uncertainty avoidance cultures. The table line weights and design took into account the basic elements of a table and whether there were colors and lines used in the tables. The presence of captions and titles for images suggests the document creator intended to provide clarity to what the image is. Data display labeling involved every element contained in the subsection of Table 6

heading “Data display label elements.” Data display labeling cataloged all types of labels and visual guides that can be used in data displays to provide clarity to the data. Some of the elements might also be considered stylistic choices, such as the use of gridlines or tick marks. They are multifunctional aspects of the data display.

The number of pages, font size, line spacing, margin, column gutter space, column width, number of columns and word count were collected as a way to determine whether the reports contained the same amount of information. The standard reports generally are four pages in length, but custom reports do not have a predefined page length. Additionally, some markets chose to shorten the length of the standard report. Even if the standard reports are four pages in length, it does not mean that the report contains the same amount of content. The font size, line spacing, margins, and column gutter space were all analyzed together as an indicator of how much content versus white space the report contained.

In addition to the quantitative data collected on the sample documents, qualitative notes were taken on other notable differences in the style of the reports, graph and the general feel of the document. The additional qualitative notes were taken as part of a second pass through the documents since all the documents at this point had been seen and analyzed once thus allowing the qualitative notes to point to more significant differences between the reports. These notes included areas where additional visual emphasis placed, such as in data displays.

The summarized list of matrix elements were sorted by the Kostelnick matrix number they were associated with. Table 7 shows the how the study elements collected during analysis fit within Kostelnick’s matrix and which hypothesis the elements are anticipated to be indicators for. Combining the matrix quantitative elements with the qualitative notes taken for each set of

cultures (U.S., Spain and Latin America) began the process of comparing visual design preferences of different cultures.

The data collected from the U.S., Spain, and Latin America was analyzed, and the cultures were compared to one another. In the case of the quantitative data, the numerical values were examined to see if Latin American and Spanish scores were higher than the U.S. numbers. The qualitative notes were used to assess reasons why the numbers might not have supported the hypothesis. The qualitative information was also used to provide additional support to the hypothesis in the cases when Latin America and Spain's numbers contradicted themselves. Each hypothesis was tested by identifying whether there was a significant difference in the quantitative and qualitative report analysis from one culture to the other to support the claim.

Table 7 - Kostelnick Matrix with study element and correlating hypothesis

Study Visual Elements Catalogued	Kostelnick's Matrix	Correlating Hypothesis
Font size	<i>1 Intra-Textual level</i> <i>Micro-level textual form:</i> style, size, weight, and posture of letters, numbers, and symbols	Hypothesis 2: Cultures with high power distances will create documents which contain less text on a page or will be shorter in length reflecting a supra level
Line spacing	<i>2 Intra-Spatial level</i> <i>Local spacing:</i> spacing between characters, spacing between words, vertical spacing between lines	Hypothesis 2: Cultures with high power distances will create documents which contain less text on a page or will be shorter in length reflecting a supra level
Not applicable	<i>3 Intra-Graphic</i> <i>Marks:</i> punctuation marks, symbols (\$), underscoring, and other treatments to text	Not applicable
Section headers and numbering (text sections)	<i>4 Inter-Textual</i> <i>Serial and segmenting devices:</i> headings, letters, numbers, or letters that signal items in a list	H4: Cultures with high uncertainty avoidance will use an increased level of alphanumeric/symbols at the extra level in documents to aid in decoding and headings (cells 7 and 10) to aid navigation through a document.
Number of tables	<i>5 Inter-Spatial</i> <i>Vertical/ horizontal arrangement of text:</i> line endings, leading, indentations; text arranged into lists, tables, organizational charts	
Format of tables Line weight on tables	<i>6 Inter-Graphic</i> <i>Cueing devices:</i> Bullets, icons, line work and arrows on tables, charts, diagrams	H1: Cultures with higher power distances will include a greater number of graphics and data displays at the inter and extra levels as described by Kostelnick
Frequency of bullet point Frequency of captions Data display labels Presence of numbers on data displays	<i>7 Extra-Textual</i> <i>Decoding devices:</i> Legends, captions, labels, numerical description of data	H4: Cultures with high uncertainty avoidance will use an increased level of alphanumeric/symbols at the extra level in documents to aid in decoding and headings (cells 7 and 10) to aid navigation through a document.
Number of data displays Number of numeric variables on data displays Types of graphs	<i>8 Extra-Spatial</i> <i>Configuration of schematic and pictorial sign systems</i> <i>Data display:</i> size of plot frame; space between bars, lined Pictures: size, viewing angles, perspective	

Study Visual Elements Catalogued	Kostelnick's Matrix	Correlating Hypothesis
Presence and type of data display emphasis Number of drawings Number of pictures	<i>9 Extra-Graphic Schematics:</i> line weights or shading on data displays details on pictures—line drawings vs. photographs use of color for pictures or data displays	H1: Cultures with higher power distances will include a greater number of graphics and data displays at the inter and extra levels as described by Kostelnick
	<i>10 Supra-Textual Macro-level serial and segmenting devices:</i> Page header and footers Navigation bars Major section or chapter headings or numbers Tab labels—internal and external to the page Titles on the cover Initial letters signaling the start of an article or major text segment	
Width of columns Number of pages First page word count	<i>11 Supra-Spatial Cohesion of entire documentation over several planes:</i> Page breaks, size, orientation of pages, section dividers, embossing, placement of data displays	H1: Cultures with higher power distances will include a greater number of graphics and data displays at the inter and extra levels as described by Kostelnick
Frequency of icons, logos and symbols Number of columns Margins Consistency of company color Column gutter space	<i>12 Supra-Graphic Coding marks unifying pages or sections of text:</i> Color or texture of paper, page borders, pictures or icons placed behind the text or spread over the whole document for cohesion, lines in page headers or footers	H3: Cultures with high uncertainty avoidance will create documents which include more logos and graphics at the supra level as described by Kostelnick

CHAPTER FOUR FINDINGS

In this chapter, findings of the visual design analysis done on the sample documents from the United States, Latin America and Spain are presented. Each document was analyzed using Kostelnick's visual design matrix to identify specific visual design elements. These visual design elements are indicators of a visual design preference of a high or low uncertainty avoidance or high or low power distance culture.

This chapter will begin with descriptions of the documents and the Kostelnick matrices the sample documents from Latin America, Spain and the United States. It will then be followed by an analysis of visual design elements associated with the power distance and uncertainty avoidance dimensions. Finally an analysis of whether cultural attributes can be used to predict visual design preferences.

Document Samples from Latin America

Thirteen report samples were examined the study from six Latin American countries. These countries were Panama, Brazil, Venezuela, Chile, Peru, and Mexico. The sample documents included the standard and custom report types. The subject of the standard reports involved either industrial or office buildings, with the exception a Panama City report that covered multi-family (residential). The purpose of these documents, as described previously, is to provide an overview of the current status of the office, industrial, or multi-family real estate markets. The custom reports, of which there were only three out of the thirteen samples from Latin America available for analysis, ranged from one to eighteen in pages in length. The topics

of these reports were similar to the standard reports. The Mexican document sample was an 18 page regional report providing information on the status of all the markets in Mexico for both office and industrial, larger in scope than the standard reports. The Chilean custom report provided a detailed report on a specific type of office buildings, which is a narrower topic compared to the standard reports. The only other custom report in the sample documents from Latin America was from Brazil. It was a one page report on the market in Rio de Janeiro. Unlike the custom reports from Chile and Mexico, this custom report was much shorter and highlighted very similar information to what was found in the standard reports.

Table 8 provides a summary analysis of the Latin American reports. The table reflects all thirteen reports together to provide a picture of the choices made and identify visual design trends.

Table 8 -Latin America Overall Document Sample Analysis

Kostelnick's Matrix	Sample Report Summaries
<i>1 Intra-Textual level Micro-level textual form:</i>	Average font size 10.87, most reports used Futura. Mexico used a condensed form of Futura which as “blocky” in feel.
<i>2 Intra-Spatial level Local spacing:</i>	All reports used standard single spacing except Peru, which used 1.15 line spacing in one report.
<i>3 Intra-Graphic Marks:</i>	Not applicable
<i>4 Inter-Textual Serial and segmenting devices:</i>	Section headers are not common in standard reports and used infrequently in custom reports. Panama, Venezuela, and Brazil did not use section headers in any of their reports. On average 3.17 section headings are used across all reports.
<i>5 Inter-Spatial Vertical/ horizontal arrangement of text:</i>	Average number of tables used in reports is 3.31
<i>6 Inter-Graphic Cueing devices:</i>	<p>On average bullet points appeared 1.03 times per report</p> <p>Format of tables consistently used an alternating pattern of green shading to distinguish lines on a table. Mostly were very consistent within reports. Exception is Chile’s “Mercado de Oficina Clase A en Santiago Centro” report which has 3 tables and 3 different styles</p> <p>Few of the tables used have line work, with the exception of Chile, which used solid lines on a couple of the tables</p> <p>The only icons or symbols used in reports were arrows used to indicate the trend in statistics from quarter-to-quarter or year-over-year. On average 4.89 icons were used per report.</p>
<i>7 Extra-Textual Decoding devices:</i>	<p>93% of all pictures and drawings in Latin American reports had a caption associated with it either above or below the image</p> <p>Data display generally labeled information clearly, including titles of charts, values on x- and y- axis, legends for decoding. Only 13% of the graphs provided a source.</p> <p>16% of graphs had numerical information labeling points of data.</p>
<i>8 Extra-Spatial Configuration of schematic and pictorial sign systems Data display</i>	<p>Average number of graphs per report was 6.</p> <p>Average number of variable displayed on a graph was 2.10 per graph.</p> <p>Bar graphs were more common than any other type of graph with pie graphs almost non-existent. Only 5% of the data displays used a secondary y-axis.</p>

Kostelnick's Matrix	Sample Report Summaries
<i>9 Extra-Graphic Schematics</i>	<p>Additional emphasis is a handful of the data displays by changing the color of the current time period data point or adding dashed lines horizontally to note a significant y-axis benchmark</p> <p>2 drawings per report is the average across all the reports. They are all line maps of the real estate market.</p> <p>The average number of pictures per report is 3.67 across all reports. The focuses of all the pictures are buildings. Only two pictures in Santiago's custom report contained any people, but they were not the focus on the photo.</p>
<i>10 Supra-Textual Macro-level serial and segmenting devices</i>	<p>All of the standard reports have a standard template with places for the title of the reports on the top of the first page and on the side bar throughout the remainder of the report. Only two of the custom reports have cover pages.</p>
<i>11 Supra-Spatial Cohesion of entire documentation over several planes</i>	<p>The reports were designed to be printed on paper larger than 8.5 x 11.</p> <p>3 out of the 13 reports had a landscape orientation</p> <p>The majority of the reports were designed for a two column layout with the average width of the columns 3.29, but a handful used a mixed layout with one page having two column layout and other pages one column of text.</p> <p>The average page length of the reports overall was 13 pages, ranging from 1 page to 18 pages.</p> <p>Average word count of the first page of the report (or first page with text if there is a cover page or it begins with aerial estate market map) is 345.</p>
<i>12 Supra-Graphic Coding marks unifying pages or sections of text</i>	<p>The textual company logo appears on an average of 4.58 times per report. The text logo is commonly placed on every page of the report. The cropped C logo appears on average of 3.11 times per report.</p> <p>Company colors are used in much of the report. When it came to graphs, there were more variation between graphs and the company standard colors.</p>

Document Samples from Spain

In total three reports from Spain were analyzed, two standard reports and a custom report. These reports are all similar in purpose and audience to the Latin American reports. The topics of the two standard reports covered the office markets in Barcelona and Madrid. The custom report covered the entire country of Spain and discussed office, industrial and retail real estate in the country.

There was a significant difference between the layout and design of the Spanish reports and the Latin American standard reports. The standard reports were only one page long as opposed to the typical Latin American report, which was four pages long. Additionally, the Spanish reports used a single-column layout and no data displays. The custom report contained both two-column layouts, data displays and was ten pages in length.

Table 9 provides a summary analysis of the Spanish reports. The table reflects all three reports together to provide a summary of what the choices made, identify visual design element trends, and note significant variations to the norm.

Table 9 – Spain Overall Document Analysis

Kostelnick's Matrix	Sample Report Summaries
<i>1 Intra-Textual level Micro-level textual form:</i>	Average font size 10, the choice in font was consistently Futura with no noticeable variations in font choices or sizes for blocks of text.
<i>2 Intra-Spatial level Local spacing:</i>	All reports used standard single spacing.
<i>3 Intra-Graphic Marks:</i>	Not applicable
<i>4 Inter-Textual Serial and segmenting devices:</i>	Average number of section headers was 8. That is an average of 2 per page of report.
<i>5 Inter-Spatial Vertical/ horizontal arrangement of text:</i>	Average number of tables used in reports is 2. Standard reports used one table each.
<i>6 Inter-Graphic Cueing devices:</i>	<p>On average bullet points appeared 1.67 times per report. The standard report used bullet points to signal new paragraph for the main text.</p> <p>Table formats were very consistent from report to report and used the alternating green shading for the rows. Tables in the custom report contained white lines as well as the green shading with a weight of approximately ½ pt, which blends slightly with the shading. Table headers in custom reports are dark green and stand out.</p> <p>No icons or symbols were used in the reports, such as the arrow indicating trends.</p>
<i>7 Extra-Textual Decoding devices:</i>	<p>100% of all pictures and drawings in Latin American reports had a caption associated with it either above or below the image</p> <p>Data displays were all labeled with source information, values for y-axis, value for x-axis, and title of the chart. None had descriptive labels for x- and y- axis nor provided a legend for the graph.</p> <p>None of the graphs contained numerical data information directly on the graph.</p>
<i>8 Extra-Spatial Configuration of schematic and pictorial sign systems Data display</i>	<p>Only one report, the custom report, contained any data displays. In total, 8 graphs were used in the report.</p> <p>Average number of variable displayed on a graph was 1 per graph. None of the graphs contained more than one data variable and none had a secondary y-axis.</p>

Kostelnick's Matrix	Sample Report Summaries
	<p>All of the graphs were bar graphs; no other type of graph was used in the report.</p>
<p><i>9 Extra-Graphic Schematics</i></p>	<p>Very little emphasis is placed on the graphs, very light gridlines are on the graphs, but in some of the graphs they are almost not noticeable. There are also tick marks between the bar positions. Two of the bar graphs do not use the x-axis as a benchmark, but rather have the bars float above to show ranges.</p> <p>Only one drawing (map) was used in the reports showing the locations of the offices in Spain in the custom report.</p> <p>Each report used pictures of buildings. None of the pictures contained people in them. The average number of pictures was 2 per report.</p>
<p><i>10 Supra-Textual Macro-level serial and segmenting devices</i></p>	<p>All of the standard reports have a standard template with places for the title of the reports on the top of the first page and on the side bar throughout the remainder of the report. The custom report also used the same layout as the standard reports with the title of the report at the top first page and side bar replicating the section headers of that page.</p>
<p><i>11 Supra-Spatial Cohesion of entire documentation over several planes</i></p>	<p>The layouts of the pages in the standard report suggest that they are intended to be printed on 8.5x11 paper because there is white space above the header to allow for cropping to American paper size standards. The custom report does not have this and is designed to be printed on European standard size paper.</p> <p>All of the reports have portrait orientation.</p> <p>The standard reports have a single-column format with the custom report having a two-column format.</p> <p>Overall, the average length of the reports together was 4 pages. The standard reports were both one page long and the custom report was 10 pages long.</p> <p>Average word count of the first page of the report 364 words.</p>
<p><i>12 Supra-Graphic Coding marks unifying pages or sections of text</i></p>	<p>The textual company logo appears on an average of 1.38 times per report, and does not appear on every page of the custom report. The cropped C logo appears on average of one time per report. Additional branding was placed on the front page of the custom report in the form of the CBRE office locations.</p> <p>The companies branded colors occur frequently and consistently in the titles, side bars, section headers and tables. All of the graphic data displays were not consistent with the company branded color scheme.</p>

Document Samples from the United States

The sample documents from the United States came from three cities, Philadelphia, Seattle, and San Diego. Six reports were analyzed in total. Three of the reports were standard reports, and three reports were custom reports. The standard reports covered office, industrial and retail real estate market trends. The custom reports covered three special topics, local seaport and logistics activity; medical office buildings; and the life sciences market. Like the Latin American and Spanish reports, the purpose of these documents is to inform the audience on the commercial real estate market while secondarily persuade the audience to hire CB Richard Ellis to represent them in transactions. All of the standard reports were four pages long, while the custom reports ranged in length from two pages to thirteen.

Table 10 provides a summary analysis of the U.S. reports. The table reflects all six reports together to provide a picture of the choices made and to identify visual design trends.

Table 10 - United States Overall Document Analysis

Kostelnick's Matrix	Sample Report Summaries
<i>1 Intra-Textual level Micro-level textual form:</i>	Average font size 10.42, consistent use of Futura throughout.
<i>2 Intra-Spatial level Local spacing:</i>	All reports used standard single spacing.
<i>3 Intra-Graphic Marks:</i>	Not applicable
<i>4 Inter-Textual Serial and segmenting devices:</i>	Section headers average 4.5 per report. Standard reports do not commonly have section headers. One report rearranged the layout from the typical two-column format of left column data displays right column text to have data displays above blocks of text. This created the effect of sections within the reports.
<i>5 Inter-Spatial Vertical/ horizontal arrangement of text:</i>	Average number of tables used in reports is 3.
<i>6 Inter-Graphic Cueing devices:</i>	<p>On average bullet points appeared .5 times per report</p> <p>Format of tables consistently used an alternating pattern of green shading to distinguish lines on a table.</p> <p>Only one table deviated from this format to have a basic line table with both vertical and horizontal lines.</p> <p>The only icons or symbols used in reports were arrows used to indicate the trend in statistics from quarter-to-quarter or year-over-year. On average 5.33 icons were used per report.</p>
<i>7 Extra-Textual Decoding devices:</i>	<p>42% of all pictures and drawings had a caption associated with it either above or below the image</p> <p>Data display generally labeled information clearly, including titles of charts, values on x- and y- axis, legends for decoding. Only 20% of the graphs provided a source. 40% provided current time period values from the data.</p> <p>21% of graphs had numerical information labeling points of data.</p>
<i>8 Extra-Spatial Configuration of schematic and pictorial sign systems</i>	<p>Average number of graphs per report was 4.</p> <p>Average number of variable displayed on a graph was 2.4 per graph.</p>

Kostelnick's Matrix	Sample Report Summaries
<i>Data display</i>	<p>Bar graphs were more common than any other type of graph with pie graphs almost non-existent. Other types of data displays used were pie, bar with line on secondary axis, stacked bar, line. Graphs with secondary axis graphs made up 17% of the graphs.</p>
<i>9 Extra-Graphic Schematics</i>	<p>Additional emphasis is a handful of the data displays by changing lines to have a box or graphic symbol at the data point location in line graphs. Very little other emphasis was added to the graphs, with gridlines present 100% of the time and tick marks between bars 35% of the time.</p> <p>0.83 drawings per report is the average across all the reports. They are all line maps of the real estate market.</p> <p>The average number of pictures per report is .5 across all reports. The only photos included were photos of the city, such as the Space Needle for the Seattle Life Sciences report, or images related to the topic, such as test tubes or a cargo ship.</p>
<i>10 Supra-Textual Macro-level serial and segmenting devices</i>	<p>All of the standard reports have a standard template with places for the title of the reports on the top of the first page and on the side bar throughout the remainder of the report. Two out of the three custom reports had a cover.</p>
<i>11 Supra-Spatial Cohesion of entire documentation over several planes</i>	<p>The reports were all designed to be printed on 8.5x11 paper.</p> <p>All of the reports had a portrait page orientation</p> <p>All of the standard reports were designed for a two column layout with the average width of the columns 2.79. All of the custom reports used a single column layout.</p> <p>The average page length of the reports overall was 5.6 pages, ranging from 4 page to 13 pages.</p> <p>Average word count of the first page of the report (or first page with text if there is a cover page or it begins with aerial estate market map) is 386.</p>
<i>12 Supra-Graphic Coding marks unifying pages or sections of text</i>	<p>The textual company logo appears on an average of 2.83 times per report. The text logo is commonly placed on every page of the report. The cropped C logo appears on average of 1 time per report, usually just on the first page.</p> <p>Company colors are used consistently throughout the reports for headers, section header text, and other structural elements to the report. When it came to graphs, the color choices were very inconsistent with the company color pallet.</p>

Power Distance

Hofstede's dimension of power distance refers to the expectations and acceptance of inequalities between people in cultures. Previous research suggested that high power distance cultures would produce documents which were highly structured and symmetrical in layout (Marcus and Gould). It was also suggested that high power distance culture would limit the access to information by using security barriers in websites (Cook and Finlayson). Increased levels of security might suggest that public reports would contain less content, to create a barrier between those with knowledge, and those without. Information is one way a person can retain knowledge and control how much information, and is provided. The control of information can also be a demonstration of power. It suggests that some people do not deserve the information. Cook and Finalyson also noted that experts are given distinction. It is expected that people of higher social status are given prominence in high power distance cultures. In the case of reports, author names or company identifiers are placed in highly visible locations to distinguish people who have the information to share. Callahan also suggested that official seals and logos would be placed prominently in documents to show credibility and authority.

Previous research on low power distance cultures suggested that visual design preferences would manifest in different ways. Photos would focus on people of both genders not in authority more than high power distance cultures (Marcus and Gould; Callahan). Information structures would not be complex and would provide easier access to information. In a low power distance culture, limiting access to information might be considered offensive (Cook and Finlayson). Providing access to more information on sites suggest that reports from low power distance cultures would be longer with more content.

Hypothesis 1

Cultures with higher power distances will include a greater number of graphics and data displays at the inter and extra levels as described by Kostelnick (cells 6 and 9).

The sample documents from the high power distance cultures in this study did not consistently use more data displays in their reports. The Latin American reports, on average, contained 6 graphs per report while Spain had only 2.67 graphs per report. The limited number of pages in the Spanish reports might be a contributing factor to the difference between Latin American and Spanish reports. Neither of the Spanish standard reports contained graphs. The custom report produced by Spain, “Panorama de Mercado: Mercados Regionales” contained eight graphs in the ten-page report. This number of graphs is on par with other longer reports in Latin America which had as many as fifteen graphs in the custom report from Mexico.

The U.S. reports averaged four graphs per report, below the average for the Latin American reports. The average is below the number of data displays used by the Latin American cultures but above the average number of data displays used by Spain. Unlike the Spanish standard reports, the U.S. standard reports all used data displays. However, one custom report from Seattle did not contain any data displays.

Icons, symbols, and logos were not used more frequently in the reports created in high power distance cultures than they were in the reports created in low power distance cultures. The Latin American reports used an average of 11.53 while the Spanish reports used an average of 2.3. The most noticeable difference in the usage of symbols in Spain was the lack of using arrow indicators to show trends in the statistics, which was used by every country examined in this

study except Spain. No discernable explanation exists for the lack of symbol usage in Spain while symbols are widely used in other high power distance cultures. The number of the company logos used in reports was below what was expected in Spain. While company logos help to establish credibility to a report, they do not necessarily provide information on a specific person within a company is the source of the report. Spain's custom report did have a list of the offices and contact information on the front page on the left hand sidebar. The Spanish custom report was the only report in the study to provide this information. The placement of contact information on the front cover lends credibility to the report since the report covered many markets in Spain.

The U.S. reports used an average of 9.17 icons, logos and symbols per report. This number of occurrences per report is below the Latin American number and well above the Spanish number. The use of symbols was higher in the U.S. reports than Latin America reports (no symbols were used in Spanish reports). The only symbols used in the U.S. or Latin American report were arrows showing the trends for some of the key market statistics.

It is inconclusive whether tables are used in high power distance cultures since Latin American reports used them more frequently, but Spain did not use them as much as the United States. Latin American reports used tables to display information 3.31 per report. Spain used, on average, tables two times per report. In the ten-page custom report done by Spain, only four tables are used in the report. While the initial theory was that any type of display of information might be indicative of a high power distance culture, presenting so much detailed information seems less favorable than hiding data behind bar or line graphs.

The usage of drawings in reports for high power distance cultures also was not fully supported. Latin American reports on average contained one drawing while the Spanish reports contained .33 drawings per report. All of the drawings in the reports were line drawing maps of the areas, designating specific sections of the cities or countries called submarkets. The exception to all line drawings being maps of the submarkets was the only drawing used by Spain in a report. The drawing was a map, but rather than show the location of the markets, it pinpointed the locations of the CBRE offices in Spain. The usage of a map to designate locations of the company does support the previous research on high power distance cultures using visual design to promote expertise. The drawing appears in the same report that contains the list of the offices and contact information on the front page. These two layout choices are manifestations of high power distance cultures demonstrating their authority, prominence and power in their country.

Reports in the United States used, on average, .83 drawings per reports, lower than Latin America but still higher than Spain. The drawings in the U.S. reports, like the Latin American reports, were consistently line drawn maps designating submarkets.

The usage of pictures by high power distance cultures supports the hypothesis. Both Latin America and Spain consistently used more pictures in their reports than the United States. Latin America used images 1.86 pictures per report on average. Spain's reports included two pictures per report, higher than the average for Latin America. The images were all of buildings, assumingly in the local market, mostly without people in them. The few pictures where people were in the shot, they were small and not the focus of the pictures.

The United States used only .5 pictures per reports, noticeably lower than the Spanish and Latin American usage of photos. The few pictures used were in custom reports and were only minimally related to the text. For instance, the cover of the “Increasing Port Activity” report from Philadelphia had an image on the cover of a cargo ship. While the picture is related to the topic of the report, there are no pictures within the document directly referencing the specific image on the cover.

The comparison of the high power distance and low power distance cultures in their usage of pictures and drawings alone could support for the assertion that high power distance cultures use data displays and graphics as described in Kostelnick’s inter and extra levels. However, inconsistent information from Spain compared to the Latin American countries together on table, graphs, symbols and data displays makes the support for the hypothesis weak. The manifestations of other visual design preferences associated with high power distance cultures, such as the prominent placement of contact and company location information over using the company logos, suggests that the specific hypothesis can not be supported with the Spanish sample data, but may still have merit.

Hypothesis 2

Cultures with high power distances will create documents which contain less text on a page or will be shorter in length reflecting the supra level. (Indicators of this might be larger font size, Kostelnick cell 1, or spacing between lines, Kostelnick cell 2).

The page length of Latin American and Spanish documents supports the hypothesis that the documents would be shorter than documents created by low power distance cultures. On average, Latin American reports were 5.5 pages long. Spain's sample documents averaged four pages long. Spain's standard reports are one page long. The length of the Spanish standard report is short compared to the typical standard report from other countries, which is typically four pages. Only one of Latin American's sample documents was also one page long, Rio de Janeiro's custom report. The remainder of the samples were four pages or longer. The United States' average page length was only slightly longer than Latin America's at 5.7. As noted previously, none of the sample documents from the United States were shorter than four pages long.

The word count of the first page for the Latin American and Spanish reports does support the hypothesis that the documents contain less content than low power distance cultures. Latin American countries average word count for the first page was 345. Spain's first page average word count was 362. The United States' average first page word count was lower than Spain and Latin America's first page word count at 387.

Font size can contribute to how much text can fit onto a page. Smaller fonts mean more words will fit into the same space if the reports are using consistent fonts. The majority of the reports used Futura or a variation on it. The Latin American average font size was 10.87 while Spain's average font size was ten. The U.S. average font size was 10.42. Spain's font size was smaller than Latin America and the United States. The reports from Spain must contain more white space compared to the U.S. and Latin American countries because the Spanish reports have lower word counts and fewer data displays. It is worth noting that Spain's font size of ten

was very consistent from report to report, showing attention to detail and control across documents.

There was no difference in line spacing in the sample reports between high power distance and low power distance cultures. Peru's reports used a slightly larger line spacing at 1.15, but the space was not significantly larger. Larger line spacing leaves less room on a page for text and could have been an indicator of less content on a page.

The margin settings used in the documents did not support the hypothesis that high power distance cultures would create reports with less content. Latin American reports had margins which average 0.5 inches. Many of the Latin American reports, such as reports from Mexico and Venezuela, kept bottom and top margin spacing consistent with other reports, but used very narrow margins on the left and right sides of the page. Spain, on the other hand, had margins that averaged 0.79 inches and had more consistent margins around the page.

In comparison, the United States averaged a 0.72 inch margin in the documents. The margin spaces were consistent around standard reports. Wider margins and more white space around the edges of the page were noticeable in custom reports. The wider margins were believed to be an indicator of less content because the larger the margins the less space inside the page to use for content. However, additional white space in other areas of the page can contribute to the use of less content. These additional areas of white space are not as easy to measure consistently from report to report.

There was support for the hypothesis that high power distance cultures would provide less content in their reports through shorter page reports, fewer words, and smaller font sizes. The lack of consistent support from margins and line spacing alone is not an indicator that this

hypothesis is not true. The usage of templates can contribute to the line spacing being consistent across all of the data samples. The margin widths alone are not enough of an indicator that the hypothesis is not correct.

Uncertainty Avoidance

The cultural dimension uncertainty avoidance is described by Hofstede as a culture's response to situations where the outcome is unknown. High uncertainty avoidance cultures tend to stay away from situations where they can not predict the outcome. Low uncertainty avoidance cultures are more willing to accept situations as they come and are willing to take risks, even when they don't have all the facts or know all the possible outcomes.

Previous research suggested that low uncertainty avoidance cultures would use simple and clear metaphors in graphics (Marcus and Gould). Additionally, in interactive documents, the navigation would be clear, simple and provide limited choices (Marcus and Gould, Cook and Finlayson). Simple and clear navigation might manifest itself in reports as table of contents, simple layouts, section headers, and other page unifiers which help guide the reader in longer documents.

Hypothesis 3

Cultures with high uncertainty avoidance will create documents which include more logos and graphics at the supra level as described by Kostelnick (cell 12).

The usage of logos representing the company only partially supports this hypothesis. Latin American reports used the textual company logo 4.58 times per report while Spanish reports used it only 1.33 times per report. The Latin American reports consistently used the logo on the majority of the pages in reports. However, the Spanish custom report, the only sample from Spain longer than one page, did not place the textual logo on every page. A similar finding was made with the usage of the company cropped C logo. The Latin American samples used this logo on average 3.11 times per report. Spain used the cropped C logo only once per report. In comparison, the United States used the textual company logo only 2.83 times per report, lower in frequency than the Latin American report samples but still higher than Spain. A similar result was found in the cropped C logo, which the U.S. reports used only once per report. The single occurrence of the cropped C logo in U.S. reports is the same as Spain, but is a low number of occurrences than the Latin American reports.

Bullet points, a graphic cuing device, were consistently used more in high uncertainty avoidance cultures than low uncertainty avoidance cultures. The Latin American reports used bullet points 1.03 times per report on average. Spanish reports used bullet points on average 1.67 times per report. Spanish reports used bullet points as an indicator of new paragraphs in the standard reports, the only country to use bullet points in this way. The additional visual cue supports the assumption that high uncertainty avoidance cultures prefer having additional graphic cues to guide readers through a document. The U.S. reports used bullet points 0.5 times per report. They were commonly used in the standard reports, particularly in the “Hot Topics” section of the side bar. The usage of bullet points in U.S. reports is similar to the Latin American reports, which used the bullet points in a similar section on the side bar as well as in other places.

However, the custom reports from the U.S. do not use bullet points. The lack of bullet points in U.S. custom reports lends support to the theory that designers in low uncertainty avoidance cultures do not feel the need to guide readers as much as designers in high uncertainty avoidance culture designers do.

The use of consistent colors provides additional support to the hypothesis. While the company provides a template to use for the production of the reports, customization of the reports is expected. How much the designs adhere to the company color pallet serves as an additional indicator of the preferences of uncertainty avoidance cultures. The most noticeable place that designers customized the color choices was in data displays. In the Latin American reports twelve percent of the data displays used the CBRE color pallet consistently through the reports. Latin America's use of consistent color is much lower than the Spanish report samples, which used the color scheme in 67 percent of the data displays. The consistency in Spain might be because the number of sample documents was smaller than the other countries. The U.S. documents were the least consistent in the usage of the CBRE color pallet with only six percent of the reports using consistent colors.

Overall, the use of colors and bullet points do support the hypothesis, but inconsistent results from the use of logos do not make it conclusive that the hypothesis was proven correct. Other branding and prominent placement of contact information, which was not explicitly being examined through this hypothesis likely served the purpose of the company logos by these high uncertainty avoidance countries with low logo usage.

Hypothesis 4

Cultures with high uncertainty avoidance will use an increased level of alphanumeric/symbols at the extra level in documents to aid in decoding and headings (cells 7 and 10) to aid navigation through a document.

The use of section headers by high uncertainty avoidance cultures was inconsistent. Latin American reports used section headers 3.17 times per report on average. Three countries did not use section headers at all, Brazil, Venezuela, and Panama. Venezuela and Panama's sample documents were standard reports with only four pages each. Brazil contributed one sample custom report, which was one page long. Without these three countries, the average usage of section headers would be 6.33 based on the three other countries which contributed samples. Spanish reports used section headers 8 times per report on average. Both the custom and standard reports included section headers, which no other country consistently did. Additionally, the Spanish report used the borders of the reports as section headers, noting the different cities the pages were commenting on. The United States reports used an average of 4.5 section headers per report on average, higher than the Latin American reports. The lower average for Latin American reports might be attributed to the number of pages of the Latin American reports being lower than the U.S. reports, thus finding the section headers unnecessary.

The frequent usage of captions by high uncertainty avoidance cultures strongly supports the hypothesis. Latin American countries used captions for 93 percent of the drawings or pictures in the study. Latin America's usage of captions is consistent with Spain, which used captions for

100 percent of the drawings or pictures in the samples from that country. Spain's usage of captions is well above the usage of captions by the United States. 42 percent of drawings and pictures had captions in U.S. reports.

The number of decoding devices and labels available to document creators is very high. It was anticipated that elements such as labeling y-axis and providing source information would be consistently used more in high uncertainty avoidance cultures. However, no correlation was found in the frequency of the thirteen elements identified in this study to any culture. On the contrary, Spanish reports used a fewer number of data display decoding and labeling options than any other country with six types used. Those six types were consistently used in every graph. Surprisingly, they did not include some of the common conventions used in data display design, such as providing legends. Some of the Spanish graphs demonstrated ranges for the values by having the bars hang above the benchmark line at the x-axis. Using ranges makes identifying the values and comparing their size across the graphs very difficult. Latin America and the United States both used all of the data display decoding devices examined in the study. Overall the use of data display decoding and labeling does not support the hypothesis.

Three noticeable trends in the usage of data displays were the choice of graph type, the frequency of secondary y-axis, and the number of data variables used in graphs. Secondary y-axis graphs are commonly used with bar and line graphs or a combination of the two. The Latin American countries used secondary y-axis graphs only in five percent of all the graphs in their sample documents. Spain did not use secondary y-axis for any graph. United States reports used secondary axis reports in seventeen percent of the graphs. The use of secondary y-axis reduces

the clarity of the graph. Complex graphs would be something that an uncertainty avoidance culture would avoid, which is supported by the sample reports.

The type of data display graphs chosen by the high uncertainty avoidance cultures demonstrates a choice toward simple graph types over graphs which are more complex. The majority of the Latin American data displays were bar graphs at 53 percent. Second most popular graph type was line graphs at fourteen percent. Latin American data display varieties also included pie at one percent, bar with line fourteen percent, stacked bar nine percent, and stacked bar with line at eight percent. The variety is wide in Latin American reports in comparison to the Spanish reports which were 100 percent bar graphs. American reports favored bar graphs at 60 percent, bar with line at 17.4 percent, pie graphs at thirteen percent, line graphs at 4.3 percent, and stacked bar at 4.3 percent.

The final data display trend noted in the study was the number of variables used in data displays. Simply put, the variables in a data display would be the number of different bars that might appear in any one time period or separate trend lines on a graph. Latin America, on average, had 2.1 variables per data display in the sample reports. Spain used only one variable per data display. Both Latin America and Spain's average number of variables per graph are lower than the United States' average of 2.4. The low number of variables on the high uncertainty avoidance culture data displays suggests a preference for clarity.

The combination of the different decoding and labeling details used in the sample report did not unilaterally support the hypothesis that high uncertainty avoidance cultures would use decoding and navigation devices more frequently in documents. The labeling and the majority of the decoding mechanisms for data displays showed no trend and can not support the hypothesis.

Inconsistent data on section headers does only partially supports the hypothesis. The lack of use of section headers in Latin American reports might be explained by the shortness of the reports making them unnecessary and the limited number of custom report samples. The average of section headers in report samples Latin America which were longer than one page was higher than the U.S. average. The lack of custom reports in the Latin America could explain the differences in the results. However, the use of captions, secondary y-axis in displays, graph types and number of variables contained on the display all support the hypothesis. Repetition of the study with a wider range of document samples with similar data display content is necessary to draw a conclusion on the hypothesis.

Cultural Similarities

Using a cultural framework, such as Hofstede's dimensions of culture, requires assuming that cultures with similar attributes will have similar preferences and responses to documents. To explore whether this is true, the following hypothesis was developed to test the assumption.

Hypothesis 5

H5: Cultures with similar cultural attributes will demonstrate similar visual design preferences.

Comparing the visual design elements used in Latin American countries and Spain with each other, there are some elements which do show a significant trend to support the hypothesis. However, there are several visual design elements which are inconsistently used by similar cultures or show no relationship to cultures.

Of the nineteen visual design elements discussed in the power distance and uncertainty avoidance sections of this thesis, 57.8 percent, or eleven of the variables, showed consistent usage of the visual design elements by both Spain and Latin American countries. These variables include number of variables used in data displays, graph types, secondary y-axis use, captions, color consistency, word count. The number of pages pictures, and drawings also showed consistency across the countries.

Eight of the visual design elements analyzed in this study showed inconsistent or inconclusive information from Spain and Latin American countries. The number of inconsistent or inclusive visual design elements is 42.1 of the visual design elements discussed in this study. These elements include frequency of icons and symbols, number of data displays, one or two column usage, frequency of logos, and section headers.

The number of consistent visual design elements was higher than the number of inconsistent variables. Based on this analysis of the data, there is evidence to support the hypothesis. A correlation of close to 60 percent of the visual design elements consistently used in the reports is enough to say that there are elements which preferred by cultures consistently.

However, in the comparisons with the United States, Spain many times did not support the hypothesis while the Latin American countries' average did support the hypothesis. If the study was to be repeated with each country compared individually against the United States alone, some Latin American countries may not support the hypothesis proposed. Several reasons for this might exist. One of the most compelling reasons is the sample size and type of documents examined in this study. While efforts were made to obtain as many documents as

possible from Spain and Latin America, the reality is that the samples provided were more limited than what was provided by the U.S. participants.

CHAPTER FIVE

DISCUSSION AND PRACTICAL APPLICATION

The implications of the findings presented in Chapter Four have the potential to affect technical communication and the efforts of international technical communicators. This chapter discusses the findings of Chapter Four and its relevance to technical communication.

The findings of the study showed that one of the hypotheses, hypothesis four, was fully supported, the remaining four were only partially supported by the analysis. Inconsistency between Spanish and Latin American reports meant hypotheses could be only partially supported.

Hypothesis One, cultures with high power distances will include a greater number of graphics and data displays at the inter and extra levels as described by Kostelnick, was only partial supported. This hypothesis was proposed based on the theory that high power distance cultures would use graphics and data displays as a means of limiting the amount of specific hard data available to the audience. In essence, limiting the use of graphics and data displays would keep those producing the reports in control. They would have more information than the audience. With the hypothesis being only partially supported, however, the theory that high power distance cultures would limit the amount of detailed data and information to an audience might not be an accurate theory. The use of pictures was consistent with the hypothesis for high power distance cultures. Pictures, as Kostelnick and Roberts note, can serve many purposes, depending on the rhetorical situation they are used in (313). The use of pictures in the reports

from Latin America and Spain served several functions. The images were mainly pictures of buildings without people. The use of pictures with buildings in them is not surprising since the subjects of the reports are the leasing and sales of buildings. The lack of pictures with people in them is also not surprising and supports the previous research done by Marcus and Gould and Callahan. The few pictures used in U.S. reports were more abstract compared to the Latin American and Spain. The pictures used in the U.S. did not focus on buildings or people. Rather, the images in U.S. reports were only related to the topic of the report and not the subject of the report. For instance, the cover of one custom report includes the image of a cargo ship. The topic of the paper is increasing port activity and the effects on the industrial market in Philadelphia. While the image of the cargo ship is related to the subject of the report, this specific ship is not the subject of the report. The report did not contain images of industrial buildings. Overall, few images of actual buildings, the subject of the reports, were actually used.

Hypothesis Two was fully supported by the analysis conducted on the sample documents. The hypothesis speculated that high power distance cultures would create documents shorter in length and containing less text on a page. This hypothesis was developed based on the idea that high power distance cultures prefer to control the amount of information given out. The length of the reports and word counts show that less content was included in the Latin American and Spanish reports compared to the U.S. reports. Elements that did not support this finding were the font size, margins and use of one- or two-column formats. Combined these visual design elements can serve as indicators to the overall amount of information contained in the layout. It is interesting to note that Spain used single-column format for two of the three sample documents. Spain's single-column layout preference contradicts the previous research which

found that high power distance cultures prefer to use symmetrical layouts. Latin American samples did show a much stronger preference for a two-column format over Spain and the U.S. samples.

Hypothesis Three was only partially supported due to contradictions between documents from Latin America and Spain. The hypothesis predicted that high uncertainty avoidance cultures would create documents with more logos and symbols. Latin America's documents consistently showed an overall use of more bullet points, company logos, company brand colors, and symbols more logos and symbols than the U.S. documents. However, Spain did not support the hypothesis by using a low number of these visual design elements in the sample documents. Additionally, Latin America documents did not use sections headers as frequently as Spanish documents did. Spanish documents used more section headers than the U.S. documents. These contradictions may have roots in the sample documents. Several of the Latin American countries did not provide custom report samples and only provided standard reports. These reports are shorter and do not generally include section headers. The only country to include section headers in its sample standard reports was Spain, which also used a single-column format not found in any other standard report sample. These variations in the layout and usage of the standard report template suggests that the Latin American standard reports follow the corporate template more in the use of section headers, while Spain has customized the standard report more. If the countries which did not supply a custom report sample were excluded from the Latin American analysis, the average number of section headers would be well above the U.S. average number of section headers used. Replication of the study with a wider use of sample documents might conclusively show that section headers are favored more in high power distance cultures.

Hypothesis Four was only partially supported. The theory being tested in hypothesis four was that high uncertainty avoidance cultures would use more navigation and decoding devices. The analysis included section header, which were not consistently used across all high power distance cultures. Decoding devices used in data displays, for the most part, did not show any differences between cultures. The few elements that did show differences between cultures included the use of secondary y-axis and the number of data variables included in graphs. High power distance cultures did not use secondary y-axis on bar or line graphs very often. In the case of Spain, Peru, Mexico, and Venezuela, none of their sample reports contained data displays with a secondary y-axis. Also, the high uncertainty avoidance cultures consistently used fewer variables in the data displays than low uncertainty avoidance culture. These two findings indicate that when high uncertainty avoidance cultures use data displays, they prefer uncluttered simple displays which provide only one data variable at a time. The preference for simple data display design would reduce the chance of misinterpretation or confusion when interpreting the data display. Simple data display design might also be an indicator of how a high power distance culture might control the amount of information provided. As discussed previously, the Latin American countries had a higher number of data displays used in sample reports than the United States. While they are using more data displays, Latin American reports provide less data on those displays than the U.S. reports did. Further research on a high uncertainty avoidance culture which is also a low power distance culture, such as Austria, might be able to help establish a correlation.

Hypothesis Five was only partially supported. The theory that countries with similar cultural attributes would have similar visual design preferences was supported by trends in the

use of visual design elements in some Latin American countries. Additionally, Spain's sample documents often showed differences to the in Latin American reports. There are various reasons why there were difference between Spain and Latin America might have occurred. The sample size for this study was small. As noted in Chapter Four, two of Spain's documents were only one page long while the third sample was eight pages long. The length of the sample standard reports provides a smaller amount of content to compare against the other Latin American countries. Another explanation for the difference in visual design preference among countries is the geography factor. While Spain and the Latin American countries share similar cultural attributes and operate in a global business environment, they are not in geographic proximity to each other. Since the analysis showed that there were more visual design preferences within the Latin American countries than to Spain, it is likely that these countries are share similar education about visual design. Spain's location within Europe places it in a position of being influenced by the European education system and business systems. Additional research into the visual design preferences within a continent, such as Europe, applying Hofstede's cultural dimensions might provide additional insight into this possibility.

Implications for Technical Communicators

The results of this study have many implications for the field of technical communication. This study provides further evidence to technical communicators that audience analysis, especially when the intended audience is outside of their own culture, is essential to creating the most effective documents possible. When the intended audience is outside of the technical communicator's own culture, the only way to develop a true audience analysis is

through study of that culture. Developing an understanding of a culture is not a quick process; it takes years of study to fully understand another culture.

The process of learning about another culture in an effort to develop effective documents can be done through several methods. Studying and using a cultural theory, such as Geert Hostede's cultural dimensions or Edward Hall's theory on high-context and low-context cultures, provides a framework and vocabulary to understand different cultures. Additionally, studying documents from other cultures is an essential part of the learning process. Reviewing what choices technical communicators make for their audience provides insight into what technical communicators in a different country thought would reach their own audience most effectively. Another approach for technical communicators working in multinational companies might be to survey existing clients on what visual design features in a document they prefer. This approach, as opposed to the technical communicator's preference, provides insight into how an audience would like to be addressed.

Implications For Document Design

The findings of this research have significant implications for document design. Understanding an audience's preferences for visual design is essential to creating effective documents. This study aids in that understanding by providing an insight to the design preferences in other cultures.

This study also continues the discussion Kostelnick and Roberts began on visual design language. Usage of the matrix through this research found that the matrix is a useful tool for

doing comparison of documents. The consistent usage of visual design language in this framework also provides a way for this study to be reproduced.

The elements of visual design discussed in this thesis are significant elements of design which need to be discussed as documents are being produced. Understanding the usage of data displays, colors, decoding devices, and document navigation by different cultures can help to make a technical communicator more aware of the design choices they make.

Limitations of Research And Further Research

There are many limitations to the study done in this thesis. The hope is that this thesis will serve as inspiration and a starting place to further research into cultural attributes and visual design preference. This section outlines both the limitations of the study and further research which can be done.

The number of documents contributed by Latin American countries and Spain were both limited due to the capabilities of the local CBRE offices to provide the samples. The limited number of submissions led to only two samples being examined from the Latin American countries and three samples being examined from Spain. The some of the results from Spain documents were inconclusive and contradictory and can be rooted to the limited number of samples available to examine from this country. Examining additional sample documents using the same methodology might yield an explanation or provide additional data to contradict it. Additionally, the choice of reports as sample documents serves to limit the study. This study was done using report samples because all previously cited work had been done using websites as

samples. The limited number of sample documents and types of documents used in the study are limitations that can easily be addressed with replication of the study.

The choice of countries in the study limits the findings. The choice to use the specific Latin American countries in this study was dictated by where CBRE had offices. Duplication of this study should be done with other Latin American countries to add in the understanding of this area of the world. Additional insight into the visual design preferences of high uncertainty avoidance and high power distance cultures requires that all cultures on the high end of the dimension should be used in any replication of the study.

Only two of the six cultural dimensions Hofstede has identified were examined in this study. Examination of sample documents from the other cultural dimensions not examined in this thesis would help to answer the question of whether cultures with similar attributes have similar visual design preferences. To create effective documentation for all the different cultures that might be an audience, further study of different cultures and their visual design preference is necessary.

This thesis should serve as a basis for further research and discussion in the field of international technical communication and visual design. The methodology and theories might be also duplicated and relevant to an online environment.

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**APPENDIX A:
PERMISSION TO REPRINT**

April 11, 2011

Dear Ray Wong,

This letter will confirm our recent. I am completing a master's degree at the University of Central Florida entitled "Connecting Visual Design and Hofstede's Cultural Dimensions: The United States, Latin America and Spain." I would like your permission to reprint the following:

- Barcelona October 2010 Office Snapshot
- Puget Sound Office MarketView 3Q2010
- Mexico City Office MarketView 3Q2010

The requested permission extends to any future revisions and editions of my thesis, including non-exclusive world rights in all languages. These rights will in no way restrict republication of the material in any other form by you or by others authorized by you. Your signing of this letter will also confirm that CB Richard Ellis owns the copyright to the above-described material.

If these arrangements meet with your approval, please sign this letter where indicated below and return it to me in the enclosed return envelope. Thank you for your attention in this matter.

Sincerely,



Suzanne McDonough

PERMISSION GRANTED FOR THE USE REQUESTED ABOVE:

By:  _____

Name of person signed above: RAYMOND WONG

Date: APRIL 11/11

**APPENDIX B:
SAMPLE STANDARD DOCUMENT FROM SPAIN**

MarketView

Snapshot Barcelona Oficinas

www.cbre.es

Octubre 2010

Edificios disponibles

Avenida Diagonal 682



Área disponible 4.436 m²

WTC Almeda Park



Área disponible 29.000 m²

EDIFICIO



Área disponible 5.551 m²

Para más información, póngase en contacto con:

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CBRE
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Comentarios

✓ El mercado de oficinas de Barcelona mantiene ritmos estables durante el tercer trimestre de 2010, aunque este trimestre ha superando en número de operaciones y en volumen de absorción al segundo trimestre. Durante este periodo se han absorbido 51.406 metros cuadrados de superficie de oficinas, 25% más que en el trimestre anterior. Esta cifra se materializa en 69 operaciones, 19 más que en el segundo trimestre. En términos generales, en estos tres primeros trimestres de 2010 la absorción se sitúa un 11.3% por encima que en el mismo periodo del año anterior, cifra que hace preveer unos volúmenes de cierre superiores que en 2009.

✓ Las zonas más activas de la ciudad de Barcelona siguen siendo las Nuevas Áreas de Negocio y el Centro de la Ciudad, suponiendo así el 69,78% de la absorción. Las zonas más activas fueron el 22@, Villa Olímpica/Front Maritim y Plaza Europa.

✓ Durante este tercer trimestre del año se ha mantenido la tendencia por la cual muchas empresas ubicadas en zona prime toman la decisión de moverse hacia las nuevas áreas de Barcelona. Estos movimientos son un claro ejemplo de la oportunidad que representa para determinadas empresas, la situación económica y de mercado, para la reubicación de sus oficinas en edificios de calidad, eficiencia y representando estos movimientos un ahorro de costes. Podemos citar ejemplos de operaciones como el traslado de la sede de la ingeniería Altran, la nueva sede de Vanityfair o la peculiar operación de más de 10.000 m² de la empresa Desigua, todas ellas ubicadas en las Nuevas áreas de oficinas de Barcelona. Pero por otro lado, estos movimientos, generan a su vez nueva disponibilidad en zona prime originando otro tipo de oportunidades para empresas que por su actividad necesitan de representatividad en esta zona, la cual era inexistente e inaccesible hasta la fecha.

✓ El caso de Desigual la singularidad del proyecto y la excepcional ubicación para una empresa que está convirtiéndose en un referente en su sector, ha primado por encima de otras ubicaciones. Se trata de una localización excepcional en el frente Marítimo de Barcelona con lo que ello representa.

Actividad de Mercado

Zona	Parque (m ²)	Absorción (m ²)	Disponibilidad (% parque)	Oferta futura* (m ²)	Renta max. (€/m ² /mes)
CBD	806.799	5.257	10,33%	6.120	19,75
Centro Ciudad	2.477.023	10.870	5,12%	18.297	16,00
NBA	1.016.852	25.000	29,56%	46.793	16,00
Periferia	1.143.548	10.278	23,00%	47.900	12,00
TOTAL	5.433.362	51.406	14,24%	119.110	19,75

*Oferta Futura, 2010 y 2011

Operaciones destacadas

✓ La empresa de moda Desigual trasladará sus oficinas al Frente Marítimo de Barcelona, al lado del Hotel W. Se trata de un proyecto llaves en mano de más de 10.000 m².

✓ Booking, asesorada por CB Richard Ellis ha ampliado espacio, 273 m² en el edificio de oficinas del Triangle, en Plaza Cataluña.

✓ CB Richard Ellis ha asesorado en el traslado al edificio Euro 3 en Sant Just del Llobregat, a la empresa Sunstar, que ha ocupado 261 m².

✓ Reubicación de la empresa Altran en el edificio de Illacuna en 22@, 3.450 m².

CB Richard Ellis 2010

Esta publicación se ha preparado cuidadosamente con el fin de ofrecer información general y no se aceptan responsabilidades por errores y omisiones. Las opiniones y los datos aquí indicados están sujetos a cambios sin previo aviso. Cualquier transacción que se efectúe en el mercado no deberá fundamentarse única ni necesariamente en los datos aquí expuestos. Tampoco podrán ser publicados total ni parcialmente ni citados como fuente, sin la previa autorización de CB Richard Ellis.

**APPENDIX C:
SAMPLE STANDARD DOCUMENT FROM UNITED STATES**

Quick Stats

Class A Avg. Asking Rent: \$27.71 ↑ vs. \$27.14 (QoQ)

Direct Leasing Rate: 19.5% ↑ vs. 18.2% (QoQ)

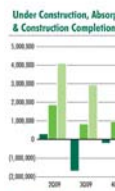
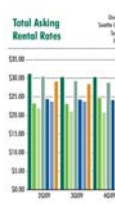
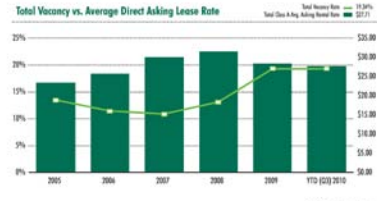
Net Absorption: 1,077,536 SF ↓ vs. 1,249,059 SF (QoQ)

Completions: 138,333 SF ↓ vs. 142,577 SF (QoQ)

- The most notable trend in the overall market was the increase in direct leasing, which is expected to continue in the fourth quarter. This is due to the fact that many tenants are now looking for long-term leases, and are willing to pay a premium for space that is guaranteed for a longer period.
- Investment activity increased with the sale of the office portion of The Browns, City Center Plaza and Alameda—all highly visible.
 - Occupancy increased strongly as tenants such as Amazon.com and Digiplex expanded growth.
 - Class A rents remained stable at \$27.71 for direct and sublease blended, and \$28.84 for direct space—well off the peaks of \$31.58 and \$32.44 respectively at the end of 2008, but no longer falling dramatically.

The Puget Sound office market's recovery is firmly underway as evidenced by just over one million square feet of positive absorption over the third quarter. Tenants on the Eastside grew by close to 388,000 SF while occupancy in downtown grew by 466,000 SF. Total vacancies dropped over 100 basis points in the overall Puget Sound market place with the Eastside and Southend accounting for a large share of the drop in vacancy at 130 basis points each. The market numbers have improved over the last two quarters and year-to-date absorption for the region totals a positive 702,000 SF.

The sale of fully-leased buildings with credit tenants was pervasive in the third quarter. Phoenix-based Cole Real Estate bought City Center Plaza in Bellevue CBD for \$310 million, or approximately \$532.00 P/SF, from Beacon Capital Partners. The building is fully leased to Microsoft, re-anchoring until 2024. Schnitzer is shopping up its portfolio as well with the sale of Advantage Office Commons in Bellevue and Equinox Apartments in Seattle for a combined \$306 million. The price of Advantage Office Commons was estimated at \$240 million or \$400.00 P/SF, while the Equinox apartment project sold for \$66 million or roughly \$316,940 per unit. Schnitzer has also sold two office towers and the parking garage of the Browns in Bellevue. The sale consisted of 755,000 SF, fully leased to Microsoft for a total of \$410 million or roughly \$547.00 P/SF.



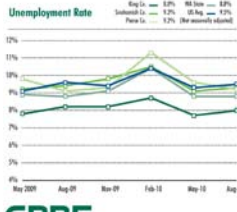
The Puget Sound experienced its first dip in vacancy since the start of 2008, finally falling below 20% to 19.5%. The new trend reflects the area's increase in market activity as well as the ongoing growth of Amazon.com into its new campus in South Lake Union. This quarter Amazon.com continued its expansion by moving into 205,000 SF at 2201 Westlake, and 138,233 SF Phase II at 500 Aurora Avenue, from its former headquarters in Beacon Hill's Pacific Medical Center. The Seattle CBD submarket experienced 171,651 SF of positive absorption bringing the region's largest submarket down from 21.5% to 19.9% vacant. Eastside vacancies dropped from 19.0% to 17.4%, largely due to Digiplex moving into 102,356 SF at Walling Commons Park from a building on the Nintendo campus, and increases in market activity.

Third quarter Class A asking rates remained consistent at \$27.71 P/SF, full service, nearly mirroring last quarter's asking rate of \$27.79 P/SF. The rates in the major downtown areas of Seattle and Bellevue each decreased slightly to \$29.80 and \$30.61, respectively. The Bellevue CBD's premium over downtown Seattle narrowed to \$0.81 from \$1.09 as high vacancies continue to put pressure on asking rates. Across the board the region's submarkets experienced a slight rate decrease, except for the Tacoma CBD, which rate rose to \$24.48 over the previous quarter. Over the past four quarters the region has maintained stable rates as rates have remained within \$0.50 of \$28.00 P/SF, full service.

In contrast to last quarter's delivery of nearly 800,000 SF of additional space to the market, third quarter saw the second lowest level of construction completions since early 2008 adding only 158,333 SF. Coupled with an across the board increase in market activity, the Puget Sound region experienced an astounding 1,077,536 SF of positive absorption. The most recent phase of Amazon.com's move accounts for only 343,333 SF of this absorption, with the Seattle CBD contributing 171,651 SF and the Eastside adding another 419,232 SF of positive absorption. Construction continues on the remaining stages of Amazon.com's 1.7 million SF campus as well as 900,000 SF in phase I of the future Bill & Melinda Gates Foundation's global headquarters, scheduled for completion in the spring of 2011.

Market Statistics

Submarket	Building	SF	Total Vacancy %	Class A Avg. Asking Rent		Class A Avg. Asking Rent		3Q Net Absorption	Last 4 Qtrs Net Absorption	Under Construction
				Lease Rate	Full Service P/SF	Lease Rate	Full Service P/SF			
Seattle CBD		2,274,899	19.0%	\$28.11	\$35.17	\$16,370	142,577	---	---	---
Westbank		2,206,493	14.2%	\$27.88	\$24.96	(42,772)	254,860	---	---	---
Pearle Square		3,925,789	27.7%	\$28.79	\$26.53	(38,208)	(231,075)	---	---	---
Berry Boulevard		8,959,851	24.3%	\$31.54	\$31.81	28,086	(6,772)	---	---	---
Lower Queen Anne		1,047,633	17.1%	\$33.83	\$32.93	5,514	(31,765)	---	---	---
Lake Union		4,538,518	16.2%	\$30.36	\$29.74	385,936	794,271	744,223	---	---
Central		1,227,822	15.9%	\$26.87	\$26.14	(27,229)	(45,480)	---	---	---
Downtown Seattle		42,306,841	20.8%	\$28.92	\$29.88	446,716	463,338	768,225	---	---
North Seattle/University		2,344,990	19.4%	\$24.11	\$22.39	52,679	(44,578)	---	---	---
Capitol Hill/Seattle Center		1,116,975	21.6%	\$23.83	\$22.98	5,980	(6,529)	---	---	---
South Seattle		1,442,831	28.7%	\$24.47	\$24.47	2,225	(22,719)	142,250	---	---
Seattle Class A		4,906,816	22.5%	\$24.44	\$23.29	39,954	(49,758)	141,200	---	---
Sea-Tac		871,108	21.1%	\$22.70	\$22.47	(8,440)	6,116	---	---	---
Alameda		2,988,168	14.4%	\$30.26	\$30.21	3,862	25,142	57,800	---	---
Bellevue		3,125,222	12.4%	\$31.56	\$30.75	3,993	6,258	---	---	---
East		3,222,046	32.2%	\$21.28	\$21.29	(1,941)	(28,701)	---	---	---
Alkum		287,025	8.0%	\$19.50	\$19.50	0	790	---	---	---
Tacoma Hill		2,102,933	39.1%	\$20.10	\$20.09	118,531	29,351	---	---	---
Southend		9,808,222	22.1%	\$21.04	\$20.89	128,255	32,156	57,800	---	---
Bellevue CBD		3,925,801	16.2%	\$31.86	\$30.61	131,581	(261,049)	---	---	---
I-405		1,292,751	17.5%	\$25.77	\$25.87	(4,158)	(28,342)	---	---	---
SK 528		2,571,507	19.6%	\$25.89	\$26.48	10,482	(60,444)	---	---	---
I-90		1,561,265	14.4%	\$30.39	\$28.86	47,879	114,166	145,320	---	---
Ball Ball Road		1,308,899	13.8%	\$29.22	\$27.31	(6,251)	(82,522)	---	---	---
Kirkland		1,665,875	25.1%	\$26.53	\$26.44	9,621	(2,644)	---	---	---
Redmond		4,247,895	22.4%	\$28.25	\$29.71	121,478	38,255	---	---	---
Bothell		3,016,563	17.7%	\$22.31	\$22.38	(2,527)	165,038	---	---	---
Eastside		30,121,214	12.4%	\$28.76	\$27.44	307,089	254,291	146,328	---	---
Lynnwood/NOVA Tech		2,522,650	29.2%	\$21.00	\$24.11	71,844	(58,488)	---	---	---
Issaquah		1,686,226	10.5%	\$22.15	\$22.15	1,033	(22,224)	---	---	---
Northend		4,159,385	21.9%	\$24.78	\$24.12	22,857	(88,914)	---	---	---
Issaquah CBD		2,828,792	13.9%	\$28.48	\$27.48	27,489	15,807	---	---	---
Issaquah Suburban		1,152,241	7.8%	\$22.43	\$22.43	(6,837)	(4,229)	---	---	---
File		213,294	14.4%	\$20.86	\$20.86	1,055	(6,276)	---	---	---
Payette		304,830	13.7%	\$20.55	\$20.55	(6,952)	(14,127)	---	---	---
Tacoma/Fife		1,900,857	12.4%	\$22.78	\$23.20	11,785	(4,311)	---	---	---
Market Total		95,923,265	19.3%	\$28.68	\$27.71	1,077,536	491,276	1,136,549	---	---



MarketView Puget Sound Office

Local Offices

RECKENBERG PROJECT MANAGEMENT

Seattle
1420 Fifth Avenue
Suite 1700
Seattle, WA 98101
206.292.1000

ASSET SERVICES

191 First Street
Suite 2100
Seattle, WA 98101
206.223.0300
206.292.1400
Seattle, WA 98101
206.223.0300

1545 Broadway Plaza
Suite 500
Bellevue, WA 98004
425.633.0200

20415 72nd Avenue South
Suite 210
Kent, WA 98032
252.872.9000

1915 Broadway Plaza
Suite 500
Bellevue, WA 98002
252.872.6205

CONCRETE PERK

22118 22nd Street SE
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Bellevue, WA 98003
425.463.1366

Seattle Management Center

700 Fifth Avenue
Suite 4040
Seattle, WA 98104
206.424.7855

VALUATION & ADVISORY SERVICES

1420 Fifth Avenue
Suite 400
Bellevue, WA 98001
206.292.4722

CBRE CAPITAL MARKETS

1420 Fifth Avenue
Suite 1700
Seattle, WA 98101
206.826.6400

Office Submarket Map

MARKET AREA DESCRIPTIONS:

Downtown Seattle
Downtown Seattle consists of 42,306,841 SF (14%) of the office market U.S. It includes office buildings west of 5th Ave to 5th Ave in Fremont to East Broadway near the stadium.

Seattle Class A
Seattle Class A consists of 4,906,816 SF (5%) of the office market U.S. It includes office buildings within the city limits of Seattle, Snohomish and Lake Union Park, but excludes the downtown submarket.

Southend
The Southend consists of 9,808,222 SF (10%) of the office market U.S. It comprises all of King County south of Lake Washington.

Tacoma/Fife
Tacoma/Fife consists of 4,308,217 SF (4%) of the office market U.S. It comprises Port Tacoma.

Eastside
The Eastside consists of 30,121,214 SF (31%) of the office market U.S. It comprises all of King County directly west of Lake Washington, plus the portion of Bothell extending into Colville/Snohomish County.

Northend
The Northend consists of 4,139,385 SF (4%) of the office market U.S. It consists of Suburban Tacoma except that portion of Market extending into Snohomish County.

Market Coverage
Includes of market covered, Class A, B, & C office buildings 10,000 SF and greater in size.

Building SF
The building space footage shows the absolute count, floor, pipe depth, vertical duct, balcony and enclosed areas as reported.

Vacancy %
Vacant space for either direct or total (direct and sublease combined), divided by the building space footage as reported.

Average Asking Direct Lease Rate
The average price asking lease rate for each building included in the count of direct vacant space, normalized for all buildings in a submarket and then divided by the total amount of direct vacant space.

Full Service Lease
Lease type whereby the landlord pays all of the operating expenses and taxes for the property, including utilities, insurance and maintenance expenses. Increases in operating expenses after the first year of the lease may be passed to the tenant.

Class A Space
The most prestigious buildings competing for premium office space with such diverse tenants in the area. These buildings have high quality finished interiors, state of the art systems, exceptional accessibility and a definite market presence.

For more information regarding the Puget Sound office market, please contact:
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**APPENDIX D:
SAMPLE STANDARD DOCUMENT FROM LATIN AMERICA**

CB RICHARD ELLIS
MarketView
Mexico City Office Market
 Third Quarter 2010

Quick Stats

Vacancy Rate	1.3%	↑
Avg. ASL	\$22.78	↓
Under construction	851*	↓
Absorption	63**	↓

* Under construction
 ** Absorption of space

- Hot Topics
- The average sublease space price registered US\$26.41/sqm/month at the closing of the quarter. Only 2.8% of the available space corresponds to sublease space.
 - Vacancy increased slightly from Q2, registering 9.4%.
 - Close to 92,000 sqm will be added to the Class A+ inventory by year's end.



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In October 2010, the Mexican government raised its GDP growth estimate for this year, from 4.5% to 4.8%. This reflects an economic recovery that continues to gather momentum, based on growing external demand for non-oil products, employment, and domestic demand. The latest economic data is stronger than expected, including retail sales that grew 4.4% in August from a year ago. The increase in retail sales was double market expectations, and the fastest year-on-year growth since May. Mexico's GDP grew 5.9% in the first half of this year, led by export manufacturing.

More good news -- in August 2010, non-oil exports increased 35% percent, which means a return to pre-crisis levels. Industrial production grew at an annual rate of 5.4% in July 2010; likewise, manufacturing grew 15.8% percent. Automotive production registered an annual increase rate of 53% in August. Furthermore, the employment rate for the period January-September 2010 is the highest it has been in the last 10 years.

The Class A/A+ office market is experiencing a construction boom. More than 950,000 sqm (mostly office, some mixed use) space are currently registered under construction. Year-to-date more than 170,000 sqm of office space have been delivered, and an additional 92,000 sqm are scheduled to come online in Q4. New construction is primarily located in the Polanco, Reforma Centro and Santa Fe submarkets, with 45%, 28% and 17% respectively.

Given this level of supply (84,000 sqm in Q3 alone), the vacancy rate increased, though not by much, as absorption was quite strong. The market average price did fall, but again, not by much -- and Class A+ product posted lower vacancy and higher prices than in Q2. Though demand is strong, it isn't matching the supply, so we expect vacancy rates to rise and prices to fall a bit further this year as more of that product comes online.

1. Mexico: Mexico News 2010 GDP Growth Estimate October 2010
 2. Mexico: Mexico News 2010 GDP Growth Estimate October 2010



In Q3 the vacancy rate increased slightly, from 9.2% to 9.4%. Though absorption was strong, new supply in the Santa Fe and Polanco submarkets exceeded market activity.

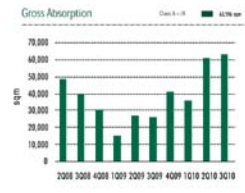
The submarkets that registered the highest vacancy rates were: Polanco, with 16.2%, 14.4% and 11.0% respectively. Polanco's relatively high rate was influenced by the entrance of the Times Humboldt, which currently has 7,000 sqm available.



The average rental price fell 77 cents during Q3, and now stands at US\$ 22.73/sqm/month. The huge amount of supply, especially in the Class A market, is responsible for the decline, as one project was priced at only US\$ 19.00/sqm/month, which is very low for buildings of this caliber.

The submarket with the highest average price was Reforma Centro with US\$ 30.34 /sqm/month, followed by Lomas Palmas with an asking price of US\$ 30.17 /sqm/month.

At the close of Q3, the rental price of sublease available spaces increased from US\$ 24.70/sqm/month to US\$ 26.41 /sqm/month.



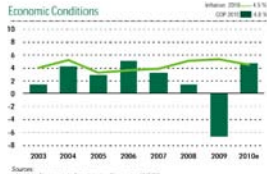
In Q3, market activity registered nearly 63,000 sqm, a figure that represents 3% more than what was reported in the previous quarter. The highest commercialization was registered in the Santa Fe, Lomas Palmas, Insurgencias, and Bosques.

Of the total commercialized in the quarter, Class A spaces comprised 35,000 sqm, or 54%, and the remainder was Class A+ space. Given the economic growth and rising demand as evidenced by Q2 and Q3's strong numbers, we expect similar or higher absorption levels in Q4.

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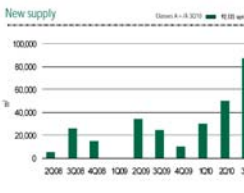
Total Inventory Office Market Class A+ / A

Submarket	Number of Buildings	Total Inventory sqm	Available Sqm	Vacancy Rate	Average Asking Lease Price US\$/sqm/month
Bosques	22	278,974	25,450	11.6%	\$ 25.50
Insurgencias	21	293,726	47,449	16.2%	\$ 24.24
Insufurmas	8	54,229	4,577	8.14%	\$ 19.53
Lomas Palmas	4	77,711	5,476	6.9%	\$ 22.58
Lomas Palmas	15	484,064	14,922	3.0%	\$ 30.17
Polanco Sur	30	342,444	29,340	8.57%	\$ 23.27
Polanco	5	37,435	14,275	38.0%	\$ 18.19
Polanco	39	388,363	1,258	0.3%	\$ 25.56
Reforma Centro	8	237,201	9,473	3.99%	\$ 30.34
Santa Fe	44	963,519	138,148	14.44%	\$ 21.44
Total	241	3,063,928	295,477	9.59%	\$ 22.73



The government just announced an upward revision for the 2010 GDP estimate, now at 4.8%. Inflation is expected to close the year at 4.5%. Mexico's budget deficit should shrink from 0.7% of GDP in 2010 to less than 0.5% of GDP in 2011, with the goal of returning to balanced budget in 2012.

In the financial markets, the short term bonds (28-day CITES) should finish the year at 4.5%, the TIEE is expected to close at 4.9%, and the 10 year bond is positioned at 7.1%.



At Q3's end, 92,000 sqm were added to the Class A+ inventory due to the construction completion of the "Serranos" buildings in Santa Fe (3 towers) and the "Times Humboldt" buildings in Polanco (2 towers). Mexico City's inventory is now more than 3 million sqm.

In Q3 an additional 950,000 sqm were registered under construction, of which 29% will be delivered in the 4Q10.

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Mexico City Office Market
 Major Transactions during 3Q10

Sqm	Tenant	Submarket
6,138	Mead-Johnson	Polanco
5,181	Canadian Embassy (Pre-lease)	Polanco
1,638	Quarqout	Periferico Sur

Average Asking Lease Price is determined by multiplying the average price of each building included in the inventory by its respective available space; the products are added and divided by the total available inventory space.

Market Coverage: All buildings classified by our company as "Class A" in the principal market areas.

Rentable Surface: Refers to the surface or net rentable area, excluding common areas.

Classified Surface: Rental surface which is not vacant.

Vacancy Rate: Vacant square meters divided by the total surface or rentable surface.



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