An Information Interface for Corporate Identity System

Yu Lin Hsu

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National Institute for Design Research
Faculty of Design
Swinburne university of Technology

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Abstract

In the modern information era, communication between customers and designers must be efficient and systematic, streamlining the design process. Design processes should be interactive and effective. The Corporate Identity Information Service System (CIISS), based on a network platform, achieves this, allowing customers to participate in and evaluate the design of Corporate Identity Systems (CIS). This personalized information service system integrates corporate logos, terms and their application to merchandise, helping customers to visualize concepts and generate designs in real-time via the network.

This research analyzes various branches of the network environment, such as cyberspace communities, media content, market distribution and user interaction tools, specifically targeting consumer-oriented customized services. It incorporates a study of consumer perception of corporate logos, using the Semantic Differential method. Taiwanese finance industry trademarks are used as examples to investigate customer impressions and preferences. This provides a method for generating customer feedback on the design of logos and trademarks, applicable within the CIISS.

The potential for the application of Chinese calligraphic fonts within the CIISS is also explored. A database of calligraphic characters was created by digitizing texts into multi-vector graphics, thereby allowing any single character to be used as a base for composition. New calligraphic templates were also generated from the charter stroke counts or character radicals in an existing database, allowing new characters or slang to be presented in traditional style. This provides a convenient and prompt application of vector calligraphic art in the design of CIS.

A network system was developed to support a customized commercial system for CIS design. Interfaces and object-oriented methods were integrated into an online real-time publishing information system with a database and search engine. Designers and customers are able to utilize digitized images of merchandise, corporate logos and wordings and retrieve relevant information on corporate logos, symbols, color schemes and specific
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wording simultaneously. This system provides rapid communication through a real-time display and customized information service, making the process of CIS design more efficient for both designer and customer.

Keywords: Corporate Identity System; CIS; Database; Search Engine; Method of Semantic Differential.
I am eternally grateful for the help of the people listed here. First I would like to thank my principal supervisor, Professor Allan Whitfield, for having the patience and understanding to work with me in this endeavour. Without his support, advice, and guidance, the design research could not have been completed. I would also like to thank Ms. Simone Taffe, for her advice and help throughout my experience whilst studying for the Doctor of Design. Her thoughtful advice has helped me to reach this point. Also, thanks to all staff members and friends at the National Institute of Design. With their recommendations and assistance, I have been given the needed resources to complete this design thesis.

Additionally, I am immensely grateful to my family. Thanks to my wife Chun-Jing Ye for her patience and understanding so that I could devote myself to this overseas research. Therefore, this design research is dedicated to my wife and my children Mike and Alice. With their support the completion of this project has been made possible.
Declaration

I certify that thesis entitled: An Information Interface for Corporate Identity Systems submitted for the degree of: Professional Doctorate in Design is the result of my own research, except where otherwise acknowledged, and that this thesis in whole or in part has not been accepted for an award, including a higher degree, or any other university or institute.

Full Name: YU LIN HSU

Signed..........................................................Date..............................
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Chapter 1
Introduction and Summary of the Research

1.1 Introduction

Corporate identity design, also known as corporate image design, is a strategic activity by which corporations project their culture and values to the wider society and create a unique and unified image of their business concept and activity.

Corporate identity, or corporate image, is a vital component of brand image. Through various forms of communication and media, corporate image is conveyed to, and imprinted on, the mind of the consumer. Corporate identity exists whether or not the corporation places great value on its identity or image. Therefore corporations are given an edge in a competitive market if they can take the initiative to shape an image that reflects what is genuine and unique about the corporation in such a way as to maintain consumer awareness and promote a positive image among consumers and the general public. If a corporation has a vibrant, systematic corporate identity system that is effectively communicated through visual identity, then its prospects for development and expansion are greatly increased.

Corporate symbols and logotypes are important components in the design of a corporate identity system; they compose the trademarks of corporations. As information technology progresses, many designers are adopting information systems such as computer-aided logo design systems, or CALDS, in the design of trademarks (Mitchell 1986). Yet the application of CALDS to trademark design is often limited to single-machine operations and the system technology is relatively exclusive. This leaves an unsatisfied demand for modern corporate trademark design despite the powerful
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functions and potential of such software.

Information Technology applications and network computing technology have emerged as powerful visual design tools in recent years, pushing modern visual design to evolve and diversify (Bai 1995; El-Said et al. 1997). Internet-based visual design technology is a particularly critical element, leading visual design into the realms of both globalization and customization (Nilsson et al. 2006).

An important application of the Internet is found in web-based, cross-platform information exchange systems. As computer and network technology have improved, web-based information exchange has evolved from text-only information to multimedia, including images and audio. Web-based visual identity design technology may provide the foundation for corporations to realize multi-platform, cross-regional and customized visual identity design.

A web-based customized logo design system can assist the modern corporation to rise to the challenge of the globalize environment. The trend of the development of computer-aided logo design systems is already towards web-based networks and it is paramount to continue this development and construct a web-based customized logo design system. This is the goal of this Professional Doctorate.

1.2 Brand Visual Identity Design

Brand is an intangible asset for a corporation; its qualities, features and overall meanings are the building blocks of brand equity. In the modern market economy people develop a shared viewpoint about a brand; a brand is not simply synonymous with a particular product or service but includes the entire reputation, performance and competitiveness of a corporation. The development of a brand further represents the economic and technological standards of a region, even a country. Brand image is an ideology that consumers carry in their thoughts and feelings, ultimately
affecting their purchasing decisions towards products and services. In the analysis of production and consumer behavior, Belk (1988) concludes that a corporation’s brand image is projected through corporate image, consumer image and product or service image. Corporate image is also referred to as corporate identity, an ideology that a corporation projects to its customers.

1.3 Summary of the Research

The purpose of this study is to build a web-based customized Corporate Identity System, with a search engine to facilitate logo searching, suggest logos and assist in the design processes.

This web-based system should be icon-oriented, based on a database of corporate logos, logotypes and applicable product modules. With the assistance of such a system, designers and clients can generate a customized design process. They can find the logo, logotype and the supplementary design elements from the databases and apply them to business items, banners, packaging, uniforms, transportation and so on, using the online search engine. From this integrated platform, the basic elements of Corporate Identity Design can be modularized, edited and presented immediately on the internet, providing designers and their clients with the most time efficient means of communicating and testing ideas.

This thesis aims to demonstrate that the system generated as the practical design component of the Professional Doctorate can provide designers and their clients with easy access to diverse and customized design elements for use in unique corporate logos and logotypes. The colors and symbols of the corporate logos can also be edited immediately via the internet, effectively shortening the design process.

This thesis refers to three distinct projects undertaken as part of the Professional Doctorate, which are all relevant to the overall theme of developing corporate identity systems via web-based technology. Chapter Two provides an overview of the historical precursors to the corporate
identity system, specifically tracing the development of trademarks, emblems and finally the more modern identity systems. Chapter Three provides justification for the development of the Corporate Identity Information Service System, through an understanding of networking and design of the system itself. Chapter Four focuses specifically on logo development and reports a study of consumer perceptions of logos using the semantic differential technique. Chapter Five explores the value of calligraphic fonts and outlines a method for creating a database of traditional Chinese calligraphic fonts using vector files and thereby making a much vaster array of characters electronically accessible and malleable.
Chapter 2

Literature Review: Historical Precursors to the Corporate Identity System

Trademarks, marks and emblems have a rich tradition throughout human history. The purpose of this chapter is to understand the role and meaning of corporate symbols from a historical perspective.

2.1 Trademarks

In its earliest forms the trademark was accepted as a general mark of identification. Each company, guild and shop had its own name or symbol. Symbols were composed of various elements, such as illustration, text and pattern (Chen 1988).

Fig. 2.1-1 An “imperial seal” carved with the Six States calligraphy (Chen 1998).
Trademarks carried a similar meaning to that of the imperial seals, personal scarlet seals, official seals, personal name seals, chops and identity symbols with authority in traditional China. In Western society trademarks are regarded as an identity certificate and legal seal; they represent authority and financial power. In the modern world of business, a trademark symbolizes a sustainable business and denotes legal right and liability. As a result, a trademark may be regarded as an intangible asset of enterprises.

Historically, a multitude of materials and designs have been used in the creation of trademarks.

(1) The water mark is considered a Chinese invention of Concaved pattern. It originated in the first century and later spread to Europe where it was widely used in Italy and Germany (Chen 1998).
The first known watermarks date from the thirteenth century in Italy and later spread to Europe, where it was widely used in Italy and Germany (Per Mollerup 2000).

Fig. 2.1-4 Watermark, dragon, Florence, 1375-1377. Reggio d’Emilia, 1439. Ferrara, Italy, 1501. From left to right. (Per Mollerup 2000).

(2) The branding mark refers to the mark made by branding a symbol or letters on merchandise, such as that used for marking cows. In Egypt, tombstones dating from 3000 B.C. depict domestic animals with brands. At the tomb of Khemuheted (tomb no. 3) at Beni Hassan dating from 1900 B.C. (the twelfth dynasty of the Middle Kingdom), a painting shows a man leading an ox by a rope. The ox is measuring about one square foot. (Per Mollerup 2000)

Fig. 2.1-5 Tomb of Khemuheted at Beni Hassan, Egypt, 1900 B.C. (Per Mollerup 2000)
Fig. 2.1-6 Detail of fig 2.1-5. The text of the brand on the ox says ‘Royal Agriculture Administration, 43’. (Per Mollerup 2000)

(3) The ceramic mark was a boss mark used in Ancient Rome to identify construction materials such as ceramic titles, bricks, and slates. One example, the ceramic mark of FORTIS, was discovered in Moda, northern Italy (Chen 1998).

Fig. 2.1-7 Ceramic mark of FORTIS, discovered in Modena, northern Italy (Chen 1998).

(4) The Printers’ Mark. Early Printers’ marks were cut in wood or metal and printed on the title page or at the end of the book in black or red. The world’s first printers’ mark was used by the printers who took over some of Johann Gutenberg’s typefaces after a court case. Printers’ marks were not legally protected; this mark was later adopted and used by several other printers. (see Figure 2.1-8) (Per Mollerup 2000)
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Fig. 2.1-8 Johann Fust and Peter Schoffer, Mainz, Germany, 1457. (Per Mollerup 2000)

(5) The Hall Mark was a mark of authority and authenticity used by the Goldsmith Guild of London in about A.D. 1300. Gold and silver collectors recognized the hall mark as a mark of evaluation of the content and purity of heavy metals. (Per Mollerup 2000)

Fig. 2.1-9 British hallmarks on a silver tray from 1924.

Fig. 2.1-10 British hallmark of standard mark for sterling silver, 1924.

Fig. 2.1-11 A sponsor’s mark, 1924.
(6) Trade Mark. This precursor to the modern trademark was widely used in Europe in the late 13th century. Its initial function was to identify merchandise and businesses, and it gradually came to be used by specific enterprises to obtain legal protection through registration (Chen 1998).

2.2 Emblems

The Emblem was widely used in European feudal society with a strict structure and standard. It served the purpose of recording hereditary traditions and could include portraits, objects and other drawings (see fig. 2.2-1). Historical records suggest that German nobles started to use emblems in A.D. 1010, after which their use spread to other parts of the world via
France (Chen 1998). Families also created crests and emblems as a way to project and preserve their position in the social hierarchy. For instance, the famous Visconti family of Milan, with origins traceable to the fifth century, used the viper as their family emblem, preserving a legend that the family had once killed a dragon-like monster that had threatened the residents of Milan (Chen 1998).

![Fig. 2.2-1 Viper crests of the Visconti family in Milan, Italy (Chen 1998).](image)

With the exception of traditional enterprises such as the military, schools and private organizations, modern businesses seldom use emblems as trademarks and signs. Western emblems have been gradually phased out according to the demands of modern business for simple and recognizable abstract signs. Emblems that continue to be used convey a sense of tradition.

![Fig. 2.2-2 The Danish noble family Rosenkrantz took their name from their arms. (Per Mollerup 2000)](image)
as classic and decorative symbols.

Fig. 2.2-3 Pattern of the emblem (Royal Arms) of Great Britain (Chen 1998).

2.3 Identity Systems

In the course of human civilization different races have lived alongside each other, gradually developing a sense of belonging and identification based on interdependence. The development of systems to manage various affairs became necessary, and symbols that represent clans and tribes were developed for people to know their own group (Chen 1998).

In order to consolidate the position and authority of leaders, different groups were established to manage various public affairs. The establishment of groups or departments created positions of varying rank and title through which to promote and execute policies.

Following the development of clans, tribes and finally states, feudal society began to take shape. Signifying authority became more important, with symbols of rank, particularly in the military, marking the beginning of visual identification systems (Chen 1998).
During the Renaissance period of 1454-1632, in order to expand its religious power the Roman Catholic Church created a unified visual representation of the church organization by such means as clothes, ceremonial objects and the structure and style of churches (Chen 1998). This remains one of the most complete visual systems still observable in contemporary society.

Fig. 2.3-1 Arms of King Richard II of England (1377-1399)

Fig. 2.3-2 Clergy of the Roman Catholic Church (Chen 1998).
2.4 Corporate Identity Systems

In the 18th century the Industrial Revolution began in Great Britain. Economic activities boomed and a multitude of new products were invented. Machines took over manual work, resulting in mass production and increased economic growth and competition leading to the establishment of corporations. Corporate identity began to take shape as a way for corporations to establish a presence in the market. At the same time, international trading companies prospered, with an emphasis on the operation of large scale trust enterprises (Wang 2000).

Prior to World War I Peter Behrens designed a complete identity system for AEG Germany, inaugurating the era of the systematic design of modern corporate identity. Widely considered the father of German industrial design, Behrens may also be seen as the founder of the concept of corporate identity. Behrens was the first person to create logos, advertising material and company publications with a consistent, unified design (Wang 2000).

Company AEG, Germany Design Franz Schwetchten, 1886. Redesign Otto Eckmann, 1900 and Peter Behrens, 1907-8.

Fig. 2.4-1 Developments of the AEG trademark. (Per Mollerup 2000)

During World War II, production was most influenced by concerns with functionality and safety. The end of the war however brought great economic and social change. Economies moved into a new era of internationalization.
Establishing a standardized and complete corporate visual identity became all the more important.

The 1950s was a flourishing time for visual identity design theory (Yagou 2003). This coincided with the transformation of the business market into more of a buyer’s market than a seller’s market, marking the beginning of the era of mass marketing. Visual identity design grew within this environment. The understanding of the importance of strong visual identity evolved, with the business community beginning to take visual identity design theory seriously. Designers generally began to pay more attention to this broader perspective and several corporate trademark designers put forward their own ideas.

One such designer was Paul Rand, creator of the logo for the International Business Machine Corporation (IBM), who maintained that trademarks needed a very simple form for identification and longevity.

![Fig. 2.4-2 Developments of the IBM trademark](image)

In fact, IBM introduced the first organized and standardized corporate visual identity design in 1955 in an attempt to improve its international competitiveness. The success of the IBM brand through its visual identity paved the way for Eliot Noyes’ formation of the concept of overall corporate visual design. Noyes claimed that design should not only focus on formality and theme but also longevity and continuity of image, as well as design quality. Longevity and continuity are the essentials of corporate image
Prior to the invention of television, trademarks were mostly used in the packaging and advertising of merchandise. They had fixed marks, coloring and fonts. Television broadcasting however brought a wealth of new possibilities for design. Television as a new form of mass communication spread social phenomena and greatly expanded the reach of advertising, including the range of possibilities for defining and projecting corporate image.

The first broadcaster to create a corporate image identity was CBS, and the most influential person in the generation of this image was its design director, William Golden. (*The CBS Eye* 50th anniversary)
On Oct. 17, 1951, CBS unveiled the CBS Eye, destined to become an American icon recognized and respected around the world and one of the best crafted, most identifiable and most successful corporate symbols in history.

The CBS Eye, first aired on Saturday, Oct. 20, 1951 during the Network's station breaks, changed the way corporations of the day designed their trademarks and accelerated the maturation of corporate image design (Dorroh 2005).

In the 1960s, American businesses started to pay attention to the results of the systematic corporate images created by corporations such as IBM and CBS. One such business was American Containers Incorporated. The development of their corporate image design was led by Ralph Eckerstrom, who claimed that the purpose of corporate image design was to present the general characteristics of the operation, management and product range of an enterprise (Lagana 2004). The most distinctive design for American Containers Incorporated was created by John, in an attempt to create an international style.

2.5 The Development of Corporate Identity Systems in Japan, Taiwan and South Korea

In the late 1960s, Japanese corporations such as TDK and Mazda began to establish their corporate identity. Daiei supermarket established its corporate identity in 1971.
Corporate Identity was first introduced in Taiwan by the Formosa Plastics Corporation in 1967 with a trademark designed by Kuo Shuh-Siung. He used waves as the outer frame to suggest the integration of numerous affiliates of the Formosa Plastics Corporation, and the continuous and sustainable development of the corporation (Chang 1994).
1975 onwards saw a heightened awareness of brand visual identity design among Japanese companies, influenced by the European and American corporate visual identity design trend. Japanese companies initially relied on celebrated European and American designers and leading design companies. They eventually began however to see the value of local cultures and concepts and introduced these into their visual identity design, creating new designs rich with Japanese ethnic features. (Nakanishi 1994)

In the beginning of the 1980s Taiwanese companies followed suit, introducing brand visual identity design. Large enterprises such as the China Petroleum Corporation, Uni-President and major banks raced to adopt visual identity design to improve their position in industry, particularly internationally (Chang 1994). Acer Computer from Taiwan marketed its brand globally to successfully become a world class computer brand (Chang 1994).

South Korean enterprises also began to introduce brand visual identity design in the late 1980s. The South Korean government gave generous support to enterprises to introduce brand visual identity design in an attempt to help South Korean companies compete in the international market.
2.6 Contemporary Corporate Trademarks

Apart from a few exceptions, trademarks of domestic companies of Taiwan tend to be complicated (Chang 1994). Adequately presenting a company’s style and culture determines the success of trademark design. Trademark is the most important element in the design of a corporate identity system. Corporate graphic symbols, group marks, registered trademarks, and corporate script marks are types of corporate trademarks with different roles and functions. Corporate trademarks differ in form through the use of text, symbols and graphics in various combinations (Nakanishi 1994).
Coca-Cola has the highest brand value in the world. In order to maximize the potential of global marketing we must think about how to most appropriately express the spirit of the corporation through the brand. Carlsberg beer is another example of a brand with a global operation strategy for brand unity.
2.7 Contemporary Methods for the Design of Corporate Identity Systems

A web-based design system can support fast and effective communication, facilitating the establishment of a Corporate Identity System that meets the needs of contemporary business for mass production, efficiency and systematization.

Designs progress with the help of a web database that provides both the design elements (symbols, fonts and colors) and customization through the modulation of standard designs. This simplifies and integrates design procedures. The internet platform ensures instant presentation, maximizing the efficiency of communication between designers and clients. This mode of design of Corporate Identity Systems needs to be distinguished from traditional design methods and it is therefore termed the e-design of Corporate Information Systems.

The design services provided by most web-based CIS design companies in the era of Web 1.0 were one-way communication; information was generated by websites and delivered to users to browse and query. The emergence of Web 2.0 has changed the above model; information delivery has become two-way interaction in which users are provided with a platform to actively participate in the content generation process. Another important
trend for Web 2.0 is the application of collective intelligence. Through the
content provided by users and their involvement in the network platform,
the platform is now more effective as it involves users, content providers and
content administrators at the same time.

The majority of the clients are not design experts however; this is where
Corporate Identity Information Service System (CISS) comes into play in the
design process to effectively generate the concept of CIS in a fast manner.
This is exactly what I mean by the CISS design concept. When users cannot
locate the required information in the database, the best approach is to utilize
the uploading service to upload its own innovative logo designs into the
database. Two business models thus emerge; one produces customized
products via CISS, and the other shares or auctions out personal innovation.
New interactive business models can then be generated (fig.3.1-3, The 4
business types of network marketing). In Chapter Three, I will clearly
illustrate my ideas of the CIS design process in Web 2.0’s integrated
technology platform. If each and every user is also the content provider
willing to share his or her own work, uploading his or her design elements
and then integrating them with the backend database server, we can then
combine the efforts of a group of people to rapidly expand the content of the
database and at the same time provide a service system. This is the spirit of
Web 2.0 at its best.
Chapter 3
The Corporate Identity Information Service System

3.1 Introduction to Network Services

Introduction to Network Media

Web media, with its properties of interaction and interconnection, differs from the mass media. Its interactivity is accelerating market segmentation into groups and individuals. The orientation of the mass media towards the general public can make it difficult for individuals to obtain personally relevant and usable information. The Internet however provides the capability to deliver content automatically to diverse groups and individuals, making it an effective and efficient means of communication. Network technology may be seen to offer the best media and marketing opportunities, providing information, audio and video, and the ability to search and customize. Content can be personalized through mechanisms such as an online log-in and options to voluntarily select and save information. This may be termed ‘network media’ (Sakagami et al. 1998; van Amstel et al. 2000; Lee et al. 2001).

Network technology has brought great change to broadcast media, particularly as a mode of delivery that eliminates many of the constraints of time and space. Thus, the Internet provides a new kind of mass media and plays a new and inspiring role in contemporary society.

Media presentation may range from simple and static to real-time and dynamic. Network interactive media integrate traditional media and mass communication with the ability to tailor content for specific groups such as regional communities (Norderhaug & Oberding 1995; Chau & Xu 2007).

In order to effectively deliver information to groups and individuals, media content can be divided, for instance according to gender or population,
thereby satisfying different audiences. This may be seen as an extension of the market segmentation that occurs in print media through the production of different periodicals and magazines for various interest groups. Media can also be produced according to region, delivering content of unique local relevance.

**New Opportunities for Interaction through Network Media**

Networks create new opportunities for interaction. Websites and e-newspapers for example create close ties among network communities. In addition, web media support interaction among multiple individuals; an individual may take the initiative to join other people who share the same interests or agendas. The result of such interaction is an increase in public debate and the flow of information. Communication occurs within and between small groups through such facilities as chat rooms and Bulletin Board Systems, to online student associations and clubs and eventually to broader groups and the general public, creating a ‘media network’ (Sakagami et al. 1998; Chau & Xu 2007).

![The 4 types of Media Interaction](image)

**Fig. 3.1-1 The four types of Media Interaction.**

**New Opportunities for Interaction through Network Space**

Millions of users interact on networks, building a new virtual space and attracting more traffic to the network. New cyberspaces produced from such
traffic can be divided into community space and community buildings (Truett Anderson 1999; Plant 2004).

Community space refers to personal web pages with functions for providing personal services that integrate database functions and functions such as personal office, post-office and community. The integration of personal information is also offered, through bulletin boards, contact lists and calendars. Offers such as free personal web page space encourage traffic flow within a network.

A virtual building provides the best place for users to meet each other. Community buildings aim to satisfy the needs of the general public by offering usable information through network features such as search engines and databases. Currently the network community, e-shop and e-newspaper are all in this category and their major purpose is to attract users to browse and stay at the major portal sites on Internet. Vast numbers of users in such sites generate tremendous potential for advertising.

Methods of attracting users’ attention, such as providing usable media content and free space, create a channel for communication that in turn creates new business opportunities. This is exemplified by portal sites, which are generally organized around a single underlying concept. For instance, Yahoo.com is based on community development and Geocities.com is similarly based on community space. eBay.com is organized around community commerce, and iVillage.com around community media. Yet all these sites have one thing in common: they share a similar community design, producing virtual organizations through three-way interaction between people, technology and commerce.
An Information Interface for Corporate Identity System

**The Unique Marketing Opportunities of Networks**

Traditional media are primarily concerned with delivering information to a mass audience, therefore strategies for the dissemination of information are limited to mass marketing. Conversely, web media adopt the leverage method, an increasingly popular marketing strategy that makes use of integrated network technology (Pae & Hyun 2002). Based on the needs of individuals and groups, standardized service has been transformed into customized service. The diversified operation of network industries has also resulted in new modes of strategic alliance between businesses (Pae & Hyun 2002; Chang, Changchien & Huang 2006).

The introduction of personalized individual space, or community space, underlies the growth of network communities and communities may further expand to form virtual network cities. Basic transaction patterns and human relationships are developed among multiple individuals. The Internet transaction pattern covers similar channels as those in ‘real life’, with the addition of unique, personalized service. This expanded function creates new channels for marketing and communication, overturning traditional mass
marketing techniques that have supported the domination of the market by large enterprises. Marketing on the Internet is oriented towards a more individual and subjective shopping experience using network features that eliminate some of the limits of time and space such as network databases and search engines (Wedel, Kamakura & Bockenholt 2000). This mode of browsing, purchasing and engaging in other transactions is unique. Products are represented via digital pictures and text, and sellers may offer one product or a vast array of products for individual or multiple buyers. Such interaction brings about dynamic shifts in pricing and gradually influences consumer behavior, redefining commercial and economic patterns (Tao & Rosa Yeh 2003; Buckinx, Verstraeten & Van den Poel 2007).

**Transaction Patterns on the Internet**

The transactions that comprise network commerce can be categorized as either product-oriented or human-oriented (Zhuang & Lederer 2006). Product-oriented transactions are based on the provision of all types of products and services and emphasize low price and price adjustments through promotion campaigns, such as those in department stores for instance. Human oriented transactions on the other hand are based on community and emphasize individual needs and tastes and the joy of personal shopping, catering to small or specialized audiences.

Transactions such as one-product-to-one-buyer produce the possibility of bargaining. Amazon.com is one such example. Conversely, selling a single product to multiple buyers produces a bidding pattern, such as on eBay.com. A multiple-products-to-single-buyer interaction can set up auctioning as on priceline.com, and a multiple-products-to-multiple-buyers transaction becomes trade – such as on e-trade.com. Web-based commerce increases the scope for all four types of transactions (Liao & Cheung 2001).
Conclusion

As opposed to traditional marketing media, the Internet has the features of real-time, interactivity, virtual space, personalization, many-to-many relationships, low cost, no regional boundaries, global reach and universal broadcasting. Network marketing can make use of rich and complete databases for the analysis and definition of consumer behavior and preferred transaction types, enabling specific one-to-one marketing. Using the interactive features of the Internet, enterprises deliver product information to potential customers and customers themselves may provide feedback about their needs and opinions.

With the emergence of network media, network platforms gather small groups of internet users that further expand into large communities. Understanding various models of network marketing clarifies the interactive demand and supply mechanisms that transform internet traffic into effective business models generating monetary returns. Three aspects of these interactions can be focused upon: Network Media, Network Space and Network Marketing. The interrelated demand and supply issues of the four
business models, whether involving one-to-one or multiple-to-multiple relationships, should be integrated. The CIISS is a web-based platform that generates products interactively. Given the rapid development of internet media, CIISS can also expand the possibilities of Web 2.0 to invent new service mechanisms for internet communities.

### 3.2 The Corporate Identity Information Service System

A corporate brand identity should be planned and adjusted according to the evolution of a corporation. The process of designing corporate identity begins with concept formulation. Based on the client’s concept, the designer then plans and produces the corporate image, after which the client can recommend adjustments. In the final stage of print proof, the conceptual vision and details such as color and text arrangements are discussed and agreed upon. Communication between designers and clients is required at each stage, yet this can often slow down the design process. Thus a system by which designers and clients might communicate directly may greatly enhance the efficiency of the design process.

The service and content provided by designers or design companies has deepened and diversified, particularly in relation to new forms of media (Lyu 2005). Design should be marketed through network virtual stores as well as actual stores, combining traditional marketing methods with the flexibility afforded by web-based media. This can assist local industries to create their own brand names and marketing channels and adjust to the digital era.

The Corporate Identity Information Service System aims to provide a streamlined, online design service through which clients can generate their own designs as well as communicate directly with designers.

Web 2.0 has promoted the concept of ‘software as a service’, with an emphasis on a more intuitive and effective user experience. Internet applications can perform almost as well as desktop applications, reducing
the waiting time for webpage loading and enhancing the interactive nature of the internet interface.

**Features of the Corporate Identity Information Service System**

The development and establishment of the Corporate Identity Information Service System occurs via a network platform allowing consumers and designers to communicate. A large number of database categories are presented in real time through the network platform and search engine. Communication time is effectively shortened, increasing the satisfaction of consumers and designers. The large graphic databases can be used by the consumer to design corporate trademarks and apply them to products and objects. Consumers may thematically align their trademarks with corporations in the same industry and also be given recommendations from designers.

The Corporate Identity Information Service System offers direction and assistance in the design of a complete corporate identity system. Using a customized commercial system and auxiliary interface design, corporate symbols, corporate names and applied products are integrated into an object-oriented database. The system developed for this doctorate can rapidly provide diverse and customized corporate symbols and unique corporate standard script for designers and consumers, shortening the

Fig. 3.2-1 Corporate identity image.

The Corporate Identity Information Service System offers direction and assistance in the design of a complete corporate identity system. Using a customized commercial system and auxiliary interface design, corporate symbols, corporate names and applied products are integrated into an object-oriented database. The system developed for this doctorate can rapidly provide diverse and customized corporate symbols and unique corporate standard script for designers and consumers, shortening the
The corporate identity design system adopts object-orientation and visualization concepts. When launching the system the user may first select corporate trademarks by industry type, after which the system will automatically provide the function of corporate trademark upload. Customers may also upload their own trademarks. Products and objects may then be simulated including stationery, commercial vehicles, packaging, billboards, hats and clothes. The corporate standard script is then entered and the user may adjust the size and position of the trademark, viewing the results immediately.

![Fig. 3.2-2 Applied design system.](image)

![Fig. 3.2-3 Applied transportation tools.](image)
The corporate identity design system also integrates vectorized calligraphic scripts. The user may enter text in a normal font provided by a regular computer system or create a calligraphic font database. This process will be detailed in Chapter Five.

A backend database server management system is provided whereby users can re-arrange categories and integrate the services. A diverse and complete design service is offered.

**Corporate Image and Color**

A corporate image is usually associated with specific colors. A standard color scheme is one of the most important factors in a corporate identity system. McDonald’s for example uses yellow and red as the main colors. Blue is generally the preferred color in the electronics industry, though Acer
has chosen dark green to distinguish itself from its competitors.

Fig. 3.2-6 Acer distinguishes itself from competitors using color.

The three key factors involved in the perceptual discrimination of color are hue, lightness and saturation. ‘Color image space’ refers to common feeling about colors (Zhong 2000). Colors are described linguistically and semantically analyzed, determining color image space and revealing similar relationships within a variety of color groupings, which can be categorized in two ways: as mono color image space and color image space (Zhong 2000).

Fig. 3.2-7 Mono color image space.  Fig. 3.2-8 Color image space.
An Information Interface for Corporate Identity System

**Operation Process of the Corporate Identity Information Service System**

This project establishes a real-time visual information system with a high quality human-machine interface. Every design component can be defined according to the user’s preferences. The specific design process is illustrated in Figure 3.2-9. The backend database server system assists designers by adjusting and increasing the design capability, allowing them to respond to changing market needs and trends and increasing design competitiveness.

Fig. 3.2-9 Operation process of the CIISS.
Discussion

The core technology of Web 2.0 must be leveraged to provide users with a sound information communication environment. Interaction is the key to the Web 2.0 era. Most web-based CIS design companies in the era of Web 1.0 could only provide one-way communication in design services; information was generated by websites and delivered to users for browsing and evaluation. The emergence of Web 2.0 has expanded upon this model; information is delivered via two-way interactions in which users actively participate in content generation. The ‘email to blog’ function can transform users into content providers with its fast and simple publishing that fosters a user-friendly blogging environment and the sharing of information and work. Web 2.0 supports collective intelligence, simultaneously involving users, content providers and content administrators.

The CIISS also needs to provide online forums with ranking, rating and reviewing functions. With the help of RSS technology, users can be kept updated on information sharing in the forum, enhancing interaction and participation.

Two interactive business models thus emerge from the CIISS: one involving the generation of customized products via the CIISS and the other involving sharing or auctioning personal innovation. Every user may also act as a content provider; sharing his or her own work, uploading his or her design elements and then integrating them with the backend database server. The combined group efforts can then rapidly expand the content of the database at the same time as providing a service. This is the spirit of Web 2.0 at its best.
Chapter 4
A Study of Consumer Perceptions of Corporate Trademarks

This study analyzes samples of Taiwanese corporate symbols with the goal of constructing a database of corporate symbols that can be used within the Corporate Identity Information Service System. Trademarks of the top thirty-six Taiwanese financial corporations were selected. Survey respondents were then asked to match trademarks with descriptions. The ten corporate trademarks deemed most impressive were then described through sets of opposite adjectives and summarized for evaluation using the Semantic Differential method and subjected to Factor Analysis. Multidimensional Scaling analysis and Cluster Analysis were performed on the numeric data to analyze corporate symbols and explore the relationship between consumer cognition and corporate trademarks.

4.1 Methodology

The study was conducted in two stages. The first stage included the grouping of domestic financial corporate trademarks. The second stage explored the relationship between visual image and consumer preferences.

Stage One: Sampling and Selection

Thirty-six samples were selected from the top 1000 manufacturing corporations listed in Common Wealth Magazine. These trademarks were photographed with a digital camera and entered into vector software to represent them according to their correct proportions. The resolution and size of each trademark was then adjusted to create a uniform sample size.
Figure 4.1-1 shows the complete sample.

![Sample Image]

Fig. 4.1-1 Trademarks of 36 financial corporations.

Ten people participated in a focus group discussion of the 36 samples. All subjects had a college degree or higher. Key elements in the design of corporate trademarks were identified. Participants were then asked to select their five preferred samples from the groups. The top ten preferred samples were selected for use in Stage Two of the study.

![Sample Image]

Fig. 4.1-2 Samples acquired in the first stage.
Stage Two: Study of Perceptions of Trademarks

The Semantic Differential Method

Stage two of this study applies the Semantic Differential method (SD) for image assessment and analysis. Osgood and his colleagues advocate the use of the Semantic Differential method for research into object semantics. The term image refers to ‘common feeling’; the perception of feeling derived from the reception of a stimulus by a sense organ (Osgood 1957).

Trademarks stimulate the visual sense through the use of shape and color, awakening common feeling that further becomes an awareness of the image in the mind. During the experiment subjects were asked to evaluate an object using a scale constructed from sets of opposing adjectives. This method is a combination of limited association and quantitative measurement and can quantify subjective experiences such as impressions, images, emotions and sensations for further analysis.

The Semantic Differential method consists of three key components: concept, scales and subjects.

(1) Concepts: the concept analyzed in this study is the subjective perceptions of corporate trademarks, using the ten representative trademarks selected from 36 financial corporate trademarks. Based on the results of the grouping in Stage 1, the top two in each group were selected as the test samples for this stage. As displayed in Figure 4.1-2, the ten samples selected were:

1. CHINATRUST COMMERCIAL BANK
2. HUA NAN BANK CO., LTD.
3. THE INTERNATIONAL COMMERCIAL BANK OF CHINA
4. THE SHANGHAI COMMERCIAL & SAVINGS BANK, LTD.
5. E.SUN COMMERCIAL BANK LTD.
6. TAIPEI BANK
7. DIRECTORATE GENERAL OF POSTAL REMITTANCES AND
SAVINGS BANKS
8. UNITED WORLD CHINESE COMMERCIAL BANK
9. TAIWAN COOPERATIVE BANK
10. BANK SINOPAC

(2) Subjects: Samples of at least thirty people were required to achieve a stable output (Hsiao & Chen 1998). Thirty students with a design background participated.

(3) Scales: The research adopted a seven-point scale with a neutral mid-point.

In order to cover the ‘semantic space’ of financial corporate trademarks as much as possible, relative adjectives used in semantic scaling in previous studies were employed (Chen 1993; Huang 1996; Takahaski 1995). Eleven sets of opposite adjectives used in previous studies were chosen. These were:

vivid/dull, sensational/rational, magnificent/plain, meticulous/rough, warm/cold, professional/amateur, square/round, international/local, complex/simple, traditional/modern and conservative/fashionable.

Participants were asked to evaluate each trademark according to the eleven semantic scales. The results revealed that the eleven semantic scales have 0.90 of communality (h²) of variables; even the lowest two are above 0.56, suggesting only a small margin of error. The scales were thus deemed suitable for the evaluation of financial corporate trademarks.

4.2 Results

A Semantic Differential profile was created for each set of adjectives using principal component analysis and factor analysis to obtain the loadings of all scales. The distribution of factor scores for each concept or trademark allows for the comparison and integration of clusters of semantic scales.
Exploration of Consumer Perception of Trademarks

Scale Value and Standard Deviation

Evaluations provided by the thirty subjects were averaged and the eleven adjectives were grouped into two factors using factor analysis. The total variance identified was 78.6%.

Semantic Differential Profile of Each Corporate Trademark

The evaluation of corporate trademarks with the Semantic Differential method transforms ambiguous perceptions into concrete numbers for comparative analysis, facilitating an understanding of the merits and drawbacks of each trademark. The semantic differential profile provides a clear picture of respondents' perceptions of corporate trademarks. Such a profile was created for each of the ten trademarks.
An Information Interface for Corporate Identity System

Fig. 4.2-1 Semantic differential profiles of each corporate trademark.

**Factor Analysis**

A correlation matrix was chosen to integrate the factor loadings of each scale with the scores of each trademark. Each trademark could then be scored in relation to the entire set.

For the sake of simplification, fewer factors for the interpretation of variance were used. Principal component analysis was performed initially, followed by orthogonal rotation of the factor axis using the Varimax method. The factor loadings derived represent the relationship between all scales with each factor dimension. Additionally, correlation coefficients and common factors were analyzed one by one. After common factors were identified,
factor scores were ranked and used for independent dimensional factor analysis and the analysis of image types. The following fundamental principles were followed in determining the number of adequate factors: (1) An eigenvalue of greater than 1; (2) after Varimax rotation for the maximum variance, an absolute value of factor loading greater than 0.5; (3) a factor loading difference between two factors of greater than 0.3; and (4) a significant related coefficient of item to total of greater than 0.5.

The result of the principal component analysis after Varimax rotation for the maximum variance is presented in Table 4.2-1. The factor's eigenvalue is significant. The variance of the first factor is 40.70% of total variance, the variance of the second factor is 37.91% of total variance and the accumulated variance is 78.62% of total variance. These two factors are highly interpretable. Therefore a two-factor interpretation was deemed appropriate.

Table 4.2-1 Result of Principal Component Analysis.

<table>
<thead>
<tr>
<th></th>
<th>Eigenvalue</th>
<th>% total Variance</th>
<th>Cumul. Eigenvalue</th>
<th>Cumulative%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4.48</td>
<td>40.71</td>
<td>4.48</td>
<td>40.71</td>
</tr>
<tr>
<td>2</td>
<td>4.17</td>
<td>37.92</td>
<td>8.65</td>
<td>78.63</td>
</tr>
<tr>
<td>3</td>
<td>0.84</td>
<td>7.63</td>
<td>9.49</td>
<td>86.25</td>
</tr>
<tr>
<td>4</td>
<td>0.75</td>
<td>7.15</td>
<td>10.27</td>
<td>93.40</td>
</tr>
<tr>
<td>5</td>
<td>0.35</td>
<td>3.20</td>
<td>10.63</td>
<td>96.60</td>
</tr>
<tr>
<td>6</td>
<td>0.20</td>
<td>1.82</td>
<td>10.83</td>
<td>98.42</td>
</tr>
<tr>
<td>7</td>
<td>0.10</td>
<td>0.92</td>
<td>10.93</td>
<td>99.35</td>
</tr>
<tr>
<td>8</td>
<td>0.06</td>
<td>0.53</td>
<td>10.99</td>
<td>99.89</td>
</tr>
<tr>
<td>9</td>
<td>0.013</td>
<td>0.12</td>
<td>11</td>
<td>100</td>
</tr>
</tbody>
</table>

Extraction Method: Principal components Analysis.

Relationship between Adjectives and Trademark Images

According to the standard set by Kaiser (1960), an eigenvalue of greater than 1.00 is retained and therefore two common factors are extracted. The interpretable variance is 78.6%. Among the two factors, Factor I takes up
40.7% and Factor II, 37.9%. The factor loadings obtained in this study are listed in Table 4.2-2, and common factors are analyzed in detailed below:

(1) Factor I includes the five scales of vivid/dull, international/local, complex/simple, traditional/modern, and conservative/fashionable. These can be summarized as an ‘imagery factor’, describing overall responses to the imagery and style of the corporate trademarks. These five scales were collectively termed ‘imagery factor’ where a plus sign (+) indicates fashionable and a minus sign (−) indicates conservative.

(2) Factor II includes the four scales of magnificent/plain, meticulous/rough, warm/cold, and professional/amateur. These describe overall emotional responses to the corporate trademarks. They were collectively termed the ‘evaluative factor’ where a plus sign indicates warm and a minus sign indicates cold.

Table 4.2-2 Factor loadings (Varimax raw) (new.sta)
(Marked loadings are > .700000).

<table>
<thead>
<tr>
<th>Adjective</th>
<th>Factor1</th>
<th>Factor2</th>
</tr>
</thead>
<tbody>
<tr>
<td>vivid / dull</td>
<td>-0.84</td>
<td>0.42</td>
</tr>
<tr>
<td>sensational / rational</td>
<td>-0.517</td>
<td>0.57</td>
</tr>
<tr>
<td>international / local</td>
<td>-0.83</td>
<td>0.06</td>
</tr>
<tr>
<td>simple / complex</td>
<td>0.77</td>
<td>0.46</td>
</tr>
<tr>
<td>modern / traditional</td>
<td>0.84</td>
<td>0.46</td>
</tr>
<tr>
<td>fashionable / conservative</td>
<td>0.98</td>
<td>0.07</td>
</tr>
<tr>
<td>magnificent / plain</td>
<td>0.28</td>
<td>0.86</td>
</tr>
<tr>
<td>meticulous / rough</td>
<td>0.27</td>
<td>0.88</td>
</tr>
<tr>
<td>warm / cold</td>
<td>-0.15</td>
<td>0.92</td>
</tr>
<tr>
<td>professional / amateur</td>
<td>0.02</td>
<td>0.79</td>
</tr>
</tbody>
</table>
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<table>
<thead>
<tr>
<th></th>
<th>Factor1</th>
<th>Factor2</th>
</tr>
</thead>
<tbody>
<tr>
<td>square / round</td>
<td>0.53</td>
<td>-0.61</td>
</tr>
<tr>
<td>Expl.Var</td>
<td>4.36</td>
<td>4.29</td>
</tr>
<tr>
<td>Prp.Totl</td>
<td>0.40</td>
<td>0.39</td>
</tr>
</tbody>
</table>

Extraction Method: Principal component Analysis 2 components extracted.

After the above common factors were extracted, factor scores for each trademark were obtained, as shown in Table 4.2-3.

Table 4.2-3 Factor scores of image (new.sta).

<table>
<thead>
<tr>
<th>S1</th>
<th>Factor1</th>
<th>Factor2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-1.50</td>
<td>0.01</td>
</tr>
<tr>
<td>S2</td>
<td>-0.85</td>
<td>-0.89</td>
</tr>
<tr>
<td>S3</td>
<td>-0.29</td>
<td>-0.55</td>
</tr>
<tr>
<td>S4</td>
<td>-0.02</td>
<td>0.08</td>
</tr>
<tr>
<td>S5</td>
<td>1.37</td>
<td>-0.29</td>
</tr>
<tr>
<td>S6</td>
<td>-1.08</td>
<td>1.84</td>
</tr>
<tr>
<td>S7</td>
<td>0.07</td>
<td>0.62</td>
</tr>
<tr>
<td>S8</td>
<td>1.18</td>
<td>0.68</td>
</tr>
<tr>
<td>S9</td>
<td>1.22</td>
<td>0.36</td>
</tr>
<tr>
<td>S10</td>
<td>-0.11</td>
<td>-1.86</td>
</tr>
</tbody>
</table>

Extraction Method: Principal Component Analysis: Varimax Rotation.
Independent Dimensional Factor Analysis of Trademark Images

Each corporate trademark was scored in relation to the two factors already outlined, using a single-axis factor independent dimensional analysis. Analytical explorations of independent dimensions in the original numeric data were made according to each of the two factors, Factor I (imagery) and Factor II (evaluative). The values obtained represent all variables with each common factor being in a matrix axis. By crossing every factor axis, the semantic spaces of four quadrants were obtained. Each trademark could then be placed in one of these semantic spaces and grouped as a single type.

Each of the four quadrants represents a different semantic space. The results presented in Table 4.2-4 shows that S7, S8 and S9 scored higher with regard to both the imagery factor and the evaluative factor. Their semantic features may be described as international, modern, professional, vivid and simple. On the other hand, S2, S3 and S10 scored lower for both factors and their semantic features are described as dull, local, traditional, conservative and complex, as shown in Table 4.2-5.

Table 4.2-4 Table of imagery factor scores of sample corporate trademarks.

<table>
<thead>
<tr>
<th>Factor1</th>
<th>Factor 2</th>
<th>Logo Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>( - ) Imagery</td>
<td>( + ) Evaluative</td>
<td>S1, S4, S6,</td>
</tr>
<tr>
<td>( - ) Imagery</td>
<td>( - ) Evaluative</td>
<td>S2, S3, S10,</td>
</tr>
<tr>
<td>( + ) Imagery</td>
<td>( - ) Evaluative</td>
<td>S5,</td>
</tr>
<tr>
<td>( + ) Imagery</td>
<td>( + ) Evaluative</td>
<td>S7, S8, S9,</td>
</tr>
</tbody>
</table>
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Table 4.2-5 Four types of image.

<table>
<thead>
<tr>
<th>Sample</th>
<th>Image Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1, S4, S6,</td>
<td>Magnificent, meticulous, complex and warm.</td>
</tr>
<tr>
<td>S2, S3, S10,</td>
<td>Dull, local, traditional, conservative and complex.</td>
</tr>
<tr>
<td>S5,</td>
<td>International, cold, simple and plain.</td>
</tr>
<tr>
<td>S7, S8, S9,</td>
<td>International, modern, professional, vivid and simple.</td>
</tr>
</tbody>
</table>

**Color Image Scale Chart of Corporate Trademarks**

Color is an important component of corporate trademarks. The design of corporate image may include a market color segmentation chart, a color image scale analysis and color positioning. As shown in Figure 4.2-2, we can make clear comparisons with the colors used by different corporate banks.

![Color Image Scale Chart of Corporate Trademarks](image)

Fig. 4.2-2 Color image scale chart of bank trademarks.
4.3 Suggestions and Conclusions

This study demonstrates that quantitative scientific methods can be used to conduct objective market analyses of consumer perceptions of trademarks. Such studies can be used in combination with the web-based CISSS, establishing whether designs elicit the consumer perceptions they intend and how specific designs are placed in relation to logos and trademarks in similar market segments. Such information can be used both to align designs with a particular industry and to differentiate a corporation from competitors.
Chapter 5

Calligraphic Fonts for Corporate Identity Design

Chinese fonts have been used in computing for more than twenty years. Much software has been developed using or including Chinese fonts. However, all computer operating systems were originally designed for Western languages, with the result that the application of Chinese fonts has been limited. Thus Chinese fonts are created with character combination methods in basic applications such as Fine Ming Script and Standard Kai Script. The displayed or printed Chinese characters function only to convey meaning while aesthetic presentation has been neglected.

Most research in the area is limited to studies of editorial fonts and fonts used in office applications. For example, Huang (1996) conducted semantic analytical experiments using Chinese fonts. His study analyzes and compares the appearance and structural traits of Chinese characters in Ming Font. His findings suggest designers and non-designers alike view Ming Font as modern and concise. The comparative analysis of calligraphic characters was not covered. The study by Qiu (1995) of images of Chinese fonts is also limited to Ming Font. In addition, Lin (1993) uses the Semantic Differential method to analyze the images of characters in her “Investigative Research of Images of Chinese and Western Fonts”.

The art of calligraphy that has been passed down for thousands of years is becoming less and less used and appreciated in this modern, computerized era. Yet the preservation of unique local features will become ever more important as a way for corporations to maintain cultural identity within the process of globalization. Chinese corporations must place more emphasis on Chinese culture in their corporate image in an environment that would otherwise be homogeneous in its approach to design. This project integrates
Chinese calligraphic fonts into the network platform as a source for the creative design of corporate trademarks.

5.1 The Value of Calligraphy for Design

Chinese calligraphy is one of the immortal arts of the world with a beauty and simplicity both fluent and gentle, vibrant and powerful. Western culture holds this art of writing in high regard. Calligraphy may be the most important representative of art and heritage for the Chinese people (Yang & Zhu 2007; Zhu 2007). Calligraphy is not simply a vehicle of meaning for the Chinese; it is also an exquisite manifestation of beauty.

Chinese calligraphic texts have a long history (Yang & Zhu 2007; Zhu 2007). They are a valuable national asset and a cultural legacy recognized worldwide. These texts also remain important as educational tools yet are somewhat limited to this function (Yang & Zhu 2007). This project aims to make calligraphic fonts from ancient texts digitally available for use in design.

Most digitization of ancient scripts is accomplished by merely scanning the whole page and producing bitmap files, which achieves the purpose of digitizing and duplicating the original but does not create a standard font for the design of corporate identity (Zheng 2004; Gong 2005). This project proposes a different method. Picture files of digitized scripts are transformed into full vector files through a vector engine and the image components are further decomposed to generate extra vector files. This increases efficiency in digital applications and searches. There are many potential applications for the vector calligraphic fonts.

Decomposed vector graphics may preserve the authenticity of calligraphy for practical uses; they can be arranged and rotated at will and magnified or compressed without distortion. After decomposing the full vector picture, every component can be extracted for rearrangement, rotation, color change or change of outer frame. File sizes are smaller, making them...
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suitable for Internet broadcasting. A single-factor database can break through the bottleneck of searching through books and other materials, broadening the scope of application (Figure 5.1-1).

![Calligraphic Fonts for Corporate Identity Design](image)

Fig. 5.1-1 Advantage of vectorized ancient script.

5.2 Procedure for Vectorizing Calligraphic Script

Calligraphic script currently has very limited digital application other than for academic reference (Yang & Zhu 2007; Zhu 2007). Some software companies have already transformed scripts from ancient books into vector material (Zhu 2007). The next step is to apply such technology in the conversion of calligraphic script to vector format to create a complete set of ancient texts that may be used in corporate identity design. This can enrich design teaching materials as well as establish a new trend in the use of calligraphic script in design (Figure 5.2-1).
Fig. 5.2-1 Procedure of vectorizing calligraphic script.

Source

The San Si Tang Book of Scripts is the primary source for this project. Once this material is digitized, it can be widely used in art, design and education. It could potentially become a basic tool in Chinese language education.

The San Si Tang Book of Scripts is most complete collection of cursive and rapid cursive scripts in the history of calligraphy (McNair 1994). Emperor Qianlong of the Qing Dynasty (ruled 1736-1796), a calligraphy enthusiast, made a tremendous effort to organize collections of calligraphy, compiling 340 pieces of calligraphic art and 495 types of rubbings from 134 celebrated calligraphic artists from the Wei – Jin Era (220–589 A.D.) onwards. Every item is a Chinese cultural legacy. Emperor Qianlong ordered these scripts to be engraved on stones, producing 32 books of rubbings in four volumes (McNair 1994). The titles of the books were inscribed by Chang Buo-yin of the Qing Dynasty. The First San Si Tang Book of Scripts is the most complete of these, containing collections of calligraphy from more than 500 writers in the Tang, Sung, Yuan, Ming and Qing dynasties in the three major script styles of regular, cursive and rapid cursive. A search system of vectorized ancient scripts will thus provide a thorough and authoritative...
reference.

**Process**

This project is somewhat complicated due to the vast amount of material and the large number of vector files that need to be transformed and decomposed. However, the result will include authentic calligraphic writings as well as other ancient block prints, picture copybooks, rubbings of engravings and decorative patterns. The process of creating the networked database is described in Figure 5.2-2.

![Diagram of process](image)

**Fig. 5.2-2 Work method and process.**

The transformation from the original bitmap files into vector files adopts the WMF file format, which supports all application software and allows the decomposition of full-page vector files to further isolate single components.
of the picture and to create an independent vector file. Figure 5.2-3 outlines useful outcomes for each stage of the process of conversion.

**Fig. 5.2-3 Outcomes of each stage of conversion.**

**Creation of the Database**

The creation of the database requires five steps (Figure 5.2-4):

1. **Scan original copy**: Books of rubbings and ancient texts are scanned and saved as original picture files in color JPEG format.

2. **Vector transformation**: Picture files are color-proofed and edited before the full-page bitmap files are transformed into vector files. Files are then uploaded to the network server.

3. **Component and decomposition**: Full-page vector files are downloaded and decomposed with vector graphic software.
Components are saved as individual vector files and then uploaded to the server.

4. Development of the database system: This includes web page system analysis and planning, web page design, database integration, security setup and ongoing management of the system.


Fig. 5.2-4 Database server structure.
Search Systems

Due to the tremendous amount of data, the development of the search system must be conducted in several separate databases to speed up users’ inquiries. The search databases will include an ancient book database and a search database (see Table 5.2-1). The search engine can manage vocabulary inquiries, multiple vocabulary inquiries and full text searches using basic information. In addition, the features of each ancient script will be displayed in the categories of dynasty, writer, original script source, script compilation/book, painting or writing styles and forms of composition as illustrated in Table 5.2-2.

Table 5.2-1 Description of database categorization.

<table>
<thead>
<tr>
<th>Ancient book database</th>
<th>Search database</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storage index</td>
<td>Storage index</td>
</tr>
<tr>
<td>Dynasty code</td>
<td>Dynasty code</td>
</tr>
<tr>
<td>Writer code</td>
<td>Writer code</td>
</tr>
<tr>
<td>Unit/Original script code</td>
<td>Unit/Original script code</td>
</tr>
<tr>
<td>Compilation/Book code</td>
<td>Unit/Original Script code</td>
</tr>
<tr>
<td>Dynasty name</td>
<td>Compilation/Book code</td>
</tr>
<tr>
<td>Writer name</td>
<td>File name of component/writing or painting</td>
</tr>
<tr>
<td>Unit/Original Script code</td>
<td>Component index value</td>
</tr>
<tr>
<td>Compilation/Book code</td>
<td></td>
</tr>
<tr>
<td>Description of writer</td>
<td></td>
</tr>
<tr>
<td>Description of Unit/Original</td>
<td></td>
</tr>
<tr>
<td>Category of writing of painting</td>
<td></td>
</tr>
<tr>
<td>Description of basic information</td>
<td></td>
</tr>
</tbody>
</table>

Table 5.2-2 Criteria for search.

<table>
<thead>
<tr>
<th>Inquiry criteria offered</th>
<th>Filter criteria offered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vocabulary inquiry</td>
<td>Dynasty</td>
</tr>
<tr>
<td>Multiple vocabulary inquiry</td>
<td>Writer</td>
</tr>
<tr>
<td>Full text search of basic information</td>
<td>Original script</td>
</tr>
<tr>
<td></td>
<td>Compilation/Book</td>
</tr>
<tr>
<td></td>
<td>Category and form of writing or painting</td>
</tr>
</tbody>
</table>
5.3 Network System Framework

This project utilizes digital marketing and establishes a complete network platform. On commercial websites, particularly those with the option of immediate online payment, product accessibility is often the key factor of website approval.

The platform has two major product areas. The first is the vector material itself, which can be selected, paid for and delivered immediately online. The other is the corporate identity design application. A consumer may place an order for the creative product developed in this project through the completed online payment solution to realize the purpose of real-time sales (Figure 5.3-1).

![Diagram](image)

Fig. 5.3-1 Material authorization process.

Efficient online delivery is one of the major benefits of this system; anyone can browse the system quickly and thoroughly, make payment and download vector files. The workflow of the network system is illustrated in Figure 5.3-2.
5.4 Programming

This project leaves most of the dynamic webpage tasks to the autonomous operation and management of the system. The underlying programming is therefore quite complicated. In order to increase efficiency, many computation logics must be divided into different modules, each of which is then developed as an independent operation command. Commands are deployed in different computing layers to comply with a computation environment of N-Tier.

The most obvious choice of method for the development of N-Tier computation is object-oriented application development. Objects required by the system and the relationships between objects are recognized according to the functional requirements of the system, to develop objects with a high coherence and a low degree of coupling. Such objects may improve the frequency of use, reduce the time and cost required for system development and increases the system reliability, allowing fast searching and multi-window display as illustrated in Figure 5.4-1.
Simulation screen

Fig. 5.4-1 Transcript and graphic network search system.

5.5 Application of Calligraphy for Design

The focus of this section is using calligraphic typeface in commercial corporate identification design. Based on the calligraphy artists’ works
collected in the San Si Tang Book of Scripts, a platform to convert names between Mandarin Chinese and English with calligraphic typeface is developed. With this conversion of Chinese and English names, more people may appreciate the beauty of calligraphic art and businesses may easily adopt calligraphic typefaces for their brand names for greater international awareness.

As a result, we convert English names into Chinese with the transliteration method using the typefaces of famous calligraphic artists from history. Users may choose their preferred celebrity artist’s typeface, search by words to find the artist, source and his respective dynasty and appreciate the original artwork. For example, a user may choose the typeface developed from artist Wang Si-jhih to generate the user’s name in Wang’s typeface and store it in a private and independent space on the Internet for use at any time.

Customized commercial design is the current trend; examples of applications for calligraphic typeface include personal business cards, tattoos and electronic signatures on personal blogs. Adopting Chinese calligraphic art in daily life is something which has rarely been seen up until now. Below is a detailed description.

(1) Collection/Statistic/Establishment of the Database of Common English Names:

The collection, statistics and establishment of the Common English Name Database are done by first name, middle name and last name as well as by gender. The translation adopts Roman phonetic spelling. The structure of the database is illustrated in Figure 5.5-1.

(2) Finding the missing character by cross-referencing the Calligraphic Artists Typeface Database and the Chinese/English Name Database:

Once the Common English Name Database is completed, a cross-reference with the Chinese characters collected in the Calligraphic Artists Typeface Database is still required to find out the missing characters for the calligraphic character addition task in the later stage. The process of
cross-reference is illustrated in Figure 5.5-2.

(3) Adding the missing calligraphic characters:

The missing characters are added in a two-stage process. In the first stage, the scripts that are not digitized are combed through for the missing characters. The San Si Tang Book of Script is the primary source of reference. The second stage is the synthetic addition of characters only available since modern times. To maintain the original style of the calligraphic typeface, vector graphics software is used for the “assembling” task, as illustrated in Figure 5.5-3.

Step 1: The typeface of the characters that need to be assembled is disassembled and categorized into components.

Step 2: Find the appropriate components from the completed vector graphic files, use vector graphics software to extract such components and save them separately.

Step 3: Use vector graphics software to reassemble and resize the separately saved vector graphic files to make new characters.

Step 4: An aesthetic supervisor inspects the new characters; if approved, the character assembling is completed.

Fig. 5.5-1 The structure of Chinese/English Name Database.
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Fig. 5.5-2 Process of cross-referencing for the missing characters.

Fig. 5.5-3 Process of character addition.

(4) The optimum inquiry method for calligraphic character in the San Si Tang Book of Scripts:

Currently almost 400,000 calligraphic characters from the San Si Tang Book of Scripts have been converted into a vector graphic format along with more than 10,000 vocabularies. Too many characters of the same meaning will confuse users and our solution is to adopt the recommendation of characters as the optimal inquiry method (Figure 5.5-4).

Fig. 5.5-4 Optimal Inquiry Method.

(5) Selection of recommended characters:

Ten recommended characters will be selected automatically from the
San Si Tang Book of Scripts in the order of frequency of use. These recommended characters are displayed as the result of the inquiry on the top for the user’s convenience. If the user is not satisfied with these ten characters then another interface offers all matching characters from the database (Figure 5.5-5).

(6) Operation procedure for Chinese/English Name Conversion System:

The development of the platform has been completed and the test, user experience feedback and system adjustment are ongoing. The operation procedure for the completed platform is illustrated in Figure 5.5-6.
Screenshots of the operation of the conversion system:

Step 1: User enters English name (Figure 5.5-7)
Step 2: Result of Chinese/English name conversion (Figure 5.5-8)
Step 3: Conversion to Chinese name is completed for preview or saving to a file. (Figure 5.5-9).

Fig. 5.5-6 Operation procedures for Chinese/English Name Conversion System.

Fig. 5.5-7 Interface for entering English name.
Fig. 5.5-8 Result of Chinese/English name conversion.

Fig. 5.5-9 Completed conversions to Chinese name for preview or saving to a file.

5.6 Conclusions

In recent years the flourishing online media and technology-integrated corporate identification design have brought about tremendous changes. Digital design has introduced a variety of alternatives in the concept, communication and process of design. Digitalization has standardized texts, colors and images through the platform of the Internet.

(1) The thesis describes an evolving set of tools that are under continual development and refinement, the centerpiece of which is the CIISS.
(2) Customers may be involved in an iterative design process, resulting in the design of a logo or trademark with the possibility of incorporating calligraphic text in their designs.

(3) The thesis suggests a method of then testing consumer perceptions of logos to ascertain whether subjective perceptions of logos match the image and values the corporation intends to project. Depending on results, the CIISS may be used to make adjustments to logos, which may then be applied in simulations of merchandise.

(4) Two of the key elements of strong corporate image are longevity and simplicity. CIISS provides the resources for the original design of corporate identity, but also for ongoing iterative design. This means that the basic elements of a logo or trademark may be maintained, yet aspects of the design can be updated according to changing trends.
Chapter 6
Conclusion

The services provided by most web-based CIS design companies in the past relied on one way communication; information generated by websites was delivered to users for browsing and query. This thesis expands upon the above model; information delivery becomes a two-way interaction in which users actively participate in content generation. This new level of interactivity may be described as the application of collective intelligence, as users also become content providers.

The significant achievements of this thesis can be summarized as follows:
1. The thesis describes an evolving set of tools that are under continual development and refinement, the centerpiece of which is the CIISS.

2. Customers may be involved in an iterative design process, resulting in the design of a logo or trademark with the possibility of incorporating calligraphic text in their designs.

3. The thesis suggests a method of then testing consumer perceptions of logos to ascertain whether subjective perceptions of logos match the image and values the corporation intends to project. Depending on results, the CIISS may be used to make adjustments to logos, which may then be applied in simulations of merchandise.

4. Two of the key elements of strong corporate image are longevity and simplicity. CIISS provides the resources for the original design of corporate identity, but also for ongoing iterative design. This means that the basic
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Bibliography


Gong, B., Meng, X., & Yang, C. (2005). Implementation and application of the distributed collaborative design platform based on pattern
design. *Proc. 9th International Conference on Computer Supported Cooperative Work in Design*, 1, 79-82.


An Information Interface for Corporate Identity System


Zheng, L. (2004). From object communication to figure communication – the network used as the calligraphy communication. *Journal of Lishui*
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Teachers College, 26(3), 72-74.


The CBS Eye 50th anniversary,

http://www.cbs.com/info/user_services/info_eye_50th.shtml
Appendix

This design research has resulted in the production of a CIS simulation that shows potential design possibilities.

The demonstration of the application of CIS simulation and other support information is included on a DVD.

The attached DVD contains electronic copies of the following material:
(1) An application of the CIS simulation.
(2) A copy of the thesis in PDF format.

The CIS simulation interface is divided into three parts:
1. Current step
   As shown in the screenshot, Step 1 displays company information. If you would like to skip to another step, just select 1 to 5.
2. Operation panel
   All required selections and confirmations in every step are highlighted by gray shadow. After selection and confirmation have been made, click on Next to proceed to next step for VI application simulation.
3. Selected item
   All the selected and confirmed items in the previous 4 steps are shown here. Default items will be shown if no selection is made. However, you may confirm your items at any time for complete display in VI Application.