ISTANBUL TECHNICAL UNIVERSITY ★GRADUATE SCHOOL OF SCIENCE ENGINEERING AND TECHNOLOGY

AN ANALYSIS OF DESIGN AWARENESS WITH SELECTED CASE STUDIES IN TURKISH MANUFACTURING INDUSTRY

Ph.D. THESIS

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Department of Industrial Product Design

Industrial Product Design Programme

DECEMBER 2014

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İSTANBUL TEKNİK ÜNİVERSİTESİ ★ FEN BİLİMLERİ ENSTİTÜSÜ

TÜRKİYE'DE İMALAT SANAYİNDE TASARIM FARKINDALIĞININ SEÇİLMİŞ VAKA ÇALIŞMALARI ÜZERİNDEN İNCELENMESİ

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Hayriye Yasemin Soylu, a **Ph.D.** student of ITU **Graduate School of Science, Engineering and Technology** student ID **502082908**, successfully defended the **thesis** entitled "**AN ANALYSIS OF DESIGN AWARENESS WITH SELECTED CASE STUDIES IN TURKISH MANUFACTURING INDUSTRY**", which she prepared after fulfilling the requirements specified in the associated legislations, before the jury whose signatures are below.

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Date of Defense : 29 December 2014

In the memory of my father,

To my mother and husband,

Prologue

A non-designer marketing executive coping with a design problem is in a similar situation with a person suffering from headache:

In order to resolve the headache problem, the latter either goes to a medical doctor; or tries to heal it based on his previous experience; or seeks advice from family, relatives, friends. The advice he receives may be miscellaneous: "Take this pill", "drink this magical herbal tea","get an acupuncture session" etc. Some of the advice may work, others may fail. Nobody will know why this happened.

In order to resolve the design problem, the former either consults an educated designer, or tries to solve it based on his professional experience, or seeks advice from colleagues or suppliers. The advice he receives may be miscellaneous:"Change the concept", "enlarge the visuals", "play with the colour" etc. Some of the advice may save the day, others may fail. Nobody will know why this happened.

FOREWORD

First, I would like to express my gratitude to my advisor Prof. Dr. Özlem Er for her valued guidance, constant support, help and patience during the past six years. Her enthusiasm in sharing knowledge contributed to my discovery to a great extent.

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Finally, I would like to thank my mother psychologist Safvet Koray and my husband Hakan Soylu for their constant encouragement. Without their emotional and financial support, this thesis would have been neither started, nor completed.

October 2014

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ABBREVIATIONS

App.	**:** Appendix
B2B	**:** Business to business
B2C	**:** Business to consumer
DME	**:** Design Management Europe
Freq.	**:** Frequency
ICSID	**:** International Council of Societies of Industrial Design
ISO 500 List	**:** Istanbul Sanayi Odası Birinci 500 Şirket Listesi
MBA	**:** Master in Business Administration
PSS	**:** Product Service Systems

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AN ANALYSIS OF DESIGN AWARENESS WITH SELECTED CASESTUDIES IN TURKISH MANUFACTURING INDUSTRY

SUMMARY

This dissertation elaborates on what design in business entails. For this purpose, initially, design management literature is reviewed to reveal existing design taxonomy models and design audit tools. The objective is to reach an up-to-date design taxonomy model that will facilitate non-designer executives to comprehend the scope of design in business. Since such a model was not found in existing design management literature, existing marketing management literature has also been analyzed with a particular emphasis on issues related to experiential marketing and corporate identity. Consequently, "Corporate Design Germination Model" has been developed and proposed as an up-to-date, comprehensive and interdisciplinary conceptual model for design classification.

Following the development of Corporate Design Germination Model, the study focused on its main aim which was to find out whether non-designer managers are aware of what design in business entails. For this purpose, using the proposed model, a *design awareness* measurement tool has been developed. This tool has been tested at Phase I of the exploratory study with 18 professionals from twelve different industries in Turkey identified through convenience sampling. Findings of this study suggested that design awareness among surveyed non-designer professionals was rather low. This survey also aimed to test the design awareness measurement tool suggested by the researcher. During the implementation process of the survey through face-to-face interviews, the tool was revised and finalized to be used with a large sample of companies consisting of the largest 1000 manufacturing companies in Turkey.

During Phase II of the exploratory study, marketing managers of the largest 1000 manufacturing companies in Turkey have been approached on-line. During the survey, for measuring *design sensitivity* of companies, another tool has been developed based on "Corporate Design Germination Model" and applied. In addition to the tool developed by the author, Design Sensitivity Audit Tool suggested by Kotler and Rath has also been applied to determine design sensitivity. In the end, 23 valid questionnaires were obtained and findings suggest that the participating companies had a medium to high level design sensitivity measured by Kotler Design Sensitivity Audit while findings obtained using the tool developed by the author to measure design sensitivity suggested lower sensitivity scores. This pointed to a new question to be tested and therefore the findings of the exploratory study Phase II formed the basis of the sampling of the final phase of this study which consisted of multiple case studies.

Finally, a multiple case study has been conducted to discover in depth whether and under which circumstances a holistic approach to design exists in large scale manufacturing companies operating in Turkey identified as having high scores of

design sensitivity. Four highest scoring companies in terms of design sensitivity from Phase II have been selected and analyzed on issues related to *design awareness*, *design sensitivity* and *holistic design*. For determining whether a holistic approach exists in the companies analyzed, Svengren's model has been used with revision. In the case studies conducted, multiple sources of evidence have been used including face to face interviews with three managers in each company, twelve managers being interviewed in total. Findings suggest that despite their large size and highly institutionalized structure, there is a lack of a holistic approach to design in the companies analyzed. Consequently, the lack of a holistic approach to design may lead the companies analyzed to miss some potential market opportunities.

This study contributed to existing literature by means of offering a comprehensive, up-to-date and interdisciplinary design taxonomy model. This study also revealed that in the companies analyzed, high levels of design awareness (measured by DME Self Assessment Tool) and design sensitivity (measured by Kotler Design Sensitivity Audit) may not necessarily be accompanied by a holistic approach to design. The author questioned whether existing awareness and sensitivity measurement tools could be misleading in determining the actual design awareness and sensitivity in companies and proposed new tools to measure design awareness and design sensitivity. The proposed tools worked in the cases conducted. Further investigation is needed to confirm the validity of the proposed tools.

TÜRKİYE'DE İMALAT SANAYİNDE TASARIM FARKINDALIĞININ SEÇİLMİŞ VAKA ÇALIŞMALARI ÜZERİNDEN İNCELENMESİ

ÖZET

Günümüzde firmaların rekabette ayırt edici bir üstünlük kazanmaları sürekli yenilik (inovasyon) yapabilme yeteneklerine bağlıdır. İnovasyon, teknoloji ya da tasarım sayesinde gerçekleşmektedir. Tasarımın tetiklediği inovasyonun söz konusu olduğu durumlarda, üst yönetimin tasarıma ve tasarımın stratejik kullanımına dair yaklaşımı büyük önem arz eder. Öte yandan, tasarım farkındalığı tasarımın stratejik olarak kullanımında bir önkoşul niteliğini taşır.

Çokuluslu bir şirketin pazarlama müdürü olarak çalışırken bu doktora tezini yazmaya karar verdim çünkü görevimi yaparken tasarım ile ilgili ne kadar çok karar vermek durumunda kaldığımı görmüş ve bu kararları vermenin bazı durumlarda ne kadar güç olabileceğini deneyimlemiştim.

Tasarım yönetimi literatürüne bakınca, pazarlama ile tasarımın pek çok noktada kesiştiğini gördüm: Ürün ve marka yönetimi, kurumsal iletişim, tedarik yönetimi gibi konular bol miktarda tasarım kararını içinde barındırmaktaydı. Bunların yanısıra, günümüzde firmaların varlıklarını devam ettirmeleri için gerek şart olarak görülen inovasyonun teknolojinin yanı sıra tasarım tarafından da tetiklenebileceğini fark ettim. Oysa ki MBA'de okurken bu kesişim noktalarının hiç farkında değildim. Pazarlama ile tasarımın ne kadar çok noktada kesiştiğini bilmeyen tek profesyonel ben miydim?

Bu sorunun cevabını bulmak amacıyla çeşitli şirket ve sektörlerde çalışan 18 kişiye çalıştıkları firmalardaki tasarım uygulama alanlarını sordum. Çoğu ilk aşamada sorduğum soru karşısında afalladı. Bazıları tasarım deyince ne demek istediğimi sordular. Tasarım ile neyi kastettiğimi anlamamışlardı. Bazıları ise 'bizim tasarım ile hiç işimiz olmaz' şeklinde kesin yanıtlar verdi. Ben de sorumu daha anlaşılır kılmak adına tasarımın ne olduğunu tarif etmeye çalışırken, tasarımcı olmayan profesyonellere tasarımı tarif etmenin en kolay yolunun tasarımı fiziksel çıktıları ile anlatmak olduğunu gördüm.

Ardından tasarım yönetimi literatürüne geri döndüm. Literatürde tasarımın fiziksel çıktılarına ilişkin bir sınıflandırma var mıydı? Eğer böyle bir sınıflandırma mevcut ise, yöneticilerin tasarımın ABC'si ile ilgili ne bilip neyi bilmediklerini sistematik bir biçimde açığa çıkartma imkânımın olacağını düşünüyordum. Bu amaçla farklı yazarlar tarafından geliştirilen tasarım denetim araçlarını da inceledim.

Literatürde tasarımın fiziksel çıktılarına ilişkin muhtelif sınıflandırma yaklaşımlarına rastladım. Bu yaklaşımların hiçbirinde 'şirketler için tasarım sınıflandırma modeli' şeklinde bir başlık yer almıyordu. Kimi tasarım disiplinlerini göz önüne alarak oluşturulmuştu. Kimi tüm kurumsal yapılara nispeten daha kolay uyum sağlayacak nitelikteydi. Bazı sınıflandırma yaklaşımlarını ise 'tasarım denetimi araçlarında' gömülü sorulardan açığa çıkartmaya çalıştım. Yukarıda bahsi geçen sınıflandırma

yaklaşımlarını incelerken, tasarımın fiziksel çıktılarının sınıflandırılması ile kurumsal tasarım alanlarının sınıflandırılmasının sıkça iç içe geçtiğini fark ettim. Öte yandan konu kurumsal tasarım alanları olduğunda, 80'li yıllarda Peter Gorb tarafından önerilen üçlü gruplamanın (ürün ve servisler, iletişim, çevre) en çok kabul gören yaklaşım olduğunu fark ettim. Söz konusu üçlü gruplama yeterince kapsayıcı ve güncel miydi?

Kapsayıcılık konusunu irdelemek üzere 1966-2014 arasında önerilen tüm sınıflandırma yaklaşımlarını kıyasladım. Sonuçta, kurumsal kimlik tasarımının, tüm kurumsal yapılar için geçerli olabilecek ve aynı zamanda iletişim tasarımından ayrı ele alınması gereken dördüncü bir kategori olarak değerlendirilmesinin doğru olacağı kanısına vardım. Çünkü kurumsal kimlik tasarımı, iletişim alanı dışında kalan diğer iki kurumsal tasarım alanından da (ürün ve servisler, çevre) ciddi bir biçimde etkileniyordu. Ayrıca kurumsal kimlik tasarımı iletişim tasarımına göre çok daha üst düzeyde ele alınmaktaydı ve daha uzun vadeli bir tasarım yatırımıydı. Üstelik son yıllarda iletişim ajansları ile kurumsal kimlik ajanslarının birbirinden farklılaşması eğilimi de kurumsal kimlik tasarımının ayrı bir kurumsal tasarım alanı olarak ele alınması gerektiğini teyid ediyordu.

Pazarlama ile tasarım pek çok alanda kesiştiğini görmek beni tasarım sınıflandırmasına ilişkin herhangi bir model olup olmadığına bakmak üzere bu sefer pazarlama literatürüne bakmaya yönlendirdi. Amacım aynı zamanda önermeyi planladığım dörtlü sınıflandırma modelinin pazarlama disiplini açısından da yeterince güncel olup olmadığını anlamaktı.

Pazarlama literatüründe de herhangi bir tasarım sınıflandırma modeli mevcut değildi. Ancak pazarlama literatüründe rastladığım deneyim tasarımı, 360 derece pazarlama iletişimi, bütünleşik pazarlama iletişimi gibi kavramlar, kurumsal tasarım alanları resmedilirken hem çevrim içi (on-line) hem de çevrim dışı (off-line) tasarım çıktılarını dikkate almak gerektiğini hatırlattı bana. Özellikle de teknolojideki son gelişmelerle beraber, çevrim içi (on-line) ve çevrim dışı (off-line) tasarım çıktılarının şirket paydaşlarının beş duyusuna da dokunduğu ortaya çıktı. Tüm bu güncel bilgilerin ışığında şirketlerde tasarımın filizlediği kurumsal alanlara ilişkin bir kavramsal model ortaya çıktı (Corporate Design Germination Model). Artık elimde bir kontrol listesi vardı ve tasarımcı olmayan yöneticilerin tasarım hakkında neyi bilip neyi bilmedikleri daha sistemli bir biçimde test edebilecektim.

Ancak ikinci alan araştırmasına başlamadan evvel ilk alan araştırmasından topladığım 18 profesyonel yöneticiye ait verileri değerlendirdim. Acaba profesyonellerin ilk akıllarına gelen tasarımın fiziksel çıktılarının tamamı, önerdiğim sınıflandırma modelinde yer bulabilecek miydi?Verilen yanıtları tekrar kontrol ettikten sonra,ürün ve servislerin üretilemesini, onların bir bütün olarak müşteriye sunulmasını sağlayan sistemlerin tasarımı konusunun açıkta kaldığını fark ettim. Pazarlama literatürüne geri dönünce, *ürün servis sistemleri* kavramının aslında birinci grup için (ürün ve servis tasarımı yerine) tam da aradığım grup ismi olduğunu gördüm.

Öte yandan pazarlama yönetimi literatüründen ve tasarım yönetimi literatüründen söz konusu kurumsal tasarım alanlarının hangi tasarım çıktılarını içereceğine ilişkin bir kontrol listesi derledim. Artık alan araştırmasının ikinci evresine geçmeye hazırdım.

Alan araştırmasının ikinci evresinde daha metodolojik ilerleyecektim. Özellikle örneklem konusunda çok daha hassas davranacaktım. İlk evrede tasarım farkındalığını araştırırken en kolay ulaşabildiğim tanıdıklardan ve arkadaşlarımdan

oluşan bir örneklem kullanmıştım. İkinci evrede ise Türkiye'de imalat sanayinde faaliyet gösteren *en büyük 1000 şirketin pazarlamadan sorumlu en üst düzey yöneticilerine* anket uygulayacaktım. Üstelik bu sefer elimde tasarımın dokunduğu kurumsal alanlara ve tasarımın fiziksel çıktılarına ilişkin bir kontrol listesi de vardı**.** Tasarımın filizlendiği kurumsal alanlara ilişkin kavramsal modelbu çalışmanın literatüre getirdiği ilk katkıydı. Çünkü bu denli kapsayıcı, güncel ve disiplinler arası bir tasarım sınıflandırma modeli mevcut tasarım yönetimi veya pazarlama yönetimi literatüründe mevcut değildi.Oysa ki bu bir ihtiyaçtı: Çünkü tasarım bu sayede şirketlerde daha görünür kılınabilirdi. Üstelik çoğu bilim ve disiplin bir sınıflandırma ile başlarken tasarımın diğerlerinin gerisinde kalması pek anlamlı gelmiyordu.

İkinci alan araştırmasında, yöneticilerin tasarım farkındalığının yanısıra şirketlerin tasarım hassasiyetine de odaklandım. Fakat tasarım hassasiyetini ölçümlerken kendi geliştirdiğim kontrol listesi ile yetinmedim. Kotler'in 1984'te ortaya koyduğu *Tasarım Hassasiyeti Denetim Aracı'*nı da on-line anket sorularına dahil ettim. İkinci evrede tasarım farkındalığına ilişkin elde ettiğim sonuçlar, birinci evre ile paralellik gösteriyordu: Türkiye'nin en büyük şirketlerinin en üst düzey pazarlama yöneticilerinde de tasarım farkındalığı düşük çıkıyordu.

Tasarım hassasiyeti skorlarına gelince, öngörülenin aksine hiç de düşük sayılmazdı. Zira Kotler, 7'nin üzerinde skorlara sahip firmaların iyi performans gösteriyor olacaklarını kaydetmişti. Kotler'e göre tehlike çanları tasarım hassasiyeti skoru 4'ün altındaki firmalar için çalıyordu. 4-7 arası skora sahip firmalar ise vasat konumdaydı. Araştırmaya katılan 23 firmanın Kotler skoru ortalaması 7,65'ti. Bu firmalardan 16 tanesi 7 ve üzerinde skora sahipti. Kalan 7 firma ise 4 ile 7 arasında bir skora sahipti. Özetle Türkiye'nin en büyük firmalarından 23 tanesinin incelendiği araştırmanın ikinci evresinde (Faz 2) tasarım hassasiyeti açısından tehlike çanları çalan bir kurum yoktu**.**

Türkiye'de imalat sanayinde faaliyet gösteren firmalarda yöneticilerin tasarım farkındalığı bu kadar düşük iken, firmaların tasarım hassasiyetinin yüksek çıkması acaba gerçek durumu yansıtıyor muydu? Durum böyleyken neden bu firmalar arasında dünya çapında örnek gösterilebilecek tasarımla yönlendirilen organizasyonlar yoktu?

Aynı çalışmada firmaların tasarım hassasiyetini bir de kendi geliştirdiğim *Fonksiyonel Entegrasyon Matrisini*kullanarak ölçtüm. *Fonksiyonel Entegrasyon Matrisi*, Kotler'inkurumsal tasarım alanları ayrımını kullanmakla beraber, Kotler'e göre daha doğrudan ve detaylandırılmış bir yol izleyerek, Fonksiyonel Entegrasyon Matrisi'nde belirtilen tasarımın fiziksel çıktılarının her birinde tasarımcıların görev alıp almadığını irdelemekteydi.

Tasarımcıların görev almadığı tasarım uygulamaları, mevcut tasarım literatüründe sessiz tasarım (*silent design*) olarak adlandırılır ve tasarımın tasarımcı olmayan kişiler tarafından yapıldığına işaret eder. Fonksiyonel Entegrasyon Matrisindeki fiziksel çıktılar tasarlanırken eğer tasarımcı kullanılmıyorsa, bu firmalarda sessiz tasarımın mevcudiyetine işaret etmekteydi. Buradan elde edilecek sonuç önemliydi çünkü tasarım yönetimi literatürüne göre sessiz tasarımın mevcudiyeti firma bünyesinde tasarıma verilen önemin düşük olduğuna işaret eder.

Kendi geliştirdiğim Fonksiyonel Entegrasyon Matrisi yöntemine göre ölçülen tasarım hassasiyeti skorları, Kotler tasarım hassasiyeti skorlarına göre daha düşük çıkıyordu (ortalama 6,61). (Örneklem küçük olduğu ve normal dağılım göstermediği için iki değerlemenin farklılığı non-parametrik bir test olan Wilcoxin kullanılarak

saptandı, p=0,026). Diğer bir deyişle benim tarafımdan geliştirilen yönteme göre ölçüm yapıldığında firmaların tasarım hassasiyeti skorları bir miktar daha düşük çıkıyordu. Dolayısıyla, yöneticilerin tasarım farkındalığının düşük olduğu bir ortamda, şirketlerin de tasarım hassasiyetinin nispeten düşük çıkması daha beklenen bir sonuçtu. Benim geliştirdiğim fonksiyonel entegrasyon matrisi esas alınarak yapılan tasarım hassasiyeti ölçümü ile Kotler sonuçları arasındaki farklar, bu çalışmanın mevcut literatüre getirdiği ikinci katkı olarak değerlendirilebilir.

Çalışmamın esas amacı tasarımcı olmayan yöneticilerin tasarım farkındalığını ve bunun bütüncül tasarım yaklaşımına etkilerini irdelemek olduğu için çalışmanın üçüncü evresinde vaka araştırması yöntemi kullanılarak dört farklı firmayı detaylı bir biçimde inceledim. Firmaları seçerken çalışmanın ikinci evresinde (Faz 2'de) en yüksek performans gösteren, diğer bir deyişle tasarım hassasiyeti en yüksek olan firmaları tercih ettim. Çünkü bu firmalarda bütüncül tasarım yaklaşımının olma ihtimalinin daha yüksek olacağını düşünüyordum.

Üçüncü evreye geçerken elimdeki veriler şu şekildeydi: Düşük tasarım farkındalığına sahip yöneticilerin yönettiği yüksek tasarım hassasiyetine sahip firmalar. Bu veriler çelişkili bir duruma işaret ediyordu ancak Kotler denetim aracı ile yapılan ölçüm sonuçları bunu gösteriyordu. Acaba tasarım hassasiyeti skoru yüksek çıkan bu firmalarda yöneticilerin tasarım farkındalığı düşük iken, bütüncül bir tasarım yaklaşımından söz etmek mümkün olabilir miydi?

Üçüncü evredeki incelemeyi daha metodolojik yapabilmek adına Svengren'inönerdiği teorik modeliadapte ederek kullandım. Svengren tasarımın stratejik bir kaynak olabilmesi için işlevsel, görsel ve kavramsal bir entegrasyonun gerekliliğini vurgular. İşlevsel entegrasyon tüm fonksiyonlarla ilgili tasarımların tasarımcılar tarafından gerçekleştirilmesini; görsel entegrasyon tasarımın tüm fiziksel çıktılarının görsel açıdan ahenk içinde olmasını, kavramsal entegrasyon ise tüm bunların şirket stratejileri belirlenirken düşünülmesi gerektiğinden bahseder. Ben de yaptığım literatür çalışmasının ışığında bütüncül bir tasarım yaklaşımına ulaşmak için, işlevsel, duyusal ve kavramsal entegrasyonun sağlanması ve tüm bunların esaslı bir koordinasyon ile bütünleşmesi gerektiği kanısına vardım. Svengren'in modeli ile benim modelimin arasındaki temel fark, benim modelimin, tasarımın fiziksel çıktıları arasındaki ahengin görsellikle sınırlı kalmamasını; duyusal entegrasyon gözetilerek beş duyuya uyum içinde hitap edecek şekilde tasarlanmasının gerekliliğini vurgulamasıdır.

Vaka çalışmaları sırasında dört firmadan toplam 12 yönetici ile görüştüm. Her firmada mutlaka en üst düzey pazarlama yöneticisi ile görüşmeye özen gösterdim. Bunun yanı sıra bilgileri farklı kaynaklardan teyid etmek adına ARGE yöneticilerini ve imalat müdürlerini de örnekleme mümkün olduğu oranda dahil etmeye çalıştım.

İncelediğim dört firmada da bütüncül bir tasarım yaklaşımının olmadığını saptadım ve buna bağlı olarak tasarım uygulamalarına ayrılan kaynakların etkin kullanılamamasının, firmaların birtakım pazar fırsatlarını kaçırmalarına yol açtığını fark ettim. Özetlemek gerekirse, Kotler'e göre tasarım hassasiyeti yüksek çıkan ancak yöneticilerin tasarım farkındalığının düşük olduğu bu firmalar, bütüncül bir tasarım yaklaşımı sergilemiyordu. Vaka çalışmalarından elde ettiğim bu bulgular, bu araştırmanın literature sağladığı üçüncü bir katkı idi.

Sonuç olarak, yukarıda bahsi geçen pazar kayıplarının önlenmesi için pazarlama yöneticisi adaylarını yetiştiren işletme eğitiminde, tasarım farkındalığını ve bütüncül tasarım anlayışını vurgulayacak programlar gerekliydi. Çünkü ancak tasarım

farkındalığı yüksek düzeyde olan pazarlama yöneticileri, tasarıma ayrılan kaynakların en etkin şekilde kullanılmasını sağlayarak, pazarlama stratejisinin daha başarılı olmasına katkıda bulunurken, tasarıma dayalı inovasyonu destekleyerek firmanın rekabetçi gücünü de artırabilir.

1. INTRODUCTION

This dissertation studies the design awareness of top managers and design sensitivity of large scale companies in different manufacturing industries in Turkey.

Today, companies strive to innovate to stay competitive. Innovation is driven either by technology or by design. For design driven innovation, a positive top management attitude toward design and strategic deployment of design are crucial. For the strategic deployment of design, design awareness is a pre-requisite (Ravasi and Lojacono, 2005; Acklin, 2010). Due to the lack of design-awareness, sometimes design activity is carried out by non-designers and in some cases, it goes even unnoticed that a design decision is being made. Gorb and Dumas (1987) call this situation "silent design". Recent studies carried out abroad show that there is still a substantial amount of silent design both in manufacturing and in service industries (Moultrie et al., 2007; Candi, 2009). This is the first study that analyzes "silent design" in large-scale Turkish manufacturing industries.

According to Topalian (2002), a clear guidance ought to be available on what managing design professionally entails. In this study, in order to understand what design in business entails, initially an extensive literature review has been carried out. For this purpose, various design taxonomy models and design audits in existing design management literature have been analyzed. The objective of the extensive literature review is to reach a comprehensive and up-to-date design taxonomy model which will facilitate the non-designer business executives to understand what design in business entails. The design taxonomy model is expected to include all the contemporary physical manifestations of design in a business setting. Such a model was not found in existing design management literature.

In order to reach a design taxonomy model, marketing literature has also been analyzed with a particular emphasis on experiential marketing and corporate identity issues. Marketing literature did not offer such a design taxonomy model either.

As a result of the literature survey, in order to address the gap mentioned in the paragraph above, a conceptual model (Section 2.7, *Corporate Design Germination Model*) that depicts all corporate domains affected by design has been developed by the author. This is the first contribution of the research to literature. The model addresses the need in the existing literature concerning a contemporary, comprehensive and interdisciplinary taxonomy of design.

The proposed taxonomy of design is important because a design manager may be well equipped concerning the identification of potential design areas within a company; however a non-designer business executive is not always likely to figure out all corporate areas where design implementation may turn out to be beneficial. On the other hand, in order for all the corporate domains to benefit from design, all design related disciplines should communicate and act in harmony. Therefore, corporate domains affected by designhave to be mapped out first in order to achieve the harmony.

An exploratory field research (Phase I) has been carried out to determine if such a map of corporate domains affected by design exists in the minds of non-designer business executives. The empirical findings suggest that managers do not conceptualize such a map.

Design management literature emphasizes the necessity of functional, visual and conceptual integration of design, for design's deployment as a strategic resource (Svengren, 2011, p. 306). Functional integration requires designer input in all design related processes; visual integration requires the outputs of all design related processes to be in coherence whereas conceptual integration requires design to be treated at strategic level. However, the trend observed in marketing management, particularly after the turn of the millennium (Pine and Gilmore, 1998), highlightsthe inadequacy of visual coherence on its own. The observed trendalso suggests an extension towards including all the five senses into consideration. Consequently, this research also suggests that a holistic approach to design requires functional, sensory and conceptual integration of design, coupled with a thorough coordination.

1.1 Problem Statement

Although it has already been 30 years since the marketing guru Philip Kotler defined design as "a powerful but neglected strategic tool" (Kotler and Rath, 1984); studies that analyze holistically the state of design and its perception by non-designer marketing executives at large scale companies are still rare. Existing design management literature deals with the importance of top management attitudes toward design (Hart and Service, 1988; Hart et al,1989; Topalian, 2002; Borja de Mozota, 2002). Since the design management process should start at the stage of defining the corporate strategies (Dickson et al,1995; Walsh, 1996; Er, 2005; Chiva and Alegre, 2009), design awareness of non-designer executives is critical in the successful deployment of design. However, "People must be aware of a situation as a problem before they will do anything about it" (Sommer, 1972, p. 24); thus top management design awareness is a prerequisite for using design as a strategic tool. Therefore as an initial step, it would be appropriate to reveal the extent of knowledge non-designer executives have on design in business, before elaborating on the strategic deployment of design by non-designer executives. This is the first study carried out in Turkey that reveals design sensitivity seen at large scale manufacturing companies by means of using Kotler Design Sensitivity Audit, offering a new approach to measure design sensitivity and comparing the scores obtained from the two methods.

The major motivating factor of this study stems from the researcher's experience in industry as a marketing manager. Coming from an engineering background with an MBA degree, in the early years of her career, the researcher was rather perplexed to find out that she had to make many design related decisions. At that time, she was not aware of the scope of design in business. She was not at ease because she was not equipped with the necessary tools to take informed decisions. Had she only been exposed to the extent of design coverage within the business context before, the amount of perplexity would have been less and her attitude formation would have been smoother and faster.

Having mentioned the author's background in the paragraph above, it would be appropriate to state that this dissertation elaborates on design in business from a marketing management perspective.

Due to the lack of design-awareness, sometimes design activity is carried out by non-designers and in some cases, it goes even unnoticed that a design decision is being made. “Silent design” has been viewed by Walsh (1996) as an indicator of lack of perceived importance of design. Therefore analyzing whether silent design exists within a company would reveal not only the design sensitivity contemplated in companies, but also it would give hints concerning the relative importance attributed to design as a strategic competitive tool.

1.2 Purpose of Thesis

This study aims to reveal the need for a contemporary, comprehensive, interdisciplinary design taxonomy model that is missing in existing literature since such a model will facilitate our understanding of design in business.The design taxonomy model is planned to be used as a framework in determining the design awareness of non-designer executives.

This study also aims to identify the role of design awareness and design sensitivity on the effective deployment of design within business, with a particular reference to the large scale manufacturing companies in Turkey. In this study, design sensitivity is measured by means of looking at the existence and the amount of silent design phenomenon within the corporate structure.

Design and marketing intersect in many areas in a corporate setting: New product development, communication, brand management, retail point merchandising. Therefore the researcher postulates that marketing managers devote majority of their time in design related decision making and design decisions are made by the marketing department most frequently. However, the researcher also hypothesizes that the same marketing managers are not aware of what design in business entails, since there is no consensus on the scope of design in business in existing literature.

1.3 Conceptual Framework of the Research

Design literature is fragmented in terms of how to define design and what design in business encompasses. (Theissue is elaborated in detail in Chapter 2). Models depicting physical manifestations of design are not contemporary and they are incomplete in terms of revealing all the corporate domains affected by various design

disciplines. Design thinking - a broad concept that seems to encompass everything - is elaborated solely in a few popular articles but issues concerning how to implement design thinking and the mechanisms that enable design thinking to nourish within a company are rarely discussed. However, one thing is for certain: Design thinking emphasizes the need for a holistic approach to design (Brown, 2008).

A holistic approach to design considers the system being designed as an interconnected whole which is part of a larger body. In this respect, all the physical manifestations of design (products, communication materials, buildings, logo etc.) within a given company are parts that determine the corporate design infrastructure.

A holistic approach to design is important because it emphasizes how each element designed should be evaluated according to the system it belongs to, so that the element and the system can operate effectively and efficiently. Thomas Edison invented the electric bulb but without the system of power generation or transmission, the invention would have been obsolete. (Brown, 2008). Steve Jobs developed the *i-pod* however, without *i-tunes* the destiny of the product would most probably resemble the destiny of those MP3 players invented in the late 90s.

While elaborating on systems design, miscellaneous adjectives have been used interchangeably by different authors to define the ideal system: *holistic* (Archer, 1972), *integrative* (Svengren, 2011, p. 294) and *integrated* (Buchanan, 1998).

Svengren (2011, p. 299) suggests that *functional, visual* and *conceptual* integration of design provides the basis for design to be deployed as a strategic tool. In her model, she explains functional integration as the coordination of design activities between functions, disciplines and phases related to new product development. This is the operational level involvement of design. Visual integration entails corporate identity issues. She claims that what distinguishes design integrity in design management literature from that of communication literature is that in the former, design is a catalyst for strategic development and change (Svengren 2011, p. 307) further states:

> When we discuss conceptual integration of design in strategic development it does not only mean that design methods and design thinking are actively used by top management but also that the values found in the relationship between the company's design objects and its stakeholders are on the agenda…

> …within a company's vision and mission design is seen as a field of knowledge for the development of the company's products and communication, including its brand building communications. This also means that top management does have knowledge about design and what design stands for in the context of its business.

What Svengren (2011) states parallels what Olins (1995) suggests. Olins (1995) proposes *design,communication* and *behavior*as the three dimensions that should be used while auditing a company.

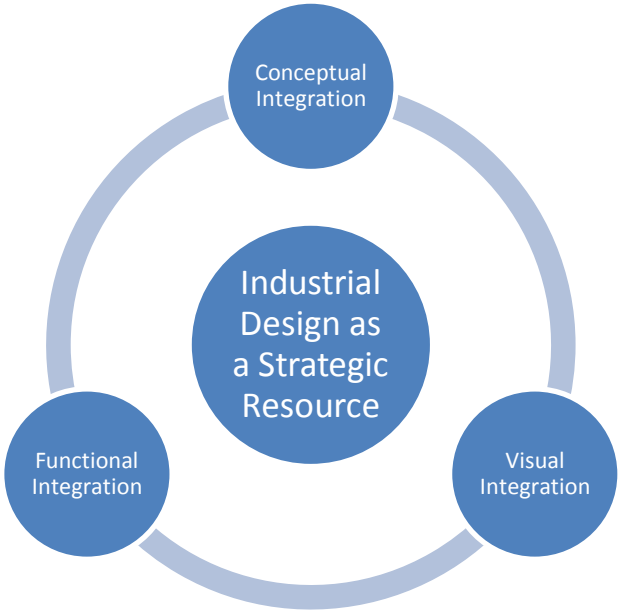

Figure 1.1 : Integration of design as a strategic resource is based upon a functional, visual and conceptual integration (Svengren, 2011, p. 299).

As it is stated in the latest handbook of design management (Cooper et al, 2011, p. 540); a return to emergent design processes is one of the four major current issues in design management. Design management scholars argue that a practical way to explain design in business to non-designer business executives would be to define it as a linear process (Cooper et al, 2011, p. 540). However, they also mention that due to the nature of design it is difficult to define design as a linear process. Moreover simplifying and sterilizing the activities of design is likely to damage its anarchic structure which is invaluable in fostering change management. Cooper and Junginger (Cooper et al, 2011, p. 540) suggest that in today's design management discourse, one of the major concerns is how to harness anarchy without destroying it.

To summarize, non-designer executives are unaware of what design in business encompasses. Since they are willing to deploy design more effectively, a

contemporary and comprehensive checklist based on integrated design is likely to help them in getting acquainted with design and maximize benefits. This checklist which will be derived from analyzing the existing literature thoroughly, should particularly take into account the latest trends observed in design management. One such trend observed is the return to the design processes (Cooper et al, 2011, p. 540). The challenge remains in defining and managing holistically the non-linear; dynamic and sometimes chaotic design processes.

Based on Svengren's model, the researcher suggests to use the framework in Figure 1.2 to analyze whether a holistic approach within a company exists.

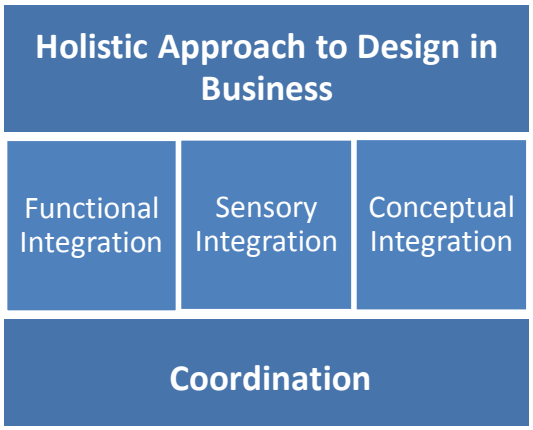

Figure 1.2 : Holistic approach to design.

To sum up, this research explores design awareness of non-designer executives and design sensitivity contemplated at large scale manufacturing companies. This research also explores functional, sensory and conceptual integration of design and the availability of a holistic approach to design in large scale companies, in Turkey. For this purpose, the author conducted a multiple case study that explores the existence and maturity level of design integration (holistic approach to design) at large scale (ISO 500 list) companies in Turkey. The author focuses on one central question that guides the inqury: "How holistic is your company's approach to design?"

The multiple case study research, involves a three dimensional evaluation of design that includes functional integration, sensory integration and conceptual integration. In that aspect, the theory in case study research is adapted from Svengren's (2011, p. 299) conceptual modelconcerning integration of design as a strategic resource. The major difference between the two models (Svengren versus Soylu) is that in the

proposed model by the author, sensory integration is not confined with one sense (ie. vision) but it stretches to include all five senses.

In order to capture systematic and comparable comments from non-designer managers, the researcherdeveloped two unique questionnaires (App. E and App. F).Both of the questionnaires have been filled in by the interviewees during the case studies.

1.4 Research Questions and Propositions

The following research questions have been elaborated during the case studies:

1. How much design awareness exists among nondesigner executives of Company A?
2. How much design sensitive is Company A?
3. How design coordination is achieved in Company A?
4. How is sensory integration of design treated in Company A?
5. How is design treated at strategic level?

The following propositions have been elaborated during the case studies:

1. A holistic approach to design requires the availability of functional, sensory and conceptual integration coupled with a thorough design coordination.
2. Functional integration of design requires designer input.
3. Sensory integration of design requires taking into account issues related to all the five senses while designing.
4. Conceptual integration of design requires design to be treated in company's overall strategy.

The research phases carried out throughout the study and the purpose of each phase are demonstrated in Figure 1.3.

This research comprises of three field studies. The first two field studies serve as the exploratory phases (Phase I and Phase II). The main field research has been carried out during Phase III.

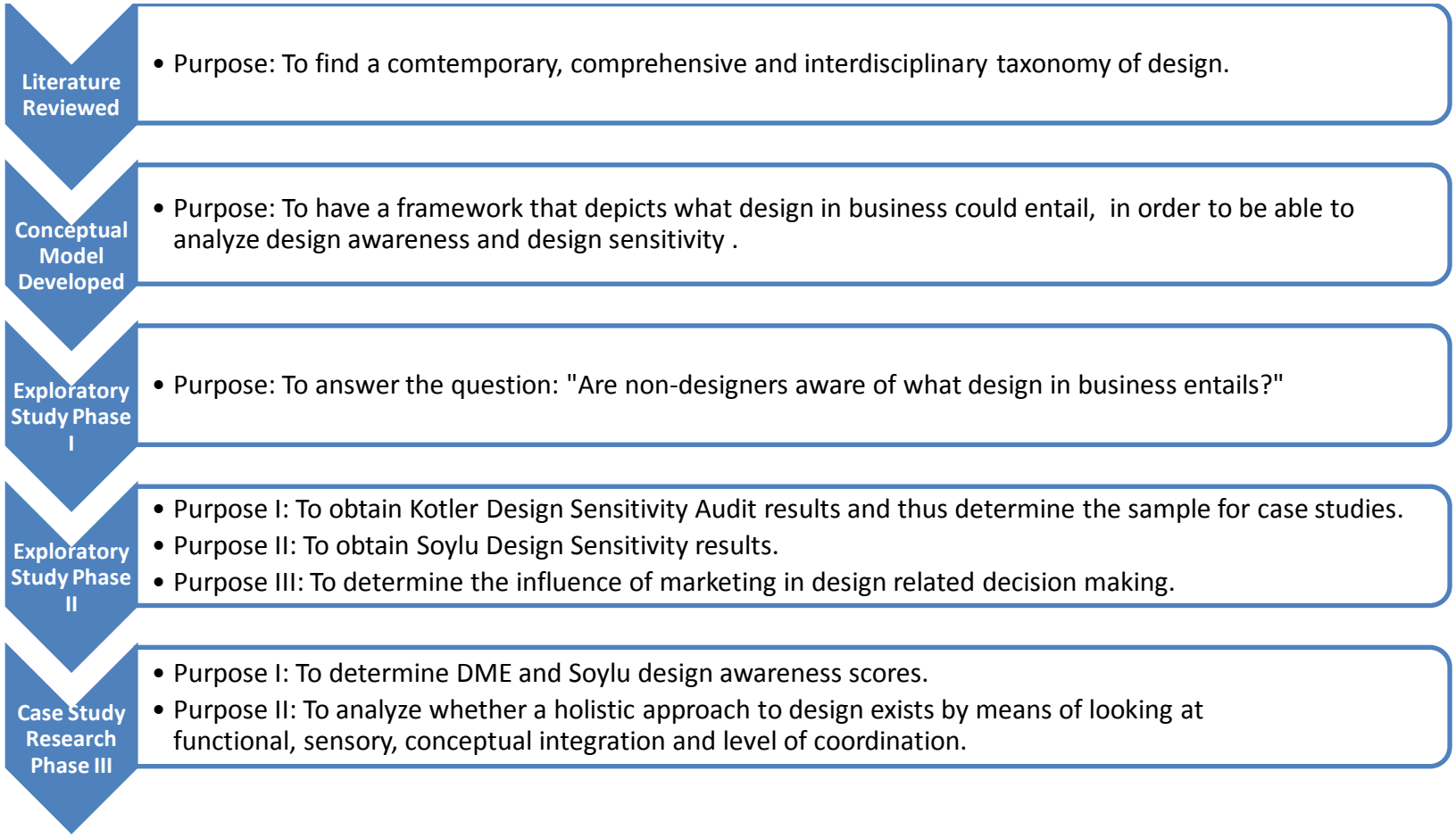

Figure 1.3 : Research phases and purposes related to each phase.

The purpose of the exploratory study in Phase I was to understand if non-designer professionals are aware of what design in business entails. For this purpose, 12 industries in Turkey have been analyzed. 18 non-designer managers have been face to face surveyed. The findings obtained from Phase I suggest that non-designer professionals have a low degree of design awareness. In Phase I, only design awareness of non-designer professionals was examined. Design sensitivity of companies was elaborated in Phase II.

The purpose of the exploratory study in Phase II was threefold. Initially, it was aimed to reveal design sensitivity of large scale manufacturing companies therefore Kotler Design Sensitivity Audit scores were measured. The scores would enable the researcher to determine the sample for case studies. Secondly,an additional measuring instrument which includes more straightforward questions was developed and applied by the author to confirm the high sensitivity scores. Thirdly, it was aimed to determine the influence of marketing in design related decision making to justify marketing managers as primary sources of information for the case studies conducted in Phase III.

The survey in Phase II has been carried out on-line and the respondents were the highest ranking marketing executives of the largest 1000 manufacturing companies in Turkey. The sample population comprised of the companies listed by the Istanbul Chamber of Industry in 2011.

In order to explore if and how a holistic approach to design existed, during the main field research (Phase III) a series of multiple case studies have been conducted. Four highest scoring companies from Phase II have been selected and they have been analyzed with respect to design awareness, design sensitivity, holistic design approach. For this reason, three managers from each company have been interviewed. Two of the companies belonged to the business to business segment (packaging industry) whereas the other two companies operated in fast moving consumer goods (food industry). In total 12 managers have been interviewed. Consequently, it has been observed that the lack of a holistic approach to design and the ineffective deployment of design resources within companies caused some market opportunities to be missed in the companies studied (Section 7.3).

This dissertation is organized in seven chapters. Chapter 2 provides a literature review of what design in business entails, it elaborates on existing design taxonomy models and design audits. At the end of the chapter, the author proposes a new design taxonomy model based on existing design management and marketing management literature. Chapter 3 explains the methodology of the research with a particular emphasis on multiple case study research. Chapter 4 reveals the findings of the two exploratory field studies carried out. Chapter 5 gives brief company profile information concerning the four companies analyzed during the case study research. Chapter 6 demonstrates the findings obtained from case study interviews. Chapter 7 provides separate conclusions derived from each of the research phases conducted.

2. WHAT IS DESIGN IN BUSINESS?

In this chapter, the scope of design in business is explored. For this reason an extensive literature review is carried out. In order to shed some light on the scope of design in business, the literature review particularly emphasizes existing design taxonomy models and design audits. Design audits have been analyzed because it was thought that audit tool sections could provide some clues concerning a potential design taxonomy model.

The main goal of the literature analysis in this chapter is to reach a contemporary, comprehensive design taxonomy model which will hopefully facilitate non-designer's understanding of design in business. Since such a model has not been found in existing design management literature, this chapter also reviews marketing management literature.This chapter is constructed in seven parts:

In Section 2.1, before exploring design from a business perspective, various design definitions are analyzed. The analysis is followed by an exploration on design awareness and design sensitivity in Section 2.2. Section 2.3 deals with the importance of design in business.In Section 2.4, existing taxonomy approaches suggested by various authors (Farr, 1966; Gorb and Dumas, 1987; Walker, 1989 as cited in Borja De Mozota, 2003, p. 24; Chung, 1992; Cooper and Press, 1995, p. 214; Olins, 1995; Borja de Mozota, 2003; Lockwood, 2006; Kim and al., 2009; Moultrie et al., 2009) are analyzed in detail. Section 2.5 elaborates on the existing design audit tools. Particularly Kotler and Rath (1984) Design Sensitivity audit is analyzed in detail since it will be used as a tool to detect design sensitivity during Phase II and Phase III of the field studies. Sections 2.6 reveals the intersection points of design with marketing by means of looking from the experitential marketing and corporate identity perspectives. Section 2.7 proposes a new design taxonomy model derived from existing design management and marketing literature.

2.1 What is Design?

Design in English language is used as a noun and a verb, however within the scope of this study; we will focus on the verb form of design. According to Archer (1972, p.9), design is the preparation of a prescription for some artifact or system in the light of all the relevant functional, constructional, economic, marketing, ergonomic and aesthetic requirements. Authors that focus on the broader definitions of design emphasize design's capability to plan for change and thus bring a new order to life: Simon (1996, p. 111) suggests that design is changing existing situations into preferred ones; according to Papanek (1984), design is the conscious effort to impose a meaningful order; Bayazıt emphasizes that design is a system related to every aspect of life; a creative action of problem definition and problem solution (Bayazıt, 2008, p.175). "Design is considered what links creativity and innovation… it is creativity deployed to a specific end" (Cox, 2005). In broadest terms, design can be regarded as generating information by which a product/*service(a.n.)* can become reality (BS:7000-10, 2008).

Although the British Standard 7000-10, 2008 does not mention service in its latest definition of design[1], there is a tendency to include service in the definition of design because we are living in an era of product-service systems where the product in its isolation is almost meaningless. Besides, even the earlier definitions of design that are aforementioned point out the intangible outcomes of design.

In this respect, the 2005 definition of design by International Council of Societies of Industrial Design (ICSID) provides clear guidance, "Design is a creative activity whose aim is to establish the multi-faceted qualites of objects, processes, services and their systems in whole life cycles" (ICSID, 2005 in Veryzer and Borja de Mozota, 2005).

Constant change has become an imperative for all industries to remain competitive. Innovation is the buzzword. Innovation is the successful application of new ideas in practice in the form of new/improved products, services or processes (Bruce and

[1]Hollins (2004) elaborates on the development of a separate service design standard which is likely to be issued by the BSI. This may be a potential reason why the definition of design in BS 7000-10 does not mention services.

Bessant, 2002). In order to achieve novelty, in other words, to link novel ideas with successful outputs, planning is essential and design accounts for it. Then how does design distinguish itself from planning? Bruno Munari (Munari, 2008, p.29) defines the role of a designer as a planner with an aesthetic sense; according to Ayşe Birsel (Birsel, 2014), "to say that something is designed means it has intentions that go beyond its function". Steve Jobs approaches the issue in a more holistic and radical manner: "Design is the fundamental soul of a human-made creation that ends up expressing itself in successive outer layers of the product or service" (Isaacson, 2011, p.200). Since all businesses deal with the creation of either products or services, then what design illiterate companies are doing means planning for products/services with no-soul? To classify a large sample of products/services scientifically according to the availability of a soul is almost impossible but detecting for design literacy in companies seems to be a more realistic task to be achieved. For design literacy design awareness is a prerequisite.

2.2 What is Design Awareness and Design Sensitivity?

Awareness is a state of consciousness in which we perceive and recognize the relevance of a certain object. This means that as individuals awareness refers to our ability to sense objects and cognitively to react to them; thus awareness relates us to other people, to other life forms, to tangible and intangible objects (Recker, 2011).

Archer (1972, p.12) treats design awareness, as an attribute of the general community that is analogous to literacy or numeracy in other aspects of the corporate character. He further elaborates on literacy as follows:

> By literacy, in its best sense, we generally mean more than the mere ability to read, although literacy is clearly dependent upon the ability to read. Literacy includes familiarity with our literary inheritance and the ability to appreciate and criticize written texts with a measure of discrimination. On the other hand, when we describe an individual or a population as literate we do not generally mean that each and every individual has a highly developed ability to write creatively. Nor do we define literacy as taste. Essentially, literacy is familiarity with our literary inheritance and the ability to apply certain yardsticks in literary criticism. (Archer, 1972, p.12)
>
> In a similar way, numeracy is more than the mere ability to manipulate numbers, although numeracy must clearly begin here. Numeracy includes familiarity with our rational inheritance, and the ability to appreciate and criticize mathematical logic. In particular,

> numeracy should include an appreciation, not only of quantitative relationships but also of the general theory of relationships. Again, when we describe someone as numerate we do not imply that he is necessarily creative in mathematics; but we do imply that he can follow and criticize mathematical reasoning. Hence, if we seek to promote universal design awareness, equating it with literacy or numeracy, we do not claim that we are promoting universal design creativity, although that would be nice, or universal adherence to one school of design philosophy or aesthetic taste, which would be a pity. (Archer, 1972, p. 12)

Linking design awareness with design literacy sounds plausible; however when it comes to design in business, it seems as if design awareness itself should come one step before literacy since what design in business entails is not known by many business executives. Sommer (1972, p.24) points out: "People must be aware of a situation as a problem before they will do anything about it". After all, almost every illiterate knows that there is an alphabet to be learned as a first step to become literate. On the other hand, since what design in business entails is not known by business executives, the first obstacle is to overcome the issue related to meta-cognitive awareness[2]. In this aspect, in order to enhance design awareness of managers and thus companies, it is important to make visible the outputs, owners and both the internal and external customers of the design process within the corporate structure.

> The concept of awareness has also been used to conceptualize our state of recognition of how organizations work: organizational awareness in this sense refers to the state of recognition of the organization's mission and functions, and how it's social, political, and technological systems work and operate effectively. Organizational awareness typically includes knowledge of the programs, policies, procedures, rules, and regulations of the organization. (Recker, 2011)

Concerning organizational awareness of design, Lorenz (1994) points out at the paradoxes and questions; he asks if design's commercial power is so manifest, why so many managements fail to recognize it. Lorenz (1994) also emphasizes that most companies still need to undertake a voyage of executive discovery or rediscovery about the various potential roles which design can play in strategy and further elaborates on these roles, the nature of the voyage and its implications for managers.

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2 Learning is a single process developed within the single individual throughout life. However, in order to be successful learners, reflection, feedback and an awareness of our knowledge is essential. If one is not aware of or does not understand one's learning process and studying strategies, it becomes difficult to handle and take control of one's learning. This awareness can be referred as meta-cognition a term coined by Flavell (1979).

According to Archer (1972, p.14-25), the elements of design awareness are:

1. Aesthetic sensibility: The appreciation of form, proportion, harmony, colour, texture, and other aspects of the impact of design upon senses.
2. Scientific sensibility: The understanding of fact, relationship, cause and effect.
3. Practical sensibility: The facility in the means of expression and knowledge of the techniques of organization and construction.

Archer relates the crises of conscience with "What is good design?". According to him, good design is holistic design, in which all the functional, cultural, social and economic interests of all those who are directly or indirectly touched by it are enriched as much, or impoverished as little as human ingenuity can contrive (Archer, 1972, p.37).

Based on personal experience and anecdotal evidence, the author believes that non-designer managers who are either engineers or graduates of managerial and social sciences are likely to have well developed skills in practical and scientific sensibility, however when aesthetic sensibility is concerned they often fail to demonstrate a holistic approach. Archer (1972, p.32) believes that in the general concept of design-for-marketing, aesthetics can be seen as something close to but distinct from functional styling.

2.3 The Importance of Design in Business

Design is an important differentiator for all businesses since it is a way of launching new products and services. In this respect, rather than merely being instrumental in determining the form and function of products, design can be regarded as a major element in applying purposive creativity to establish novel product-service systems.

Today companies strive to innovate constantly to distinguish themselves from competition. Innovation is driven, either by technology or design. According to Rampino (2011), design driven innovation results in one of the following domains: Aesthetic, functional, meaning and typological innovation. For design driven innovation, a suitable design strategy (Dell'Era and Verganti, 2007); top management attitude toward design and strategic deployment of design become crucial (Ravasi and Lojacono, 2005; Acklin, 2010).

Tim Brown (Brown, 2008) argues that thinking like a designer can transform the way managers develop products, services, processes and even strategy and further elaborates that *empaty, integrative thinking, optimism, experimentalism, collaboration* are the characteristrics of a successful design thinker.

According to Buchanan's matrix (Buchanan, 1998) the four orders of design thinking are communication (signs, symbols, images), construction (physical objects), strategic planning (activities, services and processes) and systemic integration (systems, environments, ideas and values). Paralel to Brown (2008), Buchanan (1998) also mentions strategic planning; however he suggests systemic integration to be the highest level of design thinking.

Since the design management process should start at the stage of defining the corporate strategies (Dickson et al,1995; Walsh, 1996; Er, 2005; Chiva and Alegre, 2009), design awareness of non-designer executives plays an important role in the successful deployment of design.

What design in business entails is unknown to non-designer executives because they often lack the required design education. On the other hand, awareness is a prerequisite in order to form an attitude. Unfortunately, top executives with a traditional business education rarely have a high degree of design awareness. However, although non-designer executives are not always aware of what design in business encompasses (Archer, 1972; Topalian, 2002), they are willing to discover the virtues of design. Cooper and Junginger state that "many businesses and organizations want to know what design means, how it can help them and how they can employ design in a meaningful and cost effective manner" (Cooper et al, 2011, p. 540).

The teaching of design at MBA level was pioneered at London Business School in the early 80's (Gorb and Dumas, 1987). Design taxonomy based on three pillars developed in that era -comprising of product design, environmental design and information design- has ever since become the foundation of many classification models until today (Johansson and Svengren, 2003).

On the other hand, a few leading schools (Rotman in Canada, Aalto in Finland) around the world have also started to address this issue by means of offering new programs where business and design education is merged. However, majority of the

current top managers are graduates of traditional MBA programs where the curriculum is intact by design.

Design in business is interdisciplinary. In traditionally structured organizations design is generally squeezed between Marketing and R&D (Tether, 2005). In more design aware companies on the other hand, the activity is carried out by designers however the final decisions are made by non-designers. In cases where design or R&D departments do not exist within the company, then marketing is supposed to undertake most of the design related issues. However, similar to all the other functions of a company design also has to be managed effectively so that it can be used as a strategic tool. Design management, brand management and organizational theory deal with design in business to some extent. However, each discipline has a different perspective. Holm and Johansson (2003) compare design management with brand management and come up with five main areas where the two approaches differ. These are namely attitudes toward the product, corporate identity, professional identity, relation to value creation and approach to market research. Concerning physical manifestations of design, particularly the first two areas emphasized by Holm and Johansson (2005) are relevant: They claim that design management highlights the need to integrate various elements from product, graphic and environment design based on company's true identity; whereas brand management focuses on (the identity) where the company wishes to be.

Another controversial approach to design in business comes from organizational theory literature. Hatch (1997, p. 257-258) - while elaborating on Olins' claim on the importance of coherence between physical elements to reinforce strategic vision- states that the identity related components of physical structure are available to interpretive readings other than those that are intended by designers or by top managers. In this respect, she emphasizes that there may be a difference between intended targets and perceived outcomes due to external factors. In general, organisational theory approach (Hatch and Shultz, 1997; Balmer, 1998; Melewar and Saunders, 2000; Melewar, 2003) treats corporate design as a subset of corporate identity.

Non-designer managers, particularly those in charge of marketing, are more likely to be aware of design related issues through concepts related to communication design. Concepts such as *Integrated Marketing Communication* (IMC) (Shultz, 2004) and

360 Degree Marketing Communication (Blair *et al.,* 2003) deal with designing consistent messages for different media and stakeholders.

On the other hand, professional designers partially know what design in business entails since they are usually focused merely on a single area of design specialization. However, design in business is interdisciplinary. A recent trend observed in the UK, is the establishment of integrated design agencies and the consolidation of existing single-focus agencies (Lalaounis et al, 2012) that enable customers do one-stop shopping. The trend provides evidence that one single business may have multiple design needs related to different design disciplines. The trend also hints that the fulfillment of these needs should rather be coordinated.

The fragmentation of design scholars on the definition of design suggests that the subject is still immature in the academic field. 25 years ago Black and Baker (1987) stated that 'design is an emotive concept open to interpretation….rarely discussed within a fixed frame of reference'. Little seems to have changed since then: Recent on-line discussions between scholars suggest that there is still no single commonly agreed definition or description of design (PhD-Design Mailing List Discussion; 2013) and the only consensus concerning the definition of design seems to be its being open to interpretation and misunderstanding.

In a business context, it becomes particularly difficult to identify design's borderlines. Roy and Potter (1993) suggest that design is often misunderstood because it includes disciplines ranging from engineering, product and industrial design to fashion, textiles, graphics, interiors, exhibitions and architecture. Bruce and Bessant (2002) suggest that design is the application of human creativity to a purpose, to create products, services, buildings, organizations and environments which meet people's needs. In sum, designers and scholars do not agree on one single definition of design, thus it is not unexpected that the concept becomes even more ambiguous for other stakeholders (Walsh, 1996; Candi and Gemser, 2010). Since there is no agreement on the complete set of activities covered by design (Candi and Gemser, 2010), it would be naïve to expect the business executives to understand thoroughly what design in business is and to provide a complete list of corporate domains affected by design within their company.

As there is not a consensus on the definition of design in business, the author of this study suggests that starting by classifying design related activities in business is likely to facilitate rendering design more comprehensible for non-designers in business. After all, many science disciplines like chemistry (periodic table)(Langrish,1993); biology (classification of species) etc. start with taxonomy! In design management literature so far however, little attention has been paid to develop an up-to-date design taxonomy model.

2.4 Existing Design Taxonomy Models

Michael Farr's Design Management (Farr, 1966) is the first book that elaborates on the issues related to design in business. In accordance to the needs of the era, the book concentrates on the nature and the content of corporate/design agency relationships. According to Farr (1966,p. 3), design management is the function of defining a design problem, finding the most suitable designer and making it possible for him to solve it on time and within an agreed budget. In the same book, a checklist taken from the special 'House Style' issue of DESIGN is provided (Farr, 1966,p. 114). Concerning design taxonomy, the checklist is confined to corporate identity, communication and partly packaging related physical manifestations of design.

In 1987, Peter Gorb and Angela Dumas (1987) conducted a one-year pilot research study in 16 companies in UK. They used unstructured interviews in four industries (apparel, electronics, retail and transport).They examined all the aspects of the business where design is utilized and tried to indentify how the enterprise organized itself to make best use of design. Gorb and Dumas (1987) state that design and management relationship appears to be ambiguous and unclear. They also add that design activity is frequently not classified and even if it is classified there is no consistency in classification. To reach the ultimate classification, they developed several matrices. Although the content of the matrices they use changes during their study, the main design categories remain intact. These are products, environments and information.

In 1989, David Walker developed the Design Family Tree (Figure 2.1) which demonstrates the interrelations between various design related disciplines. The roots of the tree symbolize the influence of various craft (artisan) techniques on design; the trunk of the tree stands for various crafts disciplines and the branches of the tree

synthesize design specialization with market needs (Borja De Mozota, 2003,p. 23-24). David Walker's design family tree, rather than being a taxonomy model, serves as a conceptual model for identifying design related disciplines.

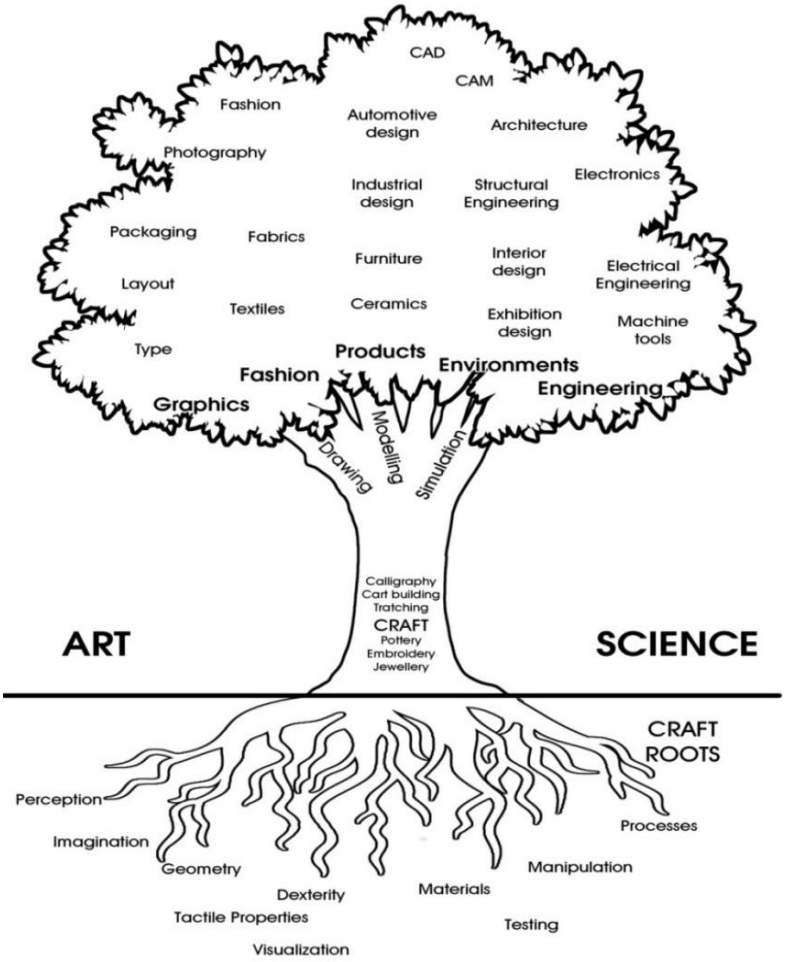

Figure 2.1 : Design family tree (Adapted from David Walker, 1989, in Borja de Mazoto, 2003, p. 24).

Chung (1992) believes that there is a certain semantic difficulty in design management since it is open to a variety of interpretations. In his paper, his primary objective is to identify a design management spectrum which comprises major design activities in the manufacturing firm for proposing a combined approach to the subject.

Chung (1992) suggests Corporate Design Mix (Figure 2.2) which is formed by the interaction of many design areas (disciplines) and various design works (physical manifestations of design). The Corporate Design Mix comprises of product, packaging, signs, buildings and working environment.

Chung (1992) claims that the view of design management as a synthesis of many aspects of a firm's design activity leads to the possibility that design management can be used as a corporate strategic tool. On the other hand, he also states that the design strategy provides a comprehensive visual framework in which the firm's design activities can be integrated with the total efforts of the company. Chung (1992) claims that there are certain advantages in having a combined approach of graphic design, industrial design and engineering design which is based on the idea of integrating highly specialized designers in order to enjoy a synergy effect in new product development. Such a holistic approach may also decrease lead time, e.g. packaging and communication.

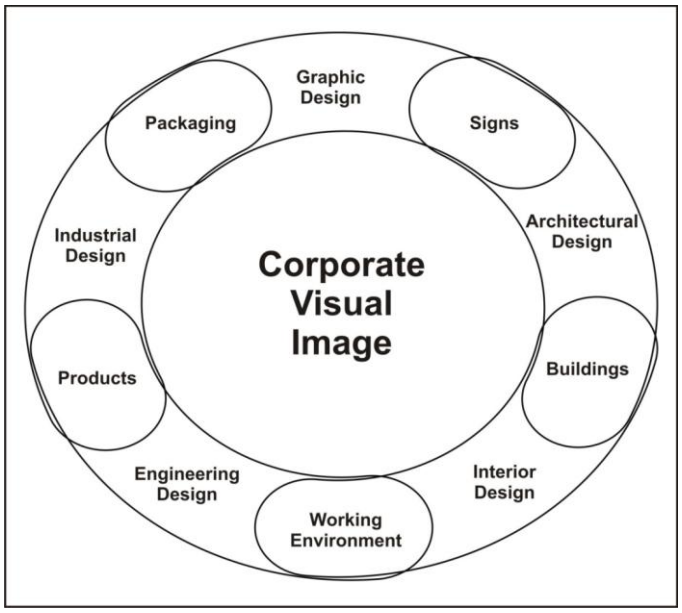

Figure 2.2 : A corporate design mix (Chung, 1992).

Olins was one of the pioneers in the domain of identity consultancy and in 1985 he depicted what design could potentially encapsulate, by means of narrating a former colleague's journey:

> Michael Wolff's journey encapsulates the various points of contact which take place sequentially between an organization and those who come into contact with it… The journey starts with the critical telephone conversation or other initial point of contact. It takes into account both how long it takes to answer the phone and in what manner it is answered. It moves on then to the correspondence. Naturally it takes into account the content of the letter, but it also takes account of its form – the time taken in response, the politeness, clarity and level of literacy of the reply as well as the physical qualities demonstrated by the letterhead. The next act in the journey might well be "the meeting", which geographical area, which part

> of the town, what kind of signs, what kind of building, the reception area, its appearance, size, cleanliness, comfort. (Olins, 1985 as cited in Cooper and Press1995, p. 198-199)

Olins's audit of 1985 is excellent in terms of capturing most corporate domains influenced by design by means of revealing all contact points. The elaboration on contact points (which will later be referred as customer touch points in service design literature) also hints how wide the scope of design in business is.

According to Olins (1995), identity manifests itself primarily in three main areas. These areas are *products and services* (what you make or sell), *environments* (where you make or sell) and *communications* (how you explain what you sell).

Going back to Olins's 1985 audit, it is very successful in conveying the whole philosophy behind a design audit of the era and it is the first think-piece that hints to go over all the physical manifestations of design while auditing. However, Cooper and Press (1995, p. 199) emphasize its absence in most texts on audits due to its rather unstructured style which makes it inconvenient for measurement, comparison and evaluation. Olins must have realized the structural problem in his former audit because in his book in 1995 (Olins, 1995; The New Guide to Identity) he provides the reader with a detailed checklist for visual (design) audits (Figure 2.3).

In the same period, similar to Olins (1995),Cooper and Press (1995, p. 214)also approach the design taxonomy issue from an audit perspective.In the design audit proposed by Cooper and Press (1995, p. 214) the term *physicalmanifestations of design* is coined for the first time. The physical manifestations of design are listed as visual identity, corporate design standards, product, work environment, pre project.

In 2003, Press and Cooper (2003, p. 54-55) revise both the title and the content of their prior model. The title becomes "Areas for a design audit" and physical manifestations of design are listed as visual identity, corporate design standards, products and work environment. The preproject item is omitted.

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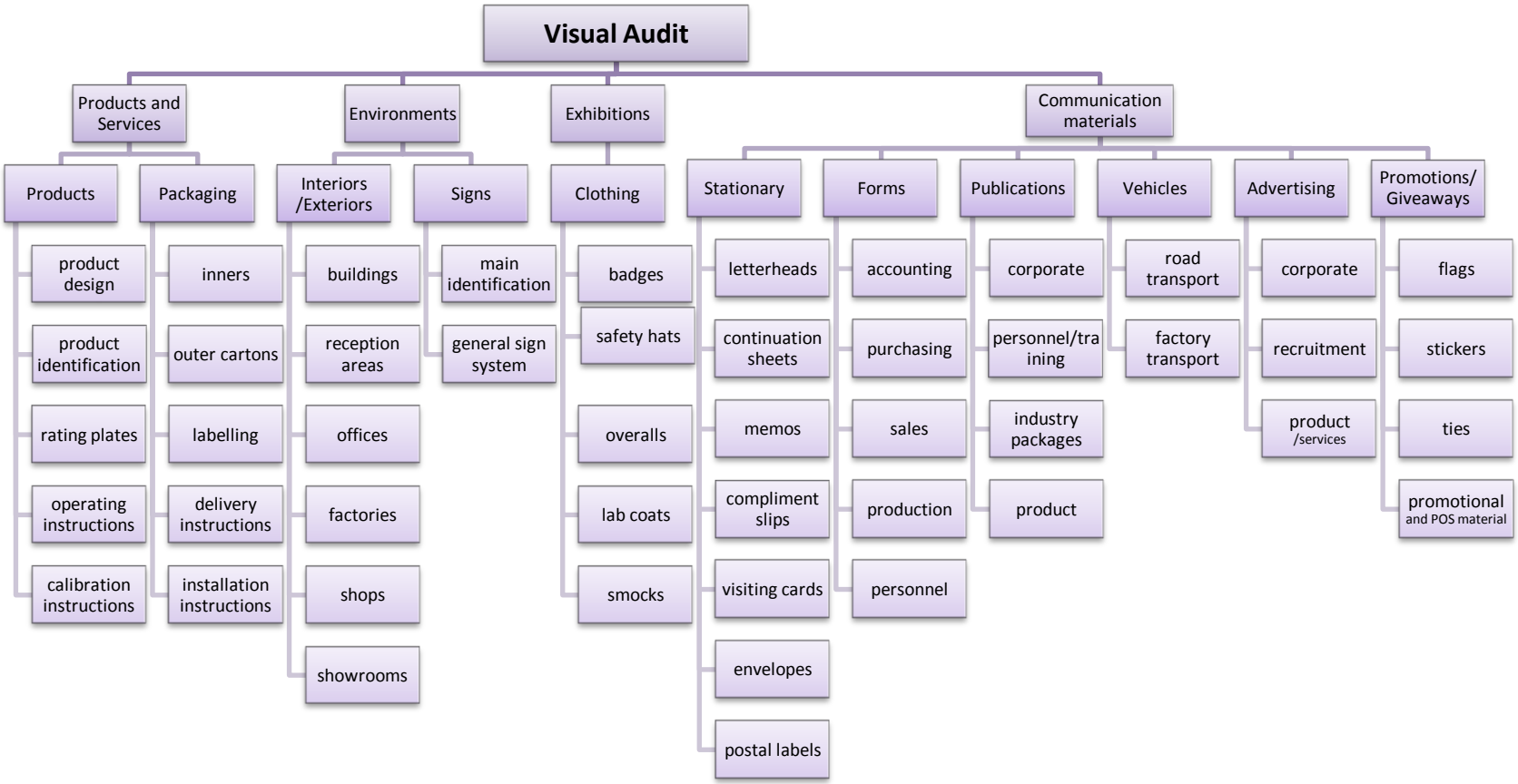


Figure 2.3 : Checklist for visual (design) audits (Olins, 1995, p. 82-83).

In 2003, Press and Cooper (2003, p. 54-55) revise both the title and the content of their prior model. The title becomes “Areas for a design audit” and physical manifestations of design are listed as visual identity, corporate design standards, products and work environment. The preproject item is omitted.

In the same year, De Mozota (2003, p. 28) develops the Design Integration Matrix. In the columns design areas are presented and the rows stand for corporate functions. Design areas are listed as Graphic Design, Packaging Design, Product Design and Environment Design (Borja De Mozota, 2003, p. 28). Corporate functions are CEO, Corporate Communication, R&D and Manufacturing and Marketing. In the intersecting points of functions, with design areas various physical manifestations of design are listed.

Lockwood (2006) uses design disciplines rather than their outputs to depict how customer experience is created. The framework provided by Lockwood (2006) (Figure 2.4) suggests a wider range of company activity relating to design: Customer experience comprises of identity design, product design, environment design, communication design and interaction design. Particularly the inclusion of interface design and the umbrella-like definition of experience design suggest that not only traditional manufacturing industries but also service companies engage in design activities.

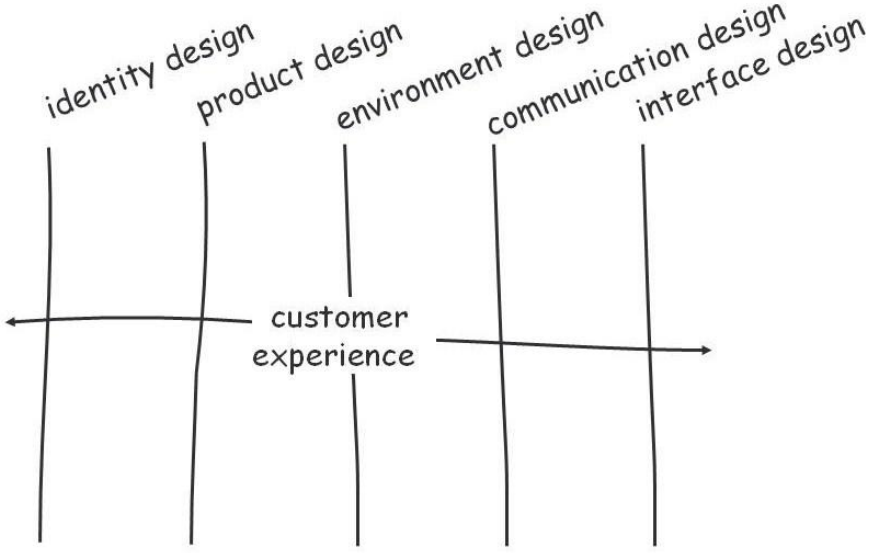


Figure 2.4 : Depiction of customer experience by Lockwood (2006).

In a private discussion with Lockwood in 2010 in Istanbul (during the coffee-break of the Design Conference at Kadir Has University); Lockwood mentioned that he could update his model to include social media in the activities.

More recent studies on the other hand, relate these physical manifestations of design to the issue of customer touch points. 'Touch points refer to the multiple contact points between service providers and their customers' (Gloppen, 2009). Towards the turn of the new millennium, as the economy shifted from products to experiences (Pine and Gilmore, 1998), the list of physical manifestations of design got longer. Today, particularly the number of on-line touch points of a company, used in contacting with its internal and external customers, is increasing significantly. Kim *et al.* (2009), argue that we are living in an era of marketing where 'prosumers' (consumers that also produce) and 'trysumers'(teens and twenties seeking new experiences) prevail , due to the development of information technology. In this era of marketing, sight, hearing, touch, taste, smell- a brand should take advantage of all of these to reinforce its presence and deliver its messages. Therefore Kim *et al* suggest a model called the Brand Experience Wheel (BEW) which deals with the integration of sensory branding with brand touch points.

Kim et al. (2009) claim that normally firms utilize as many touch-points as possible; however in difficult economic times it may not be possible to maintain all of them. They further elaborate that companies thus need to carefully evaluate the degree of impact of each touch point in terms of experiential breadth and depth where *experiential breadth* is the range of contact points experienced by customers; experiential *depth* is the degree of impact expressed through number and diversity of sensory clues- that each touch point can have on a customer, whether current or potential.

According to them, designer is not just a creator of objects but also an enabler of experiences, therefore sophisticated designers must focus on balancing experiential breadth and depth to move consumers from mere awareness to true 'experience'.

Kim *et al*. (2009) claim that the core value/identity of a brand can reach customers through the five senses of sight, hearing, touch, smell, and taste, greatly influencing experiential depth. Previous literature on brand-touch points has not clearly considered the importance of those senses in evaluating touch point and breadth and

depth. Each touch point needs to appeal to at least some of the senses. They conclude that brand building done in this way reflects the decision making shift from the rational to the emotional and experiential.

Kim *et al*. (2009) conclude that if companies can evolve to orchestrate a holistic experience with a brand, product or service in response to the ever-changing marketing environment, they will be assured of a bright future.

Moultrie *et al*. (2009) develop a conceptual model for the classification of design expenditure within companies by means of conducting a series of case studies. Their ultimate goal is to collect financial data using this model. Their revised model classifies design expenditures into three categories:

1. Design in the creation of products and services.
2. Design in the communication, promotion and delivery of products and services and in the creation and communication of the identity of the business.
3. Design within the business: Environments, workplaces, processes and systems.

This classification is parallel to that used by many organizations today (Design Management Journal; International Design Alliance's formation principle, etc). The only problem is that identity design is treated under communication. But anecdotal evidence suggests that products, services, environments all influence the identity to a great extent.

Existing design in business taxonomy approaches imply that the classification of design is to be made with respect to corporate domains affected by design. Once corporate domains affected by design are identified, it becomes easier to list the outcomes of design activity. From now on, within the scope of this article the outcomes of design activity will be called physical manifestations of design. Table 2.1 summarizes design taxonomies (branching categories) suggested in existing design management literature by various authors between 1966-2009.

All of the taxonomic approaches mentioned above contribute to our understanding of the scope of design in business yet when it comes to clarifying the ambiguity on the scope of design in business the non-designer executive faces today, a more contemporary and more comprehensive model may turn out to be beneficial.

Table 2.1 : Design taxonomies suggested in existing design management literature between 1966-2009.

Year	Author	Product–Service Design Related	Environment Design Related	Communication Design Related	Identity Design Related	Other
1966	Farr	packaging		communication	identity	
1987	Gorb & Dumas	product	environment	information		
1989	Walker	product	environment	graphic		engineering fashion
1992	Chung	product packaging	buildings working environment		signs	
1995	Olins	products services	environment	communication	exhibitions	
2003	Cooper andPress	product	working environments		identity	
2003	Borja De Mozota	product packaging	environment	graphic		
2006	Lockwood	product	environment	communication	identity	inter-face
2009	Kim et al.		space	advertising promotion events & sponsor PR & publicity personal selling		
2009	Moultrie et al.	products and services	environments	communications and Identity		

In this respect, analyzing the concepts of experiential marketing (Pine and Gilmore, 1998) and 360 degree communication (Blair *et al.*, 2003*)* from marketing literature may facilitate to develop a more up to date and comprehensive design taxonomy model. The former concept suggests that all the five senses should be taken into account while designing an experience and the latter suggests that both off-line and on-line touch points should be considered efficiently.

2.5 Existing Design Audits

The complex task of evaluating design in business is done by audits. An audit is a systematic examination to measure conformity with predetermined requirements (BS: 7000-10, 2008). A design audit is the systematic evaluation of the result of an activity to establish the extent to which the original objectives have been fulfilled (BS: 7000-10, 2008). A design management audit is a detailed examination of an organization's design activities and design management practices at corporate and

project levels. The audit helps to determine a) how the design facility contributes to corporate performance and profitability; b) suitability and effectiveness of activities and practices in addressing corporate design requirements; c) conformity with corporate policy, standards and guidelines (BS: 7000-10, 2008).

There are many aspects of design (such as design awareness, design understanding, design practices etc.) that can be examined. Thus various audits elaborating different aspects have been developed in literature. Organizations like UK Design Council, Design Innovation Group, British Standard Institute, Irish Board of Trade, Danish Design Center have supported the development of numerous audits. Kotler and Rath (1984); Olins (1985 as cited in Cooper and Presss, 1995, p. 198-199) Cooper and Press (1995,p. 214); Dickson *et al* (1995); Sentance and Walters (1997); Summers (2000 as cited in Bruce and Bessant, 2002: p. 241-249); Borja de Mozota (2002); Donegal 2006 (Manzakoğlu 2009); Moultrie *et al* (2007); Manzakoglu (2009) are among the authors that have contributed to the literature of design management audits. Unfortunately design management audits have not been able to keep pace with the evolution contemplated in the corporate domains affected by design. One of the major problems with existing audits is that none of them is capable of auditing all the contemporary corporate domains affected by design.

Table 2.2 illustrates design audits analyzed in this study. The first column of the table reveals the date when the audit was published for the first time. The next two columns bear the name of the author and the audit. A short description of the content is followed by the number of questions available in each audit. The last two columns demonstrate the measurement methodology and the scale of the answers.

As it is clearly seen from the table, design audit literature started after 1980's parallel to the design management emphasis contemplated in the UK and US in the early 80s. Kotler and Rath were the first scholars to audit design. Not surprisingly related to the authors' backgrounds, their audit tool analyzes design from a marketing point of view.

Kotler and Rath's (1984) design audit implies that the locust of design within corporation structure is marketing because the introduction part emphasizes that companies need to review periodically the role that design plays in their marketing program. The audit comprises of two parts; these are namely, design sensitivity audit

and design management effectiveness audit. Both parts comprise of 5 multiple choice questions (The complete audit form is seen in Appendix G). Each choice is scored as 0, 1 or 2. Thus, a company's design sensitivity ranges from 0 to 10. Similarly its design management effectiveness ranges from 0 to 10. Kotler and Rath (1984) conclude that companies having a combined score between 14 to 20 are in fairly good shape. Those scoring less than 8 should examine whether they are missing a major opportunity by not making more use of design thinking in their marketing strategy.

One major drawback of this audit is that it assumes the company has design staff. If the company does not have any design staff, design management effectiveness part becomes irrelevant and this means that the maximum score such a company can reach cannot exceed 10. In other words, companies with no design staff do not have a chance to be in fairly good shape. If we consider this in terms of detecting silent design it sounds plausible, but what happens if the company relies totally on external design expertise?

On the other hand Olins, who was a pioneer in the corporate identity domain, analyzes organizations visually from an identity perspective (Figure 2.3). The Design Atlas, which can be considered as one of the most comprehensive design audits developed, uses an organizational theory and behavior approach.

The Design Atlas Audit Tool was published by the UK Design Council in 1999 (Bruce and Bessant, 2002). It is an assessment tool for auditing design capability. It comprises of 5 main sections. These are namely planning for design, processes for design, resources for design, people for design and culture for design. Each section includes questions to determine the state of the related capability. In total, there are 15 questions. The answers are evaluated on a scale of four levels.

The Design Atlas is very detailed assessment tool. As an evidence it requires documentation related to planning, processing and budgeting etc. therefore it can be said that it evaluates the state of design quite concretely. However since there is not a standardization on the scores of measurement, it is difficult to determine objectively the state of design in a given company with respect to others. Besides, it requires a deep understanding of the company and industry involved therefore its application is time consuming.

Table 2.2 : Design audits analyzed for the purpose of this study.

Date	Authors	Name	Content	Qs	Measure	Scale
1984	Kotler and Rath	Design Sensitivity	Design sensitivity with respect to various domains affected by design.	5	Multiple Choice	0,1,2
1984	Kotler and Rath	Design Management Effectiveness	Design management effectiveness.	5	Multiple Choice	0,1,2
1985	Olins	Customer Journey	Unstructured narration of a customer journey	na	na	Na
1995	Olins	Checklist for a Visual (Design) Audit	Corporate domains affected by design	na	na	Na
1995	Cooper and Press	Organizational Design Audit Checklist	Environmental factors, corporate culture, physical manifestations of design, design management	na	na	Na
1995	Dickson et al.	Dickson Design Management Audit	Design management skills + investment in design	17	Likert Scale	1-7
1997	Sentance and Walters	Design, Quality and Competitiveness Survey	Design strategy, importance attributed to NPD, main focus on resources for design.	12	Likert Scale, Multiple Choice	Misc.
1999	UK Design Council	The Design Atlas	Planning, process, resources, people and culture	15	Maturity Grid	4 level
2003	National Agency for Enterprise	Danish Design Ladder	No design, styling, process, strategy	1	Maturity Grid	4 level
2006	Donegal	Donegal Design Audit	Company profile, design activities, NPD	22	Multiple Choice	Misc.
2007	Moultrie et al.	Process Audit	NPD processes	24	Maturity Grid	4 level
2009	Kootstra, Design Management Europe	Design Management Staircase	Awareness, planning, resources, expertise, process	18	Likert Scale, Multiple Choice	Misc.
2009	Manzakoğlu	Manzakoğlu Design Audit	Design awareness, sensitivity, positioning; design activities and working environment and design integration	21+33	Maturity Grid, Multiple Choice, Likert Scale	Misc.

Concerning design audit content issues, they range from design awareness, corporate domains affected by design, corporate culture, project management capabilities to resources allocated for design (budget and people). Although audit contents and types of questions used are miscellaneous, the measurement converges to three types of scale (Likert, Maturity Grid and Multiple Choice).

Compared to finance and IT audits, design audits are less widely used. There are two reasons. The first reason stems from the fact that design itself is a neglected strategic tool (Kotler and Rath, 1984). Looking from the managerial perspective, this is no surprise: For a tool to be deployed strategically it should be understood at all corporate levels. This is not the case for design. Even the most enlightened employees and managers are partially aware of design. On the other hand, if expertise is a prerequisite for strategic deployment then the road to expertise starts with awareness. Therefore design awareness is critical for strategic deployment of design.

When we analyze the design audits of the last three decades, we see that just five of them (The Design Atlas, Cooper and Press, Donegal, Kootstra and Manzakoğlu) have incorporated the issue of design awareness in their questionnaires. Although awareness is a missing point in many of the design audits (Kotler and Rath, Olins, Dickson, Sentance and Walters, Danish Design Ladder, Moultrie) a more serious problem remains concerning the explanation of design awareness. What is design awareness? In order to answer this question, an answer to a more complicated one is needed? What is design in business? Anecdotal evidence suggests that asking "where is design in business?" would be a more pragmatic approach in unveiling the invisibility of design in corporate world. After all, the easiest way to grasp the unknown is to go over its physical manifestations. In the case of design awareness, the easiest way would be looking at the corporate domains affected by design. Can anyone provide a comprehensive list of corporate domains affected by design? Is there a consensus on the classification of those domains in existing design literature or management practice? The answer to both questions is a qualified "No".

Strategic deployment of a tool strongly depends on the quantification of its benefits. Since current accounting practices are not useful in providing a breakdown of design expenditure accounts, investment in design cannot be traced precisely. As the inputs

cannot be measured precisely, it is merely wishful thinking to expect quantification of design benefits.

The second reason why design audits are not used as widely as finance or IT audits is related to the structure of numerous audits developed throughout the past three decades. Cooper and Press (1995,p.218) state that there are two types of audits, one which is grounded in some standard or legislation, and one which arises out of a philosophical stance, a social concern or a management theory.

The former approach is chiefly concerned with quantification and standardization, assuming that once something can be quantified against external predefined standards, it will be forced to improve or to maintain standards. The latter approach which is more creative considers the issues and then develops criteria against which the organization/functions are audited, using the results to inform and direct management (Cooper and Press, 1995,p.218).

It is the former approach (ie. grounding the audit in standards or legislations) that fosters the dissemination of an audit. Once standards become established, for the sake of achieving a comparative analysis, managers seek audit applications. In the case of design audits, unfortunately the former approach has been widely neglected. When the audits of the past 30 years are analyzed, it is seen that (excluding BS 7000-2: 2008) all the audit tools developed fall into the latter approach (ie. they are not grounded in standards or legislations). Had the audits of the latter approach been applied to large samples of companies, perhaps eventually, the results of some of them could be converted to industry standards. Unfortunately research using large samples of companies is scarce in design audit literature.

The auditor developing the questionnaire is on the horns of a dilemma concerning the inclusion of an additional question where the likelihood of capturing an imprecise answer is higher than the reverse. On the other hand, the temptation of widening the scope of the audit constitutes the other side of the conflict. The asymmetry of information between the auditor and the interviewee (Auditor's Dilemma *a.n.*) is similar to that contemplated in Prisoner's Dilemma. However, neglecting the necessity of collecting evidence and the inclusion of subjective assessment questions result in alienating design audits from the former approach.

We suggest that design awareness, a precise list of corporate domains affected by design (scope of design), applicability on large samples and standardization are important attributes that a design audit should incorporate. Now, let us check which of the existing audits possess the attributes mentioned above (Table 2.3).

Table 2.3 : What is missing in existing design audits?

Date	Authors	Name of the Audit	design awareness	design scope	legislation or standard base	applicability on large sample	process approach
1984	Kotler and Rath	Design Sensitivity	-	+	-	+	-
1984	Kotler and Rath	Design Management Effectiveness	-	-	-	+	-
1985	Olins	Customer Journey	-	+	-	-	-
1995	Olins	Checklist for a Visual (Design) Audit	-	+	-	+	-
1995	Cooper and Press	Organisational Design Audit Checklist	+	+ (comm. missing)	-	-	+
1995	Dickson et al.	Dickson Design Management Audit	-	-	-	+	-
1997	Sentance and Walters	Design, Quality and Competitiveness Survey	-	+ (space missing)	-	+	-
1999	The Design Council	The Design Atlas	+	+(ID missing)	-	-	+
2003	National Agency for Enterprise	Danish Design Ladder	-	-	-	+	+
2006	Donegal	Donegal Design Audit	+	+ (space missing)	-	+	-
2007	Moultrie et al.	Process Audit	-	- (only NPD)	-	-	+
2009	Kootstra, G.L., Design Management Europe	Design Management Staircase	+	+ (space missing)	-	+	+
2009	Manzakoğlu	Manzakoğlu Design Audit	+	+	-	-	+

For this study, in total, 13 audits have been analyzed. As it has been mentioned earlier, only 5 of the existing audits have a design awareness section. All of the 13 audits elaborate on the scope of design to some extent. However (assuming that there are 4 major corporate domains affected by design -namely environment design, product-service systems design, identity design, communication design-) only three of the audits (Kotler and Rath, Olins, Manzakoğlu) have a checklist for all the four major design domains. Cooper and Press miss communication; Dickson and Moultrie only focus on new product development; Sentence and Walters, Donegal and Koostra miss environment design. And even the most sophisticated audit tool "The Design Atlas" misses corporate identity.

Olins, the Design Atlas and Donegal have avoided any subjective assessment questions. Therefore results obtained using these audits are likely to be more objective. Concerning applicability on large samples, 8 of the design audits are suitable to be applied on large samples.

In 2013, the invitation text of the Design Conference organized by European Academy of Design suggested that "design is imagining the future" and "when packaged in a process format and language to appeal to managers and large organizations, there is the risk of getting what designers do blurred". Although the statement is completely true for some design led companies that are pioneers in terms of design leadership; if design is to be represented at board level similar to other functions, isn't it logical that first of all it is made visible in the corporate structure? Defining design as a process makes it visible. The majority of large organizations have the ISO 9001 quality certificate. ISO 9001 uses a process approach. Because if the organization operates according to ISO 9001 quality standards, anything not defined as a process, literally does not exist among corporate activities.

A process is a set of activities that transforms inputs into outputs by means of using resources. Principle 4 of ISO 9001 makes it clear that organizations must identify and manage the processes that constitute their quality management system,"ISO 9001Principle 4: Process approach A desired result is achieved more efficiently when activities and related resources are managed as a process" (Url-7).

Since design is a very important aspect of total quality management, in order to carry out all design related activities smoothly within the corporate structure, all processes

and procedures related to design should be well documented and understood. This proper documentation will not only minimize ambiguities concerning design responsibility but it is also likely to offset problems related to "Silent Design" (Gorb and Dumas, 1987). In this context, 6 of the existing design audits mention "process approach" to some extent. However elaborating on the design related processes requires a clear vision of corporate domains affected by design. Such a vision does not exist because there is no consensus on the complete list and classification of design within the existing literature.

An alternative audit proposal

A solution could be to propose a design audit tool that suggests adopting a process approach embedded in ISO 9001. ISO 9001 requires that whatever activities are carried out within the organization (sales, marketing, production, human resources, finance etc.) all of them should be documented as a process. Adopting such an approach for design is likely to increase design awareness because it will enable all the employees to see the start, progress and completion of design related tasks. Also, by means of proper documentation; execution and supervision of responsibilities; internal suppliers and customers of each process are clearly defined.

How to document the design process? Design process comprises of many sub-processes that managers and even designers are unaware of. Depending on the industry and depending on the design discipline of the designer, the scope of the design process may be confined to new product development or depending on the availability of an external design agency the primary focus of the design process may be corporate communications. It is suggested that as a best practice example, all of these domains and also sub-domains related to design should have their own processes defined as part of the ISO 9001 documentation of a company. Therefore the proposed audit will investigate the availability of the process, its responsible and the availability of an educated designer within the process.

There is no doubt that design is a creative process and unlike manufacturing, all the steps of the design process cannot be documented in advance. However, a brief definition of the process and its responsible and the inclusion of a designer within the process is likely to eliminate silent design contemplated in corporations to a great extent.

One additional benefit of such documentation will be implementing a holistic approach to design. If all the employees active in design related decision making become aware of other design related decision making going on in the company, anattempt to establish co-ordination is more likely to be observed. On the other hand, coordination can also be implemented into the system by means of appointing a specific designer/design manager as a process responsible to all the design related processes.

Exceptional cases

On the other hand there may be exceptional cases. For instance, if the company is offering its products to the bottom of the pyramid; or if it is staging the experiences to appeal the pit, there might be no point in adopting such an approach. Such companies do not have ISO 9001 Quality Certification anyway.

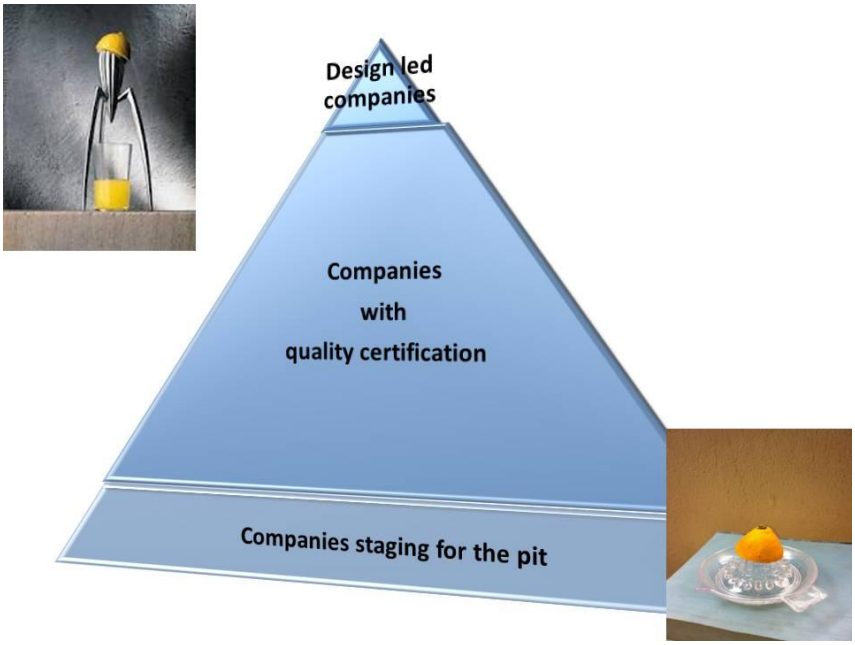


Figure 2.5: Where does your company stand?

Another exception could be "Design Led Companies". If we are talking about pioneer companies like Apple etc. in such a creative company, again process documentation may turn out to be irrelevant. Again for such companies the probability of having an ISO 9001 Quality Certification is low. Because it is likely that highly diffused creativity throughout the organization will make it impossible to document any processes.

However if a company does not belong to the bottom or zenith of the pyramid, (and particularly if it is a manufacturing company already in possession of ISO 9001 Quality Certification) design is likely to enjoy the benefits of proper documentation. Therefore again the vital question is related to the overall company strategy and where the company has chosen to stand.

A design audit tool embedded in ISO 9001 quality documentation is likely to resolve many issues related to structural problems of the audit literature. The audit will be an integral part of the ISO 9001 quality system. Thus if a company has the ISO 9001 certificate, it will also guarantee having made an attempt for increased awareness of design and a holistic approach to design. Besides, issues concerning objectivity and ambiguity in authority will be overcome since ISO documentation will serve as evidence.

Therefore contrary to the common belief of limiting design within the strict corporate structure and mystifying its benefits; clarifying the scope of design by means of embedding it in a process format using the approach explained above is likely to boost design's reputation and efficiency.

2.6 Design and Marketing

Design and marketing intersect in many areas. New product development, brand management and corporate communications are the most important among these. Within the scope of this study, the relationship between design and marketing in existing marketing literature will be analyzed in terms expertiential marketing and corporate identity.

However before the analysis is realized, it is believed that it would be beneficial to go over the definition of marketing in order to reveal the scope of marketing in business.

2.6.1 What is marketing?

Marketing scholars have been searching for a generally acceptable definition of marketing since the beginning of 20th century, however it was not before the middle of 20th century that their efforts produced a concrete result in that aspect (Ferrell, 1987). In1960, the first definition of marketing emerged and not surprisingly, this

very first definition emphasized very much the distribution (logistics) aspect of marketing. It was confined with the business context since it read as follows, "marketing is the performance of business activities that direct the flow of goods and services from producer to consumer or user" (Committee on Definitions, 1960 in Ferrell and Lucas, 1987).

Exactly five years later after this initial premature definition, the marketing staff at Ohio State University came up with a more developed and sophisticated definition which incorporated the elements of the marketing mix (the 4 Ps - namely product, price, promotion and place) already elaborated by Borden (1950) and McCarthy (1960). (Ferrel and Lucas, 1987) The 1965 definition differentiated itself from the previous one in the sense that it also touched upon the issue of demand estimation and satisfaction of the society. Demand estimation most probably stemmed from an earlier era when marketing was considered to be a function of economics, yet the inclusion of customer satisfaction at that time was not coincidental: Early sixties was a period in which the discipline of consumer behavior was becoming influential. Also the second definition of marketing introduced the term exchange, which later turned out to be one of the pillars of the marketing concept. "Marketing is the process in a society by which the demand structure for economic goods and services is anticipated or enlarged and satisfied through the conception, promotion, exchange and physical distribution of such goods and services"(Marketing Staff of Ohio State University, 1965 in Ferrel and Lucas, 1987).

A decade later than this second definition of marketing, Bagozzi with Kotler's contribution (Bagozzi, 1975) emphasized the term "exchange" and elaborated on it extensively."Marketing is quite broad, encompassing all activities involving exchange and the cause and effect phenomenon associated with it"(Bagozzi, 1975).

Bagozzi's (1975) article was also influential in broadening the marketing concept to all activities outside the business context and thus strengthening the position of the protagonists of the broadened marketing concept against antagonists' claims. The most important antagonists of the broadened concept of marketing were Luck and Bartels. The former claimed that rendering marketing more universal would make it lose its identity (Luck, 1969), while the latter threatened the marketers that a new discipline would appear to resolve the most significant issues related to marketing if they went on broadening the concept (Bartels, 1974).

Since then, for the past 35 years, (with one exception- AMA[3] 2004) all the definitions of marketing included the term exchange. Table 2.4 lists those definitions.

Table 2.4 : Definitons of marketing between the years 1976-2010.

"Marketing is a social process by which individuals and groups obtain what they need and want through creating and exchanging products and value with others."(Kotler and Levy, 1984)
"Marketing is the process of planning and executing the conception, pricing, promotion and distribution of ideas, goods and services to create exchanges that satisfy individual and organizational objectives."(Marketing News, 1985)
"Marketing is an organizational function and a set of processes for creating, communicating, and delivering value to customers and for managing customer relationships in ways that benefit the organization and its stakeholders." (AMA, 2004)
"Marketing is the activity, set of institutions, and processes for creating, communicating, delivering, and exchanging offerings that have value for customers, clients, partners, and society at large." (AMA, 2007)

In Bagozzi's article (1974) issues concerning types of exchange, media of exchange and meaning of exchange were elaborated in detail. However there was no trace about the setting of the exchange. By "setting of exchange" the author means how the environment where a particular exchange is contemplated, is organized. It is true that it is difficult to confine such settings, yet if exchange settings are not determined it is impossible to shape the corporate marketing strategy. Setting of exchange means systematic planning and designing and implementing of touch points with stakeholders. According to Kotler (1972) stakeholders are *organization's all publics*.

Settings of exchange - in other words an organization's touch points with its stakeholders- evolved over time. In the era of commodity marketing the only touch point was the core product. As products became more sophisticated and were bundled with services accompanying them; the number of touch points increased. Demographic and lifestyle changes were among other factors that increased the number of touch points available to interact with stakeholders. Finally, most important factor that affected stakeholder touch points was the rapid advance in technology.

Indeed technological development was the most influential contributor to the increase in the number and variety of customer touch points. Before the industrial

[3] AMA stands for the American Marketing Association

revolution, agricultural products (commodities) could not be easily transferred geographically therefore they were consumed in the places close to production sites. After the industrial revolution, transfer of goods was facilitated by trains and later by cars, thus the need for packaged commodities increased. In fact, packaging was the second touch point that came onto stage after the core product and it was the first step towards the concept of augmented product. In the early 1930's newspaper and radio advertising was boosting. The former was a visual and the latter an audio touch point. During the same period, dissemination of electricity to households created the consumer durables market. Later television advertising and sponsorships became a new audio-visual consumer touch point to be exploited. Also the idea of shopping from supermarkets became widely accepted. These developments lead to two completely new touch points: Information organization related to corporate identitiy and point of purchase (POP) materials. After the introduction of personal computers and the dissemination of the internet, on-line touch points quickly outnumbered those offered off-line.

2.6.2 Change in paradigm: Experiential marketing

Traditional marketing has provided a valuable set of strategies, implementation tools and methodologies for the industrial age. Now that we have entered a new era, it is necessary to shift attention from the features-and-benefits approach advocated by traditional marketing to customer experiences. Managers need to consider new concepts and approaches, and most of all, new approaches within the organization to capitalize on the new opportunities offered by experiential marketing(Schmitt, 1999).

As time goes by, once brand new considered products and services offered by many industries, become commodities. Particularly after the late 90's, in order to be able to step out of fierce competition and differentiate themselves, companies have been focusing on creating experiences for their customers. Creating and managing experiences is not a completely new phenomenon that suddenly appeared in business world two decades ago. Companies like Club Med have been staging experiences for their guests as early as 1950s; however, it became widely discussed in academic literature after Pine & Gilmore's (1998) famous Harvard Business Review article "Welcome to the Experience Economy". It is not very difficult to figure out the differences between goods marketing and services marketing, yet when it comes to

the comparison of services with experiences, a more subtle analysis is required to make a distinction between the two. In this context, Kotler (2004) argues that service marketing has been lifted to a new level by the recent work of experience marketing.

Pralahad and Ramaswamy (2003) state that the experience space is conceptually distinct from that of the product space. They conceptualize it by depicting the individual consumer being surrounded by the event, its context, its personal meaning for the individual and the level of his/her involvement.

Determining and satisfying the needs of customers is the essence of many disciplines related to industry. Marketing, design, engineering; they all strive to achieve this target by means of developing suitable solutions. As time goes by, the needs of customers are shifting from physical needs, towards inner needs. Radder and Technicon (2002) classify these needs as self-centered, emotional, social, spiritual and intellectual. They argue that few of them can be satisfied by products and services alone, and the unique characteristics of experiences make them particularly suited for such a role.

The changes in demographics and consumption patterns highlight two major facts that are likely to increase the importance of experiences in future: People are becoming lonelier than they were in the past and most of them have reached the saturation point in product consumption. Wikström (2004) argues that the increase in urbanization, growing mobility in society and instability in family relations all contribute to lonely crowds. He also claims that experience marketing satisfies the needs once met by other forms of engagement such as trade unions, religious communities and charity organizations.

2.6.3 Experiential marketing and design

In their article, Pine & Gilmore (1998) point out to the economic distinctions between *goods, services* and *experience* marketing. Table 2.5 depicts the part related to services and experience.

In experience economy, unlike goods economy, targeting high product quality will not be enough. In fact, product quality is transformed to experience quality. Creating *memorable experiences* that surpass customer expectations is the ultimate goal. Martin et al (1997) argue that when customers buy an experience they expect to feel

a certain way, to be pampered, uplifted etc., thus customer satisfaction depends more on the extent to which the emotional goal has been attained.

Table 2.5 : Economic distinctions between services and experiences (Pine and Gilmore, 1998).

Economic Offering	Services	Experiences
economy	service	Experience
economic function	deliver	Stage
nature of offering	intangible	Memorable
key attribute	customized	Personal
method of supply	delivered on demand	revealed over a duration
seller	provider	Stager
buyer	client	Guest
factors of demand	benefits	Sensations

Engaging all five senses of the consumer leads to more successful outcomes. Pine and Gilmore (1998) argue that sensory stimulants accompanying the experience should support and enhance its theme. They give Rainforest Cafe example where the forest theme is supported by the smells, sounds and visuals on the stage. Browsing through the local examples, a standard ice-cream stand versus that of a traditional "Maraş Dondurmacısı", depicts the difference between services and experiences marketing in a local context. In the latter, the ringing bells, seller's costume, the humorous interaction between the buyer and the seller, and the traditionally embroidered costume, all increase the level of involvement of the buyer, thus creating a stage for the guest. It is personal, because each individual plays his/her own part. Besides, the scenario is adjusted according to the personality.

Think of a self service barbecue restaurant: It may be a typical Turkish "mangal" experience or a fancy Go Mongo Restaurant. Once you put the meat on the fire, the sound and smell it generates increases your appetite enabling the eating experience to become more pleasant. If the meat were cooked in the kitchen of the restaurant, you would be less involved in the whole process and the waiting period would be more boring. Hanefors and Mossberg (2003) suggest five interrelated dimensions along which an extraordinary meal experience can be characterized. These dimensions are namely motivation, expectation, interaction, involvement and satisfaction.

Motivation and expectation occur in the pre-consumption stage; interaction and involvement arouse during consumption and satisfaction stretches to post consumption.

There are many other studies on what it takes to create more memorable and extraordinary experiences. LeBel (2005) conceptualizes the air travel experience by revealing customer psychological needs and determining provider's response to these needs. The three phases of the experience are named as joining phase, intensive phase, detachment phase. In the first stage where anxiety and confusion prevail on the passenger side, airline's response is to provide assurance and information. Brochures, demos, captain's announcements' all provide the necessary information and assure the passenger on issues concerning security and delays. During the intensive phase (ie. the flying phase), the need for relaxation or work arises. This has been addressed by a special seat designed to be converted to a large bed. The same seat can be converted to a table to have lunch with a companion or it can be used for working by business passengers (LeBel, 2005).

Whether it is a dinner experience or a long distance flight, the stage has to be designed. In performing arts, many design related disciplines co-operate to create the final show. Parallel to the shift from services to experiences a similar approach is needed in business world too. Industrial designers, graphics designers, interaction designers, interior designers, lighting and sound designers will co-operate to create the best experience for the customer.

Going back to the restaurant experience; sounds, smells, visuals, tactile components and lastly but not leastly the tastes, they all contribute to the individual's dining experience. Some amount of smell is desired but if its intensity makes you cough, then the experience turns out to be an unpleasant one. Depending on the theme of the restaurant, classical music may be perfectly well in many places, yet if you are in Hard Rock cafe it will be absurd. The tactile properties of the cutlery and napkins will tell you a lot about the genre of the place before you even start eating the first course. Waiter costumes, rituals of service, chair ergonomics, level of music, comprehensibility of the menu, quality of take-away packaging all contribute to the overall satisfaction. So, is every restaurant going to employ a costume designer, an industrial designer, a sound designer, a graphics designer and an interactions designer? Definitely not! It is beyond the financial capability of majority of

restaurants and besides there is no need. The crucial point is the recognition of the effects of those design related issues on the overall experience. Once the importance is realized, the task can be outsourced to experts.

Having stated the importance of engaging all five senses in the experience design, another important issue is to integrate the surprise factor. Since experiences are to be consumed more quickly than commodities, to attract a single individual's attention, repetitions have to be avoided. Again building on the local example, a frequent buyer of Maraş Dondurması is not likely to laugh at the same joke every time he/she goes to grab an ice-cream. The frequency of change will depend on the industry.

Wirkstörm (2004) suggests that products that are designed for leisure and hobby are more useful than others for experience consumption. He elaborates that the experience outcome not only depends on the consumers' area of interest but also on their production and consumption skills therefore he suggests the level of consumer skill as another segmentation variable. However, he adds that any basic product can also be used in experience production, if it supports the production of the experience. In his study he found 4 conditions for an event to become experiential and memorable: Personal interest and own activity, closeness/togetherness, excitement, pleasure of novelty.

Indeed, this is very much in line with Pine and Gilmore's (1998) earlier suggestion of the four realms of experience where they sort experiences into 4 board categories; which are namely entertainment, educational, esthetic and escapist. When the attributes are compared with those of Wikström (2004), education means pleasure of novelty, entertainment brings excitement, escapist activities are chosen according to personal interests and esthetic immersion requires closeness.

As the level of urbanization increases and people become lonelier, they also become more willing to pay for enjoying the experiences. Thus offering memorable experiences, is likely become a very challenging task for successful marketing (Soylu, 2009). Creating such experiences is closely related to many design disciplines. Companies realizing the importance of experience design (Starbucks, Club Med, Apple etc.) seem to have more chances to move one step forward in competition.

2.6.4 Corporate identity and design

A business's corporate identity is part of its deeper corporate identity – the outer sign of the inward commitment (Abratt as cited in Melewar and Sounders, 2000) – through its products, environment and communications According to Melewar and Sounders (2000), corporate visual identity is the domain of designers while corporate identitiy is the domain of organizational theorists. Melewar and Sounders (2000), identify eleven physical manifestations of design, which they call the communication mix. These are interior and exterior of buildings, stationary, publications, vehicles, signs, clothing, forms, advertising, packaging, promotions and products.

Writers elaborating on corporate marketing have focused their attention on corporate image (1950s), corporate identity, corporate personality and corporate communication (1970s and 1980s) and more recently on the concepts of corporate reputation and corporate brand management (Balmer, 1998). The following chronology has been derived from Balmer's (1998) conceptualization:

> **1950-1970:**Corporate image is dominated by graphic designers. Perception of external designers is emphasized. In 1964, the term corporate identity is coined by Lincott and Marguiles (as cited in Balmer, 1998). These design consultants realize that their consultancy work was beyond graphic design. They define identity as the controllable aspects of the corporate communication. (Balmer, 1998).
>
> **1970-1990:**US and British designand marketing communications consultants like Bernstein, Olins, Worcester show interest in the area. Growing academic interest from marketing, organizational behavior and psychology is contemplated. Greater emphasis is put on the behavioral aspects of corporate identity.
>
> **1990-2010:**In 1996 UK launches the international Corporate ID Group at the House of Lords. Three distinct approaches to corporate image appear:
>
> **The Psychology Paradigm:**Corporate image is the picture which your organization has created in the minds of your various publics. (Bristol, 1960, p. 13 as cited in Balmer 1998).
>
> **Graphic Design Paradigm:**How an organization communicates as image through a name and/or icon.
>
> **Marketing Paradigm:**Corporate image is the net result of the interactions of all the experiences, impressions, beliefs, feelings and knowledge that people have about a company. (Bevis as cited in Balmer, 1998)

The psychology paradigm differs from marketing and design paradigm in the sense that the latter two view messages from the standpoint of the receiver whereas the

former views themessages from an organizational perspective. According to Balmer (1998), "whereas Northern American consultancies had emphasized the role of graphic design in promoting a favorable image to an organization's external stakeholders, many British identity consultants emphasized the role of graphic design in communicating to internal stakeholders and more significantly its supposed ability to encapsulate an organization."

2.7 The Proposed Model: Corporate Design Germination Model

This study suggests a new taxonomy model for design in business. The model has been derived from existing design management literature and has been updated by means of using marketing literature. The proposed model suggests a four category breakdown (products, communication, environments, identity) instead of the traditional three category breakdown taxonomy (products, communication, environments) used since 1970s by the design management literature. In existing literature, identity has already been treated as a fourth category by a few authors (Kotler, 1984; Olins, 1995; Lockwood, 2006).

Based on a thorough analysis of the existing literature the author suggests the list in Table 2.6 for classifying corporate domains affected by design.

Table 2.6 : Proposed classification of corporate domains affected by design. (The ones with an * are also mentioned in Melewar and Sounders, 2000.)

Product-Service Systems Design: product*, service, packaging*.
Environment Design: buildings*, interiors*, production lines, retail points, warehouses.
Identity Design: logo*, cars*, uniforms*, stationary*, website.
Communication Design: publications*, advertising*, promotions*, tradeshows, interaction.

Recent developments in IT have led most of explicit communication to take place on-line. The rapid growth in the share of social media in corporate communications led to the increase in the number of agencies specialized in on-line communications. Consequently, design agencies that specialize in identity design do not necessarily have an expertise in communication design. On the other hand, as suggested by Borja De Mozota (2003, p. 28), identity design is treated at strategic management level (CEO) whereas communication is mostly dealt in middle level management.

Similarly, Martineau (as cited in Balmer, 1998) tackled the question of corporate image management and concluded that corporate image was of such importance that it deserved the attention of senior managers.

The new taxonomy model proposed in this study is called "corporate domains affected by design germination". The new taxonomy model is a stylized tree (Figure 2.6). The trunk of the tree incorporates five senses that should be taken into account while designing any artifact or experience for business. The trunk then branches into two: featuring *off-line* and *on-line* outcomes of design. Each branch has 4 leaves, depicting the essence of the new taxonomy model i.e. the four major corporate domains affected by design germination. These leaves (domains) are namely *product-service systems design*, *communication design*, *environment design* and *identity design*. Best (2006) uses a similar categorization how her classification differs in two points: i)instead of *product service systems* she uses *product* ii) she coins the term *information* for the *communication* category.

A substantial shift from the production of goods to the provision of knowledge intensive systemic solutions (Morelli, 2002) has been contemplated, particularly in the last two decades. The developments in information technology and an increased need for differentiation have triggered the shift. Products are no longer adequate to satisfy customer needs on their own. For this reason, even manufacturing companies design their offerings as bundles of physical products coupled with services.

The term product service systems (PSS) refers to a set of products and services capable of jointly fulfilling a user's need (Goedkoop et al., 1999). Manzini and Vezzoli (2003) claim that the notion of PSS originates from the shift of marketing focus from products to a more complex combination of products and services supporting production and consumption. On the other hand, Buchanan (2007) approaches PSS from a different perspective by means of asking "What is the product of a service design?" He claims that the word product in this context is used to mean the result.

Anecdotal evidence suggests that industrial designer activities have usually focused on the physical product ie. the material artifact. Traditionally educated designers tend not to be widely employed in service companies (Hollins, 2004). However, according to Manzini and Vezzoli (2003) the major element of a PSS is that a client

(both business and final user) demand is met by selling *satisfaction* instead of providing a product. The client does not really demand the products or services, per se, but what these products and services enable a user to achieve (Manzini and Vezzoli, 2003). Building on that argument, packaging design can also be considered as part of the PSS. After all, the satisfaction obtained from buying an IKEA cupboard or a take-away coffee as in the case of Starbucks depends substantially on the design of its packaging.

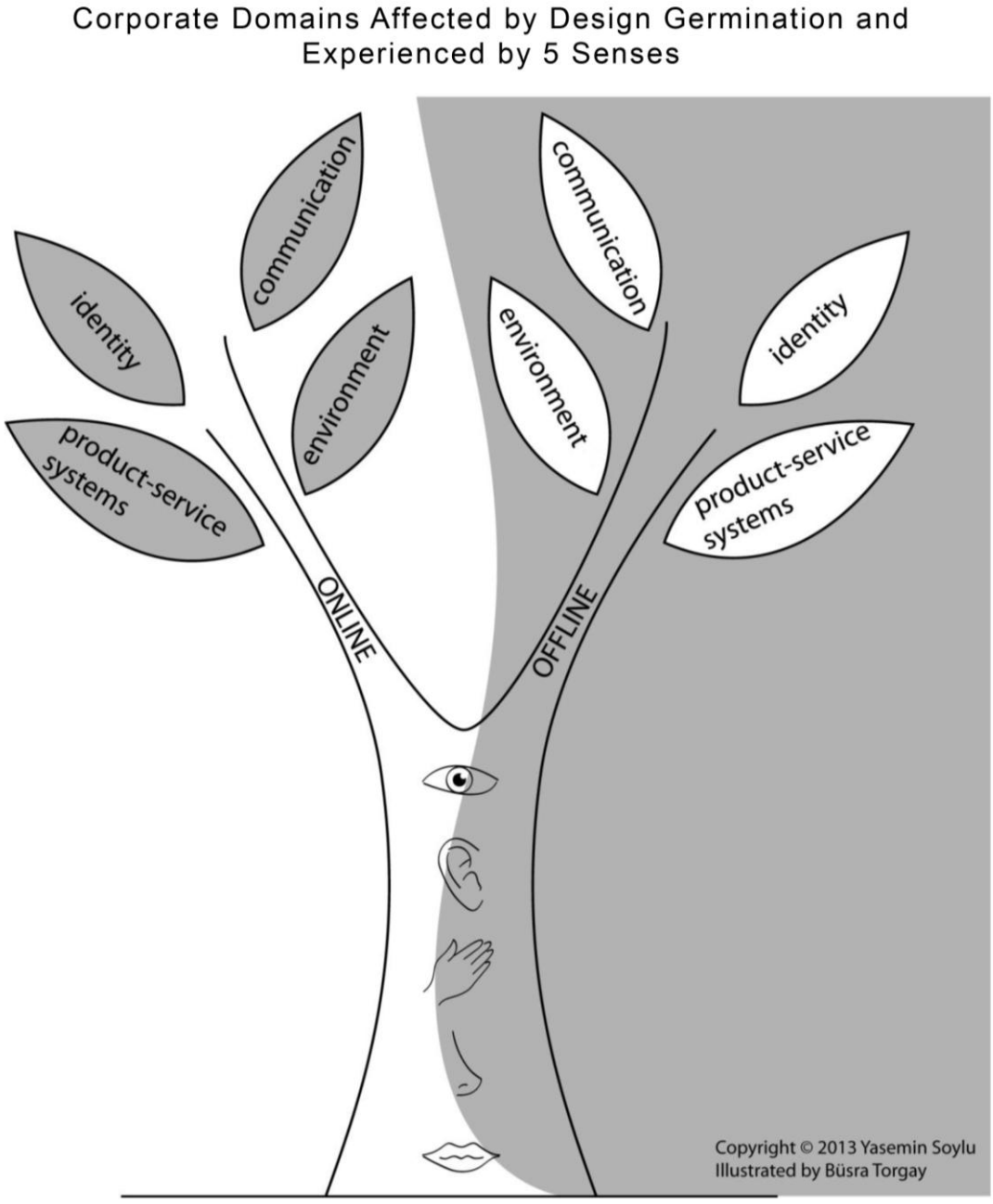


Figure 2.6 : Corporate domains affected by design germination and experienced by 5 senses (Soylu and Er, 2014).

In this study the physical manifestations related to PSS design for all businesses are identified as: Products, services and packaging.

Environment design deals with human designed environment. The arts and sciences related to environment design are architecture, geography, urban planning, landscape architecture, historical preservation, lighting design and interior design. Most companies have offices, cafeterias, factory buildings, where their internal and external customers interact. The styling and the functionality of premises affect how the stakeholders see the company and how they interact within the premises. Issues regarding efficiency and image are affected by the parameters of environment design. In this study, the physical manifestations related to environment design for all businesses are identified as: Buildings, retail points, interiors, production line, warehouses.

Communication design is the planning of media and messages within an organization, taking into account the aesthetic and functional attributes of the information exchange as a single integrated process. In this study the physical manifestations related to communication design for all businesses are identified as: Publications, advertising, promotional material, tradeshows, website, interfaces related to electronic devices.

Identity Design is the design of visual aspects that form part of the overall brand (Url-8). Identity design entails deciding on issues regarding the image of an organization perceived by all stakeholders. It usually manifests itself with the logo. However, it distinguishes itself from communication design in the sense that it comes into being if a strong organizational culture exists (Url-9). In this study, the physical manifestations related to identity design for all businesses are identified as: Logo, signs, uniforms, cars, stationary.

The suggested model facilitates our understanding of design in business by means of demonstrating the outcomes of design related activities relevant both for manufacturing and services industries, by means of listing the physical manifestations of design.

The suggested model is *comprehensive* because it suggests that sensory integration of design is also to be considered in the taxonomy. Business and particularly marketing literature offers insights on the importance of sensory integration (Pine and Gilmore,

1998). Concerning design management literature however, Svengren (2011, p. 302) mentions visual integration and Kim (2009) deals with sensory integration of design to some extent.

This suggested model is *contemporary* because it suggests that all corporate domains affected by design should be analyzed both on-line and off-line.

In order to test the validity of the model a more homogeneous company and executive sample population might be beneficial. Therefore an internet based survey has been carried out (Chapter 3; Section 3.2).

The author claims that non-designer executives are not equipped with tools to manage design in business because they are unaware of what design in business entails. The preliminary results of the exploratory study (18 companies) showed that the respondents (who are either MBAs or engineers and did not receive any formal design education) were not capable of providing a comprehensive list of physical manifestations of design (Chapter 3; Section 3.1.3). The same executives were able to mention only some of the physical manifestations of design, depending on their professional experience.

On the other hand, if they had received such a formal design education, would they be able to provide a complete picture of design in business remains to be another question mark. As it has been stated earlier, design in business is interdisciplinary and even design scholars do not agree on a single systematic list of the basics. However, if the same marketing executives were asked information concerning other managerial disciplines eg. details regarding 'the 4 Ps of Marketing', 'Net Present Value (NPV) of a Project' or 'Balance Sheet', the answers were likely to be more similar. Design embraces differences, however the lack of a holistic point of view on the design management side, is likely to degrade its potential performance.

In order to shed some light on the ambiguity concerning the borderlines of design in business, this study proposes a new design taxonomy model. The proposed model "Corporate Domains Affected by Design Germination" is derived from existing literature.

Design germination phrase was used to describe the model because seed is used as a metaphor to describe design. Theoretically, any seed may be planted in any soil. However, if the place is suitable for the seed geographically, the plant grows

efficiently. The farmer has the knowledge on where to plant it; however the hobbyist gardener usually lacks the know-how and finds it out after several trials. Similarly, a design manager may be well equipped concerning the identification of potential design areas within a company; however a non-designer business executive is not always likely to figure out all corporate areas where design implementation may turn out to be beneficial.

Although, the classification of design is a very basic step and it is by no means adequate for the proper deployment of design in business; the author believes that this preliminary step to reach a systematic and unanimously accepted classification of design will not only contribute to design's penetration in business but it will also provide the environment for a holistic design approach to nourish more easily. If product, communication, identity and environment designers all know what the big picture in business is like and how their profession fits into the big picture, designing the business is likely to be achieved in greater harmony.

The deployment of the proposed model may facilitate transforming design dialects into design accents which in turn will hopefully contribute to a more holistic approach of design. A more holistic approach to design eventually is likely to render companies to be more unique, reliable and sustainable.

3. RESEARCH METHODOLOGY

This chapter starts with a section that explains the aims of the research. It is followed by a discussion of the research methods used throughout the study. At the beginning of the research, the researcher planned to do a survey in the largest manufacturing companies of Turkey after which quantitative analysis was to be carried out. However, the response rate to the survey turned out to be low due to the seniority of the managers targeted and the cultural barriers specific to Turkey. Consequently, the research design was modified to conduct multiple case studies.

Therefore, this study is based on the use of mixed methods. The field study has been constructed in three phases (two exploratory phases and one main phase) and the methodology used in each phase has been explained in separate sections.

3.1 Research Aims

The aims of the investigation are:

1. To gain an understanding of the design taxonomy models offered by design management literature.
2. To explore whether a comprehensive, contemporary and interdisciplinary design taxonomy model exists in design management and marketing literature.
3. To reach a framework that depicts what design in business entails, in order to to analyze design awareness and design sensitivity.
4. To develop a model to test design awareness, design sensitivity and the phenomenon of silent design.
5. To explore whether the phenomenon of silent design exists in the companies analyzed.
6. To explore the design awareness of non-designer executives and design sensitivity of large scale companies in Turkey.

7. To test whether there is a relationship between design awareness of non- designer executives and a holistic approach to design in the four manufacturing companies where case studies have been conducted.
8. To discover if there is a relationship between design sensitivity and a holistic approach to design in the four manufacturing companies where case studies have been conducted.

The goal of the research is toidentify the role of design awareness on the effective deployment of design within business, with a particular reference to the large scale manufacturing companies in Turkey.

To fulfil the above mentioned aims, several research methods have been considered. The research aims 1, 2 and 3 have been addressed by the extensive literature review. As the research aims required an interdisciplinary reading, the literature review was not confined with design management literature, the review also included marketing management literature. In order understand if non-designer professionals are aware of what design in business entails, an exploratory field research (Phase I) has been carried out. The research aim 4 was also achieved in Phase I, since the refinement of the model was completed at that stage. Concerning research aims 5 and 6, an on-line survey (Phase II) has been conducted. Research aims 7 and 8 were particularly addressed during the case studies (Phase III) conducted.

The following sections elaborate on the samples and methods used during each of the phases.

3.2 Literature Review

The main objective of the literature review was to find a contemporary, comprehensive and interdisciplinary design taxomony model in existing design management literature. The design taxonomy model was planned to be used as a framework in determining the design awareness of non-designer executives. Such a design taxonomy model was not found in existing design management literature. Besides, existing design audits have also been analyzed in order to reveal some hints on how design in business could be classified and how companies should be approached for a design sensitivity analysis. On the other hand, since design in business requires an interdisciplinary approach, marketing management literature and

orgaisational theory literature were also analyzed to some extent. Particularly the analysis of experiential marketing revealed invaluable hints concerning the importance of designing for five senses, rather than merely designing the visible.

Analyzing the content of the design taxonomy models offered by various authors, both in design management and marketing literature, enabled the author to reach the proposed design taxonomy model in this dissertation: Corporate Design Germination Model. The proposed model is believed to be *comprehensive* in the sense that it is relevant for all organizations, *contemporary* in the sense that in incorporates both on-line and off-line design domains, *interdisciplinary* in the sense that it elaborates on designing for the five senses.

Literature review has also been influential in determining the measurement tools for design awareness and design sensitivity that were to be deployed during the field research. Design awareness scores were obtained by using Design Management Europe Self Assesment Tool from existing design management literature whereas design sensitivity scores were obtained using Kotler Design Sensitivity Audit from exisiting marketing literature.

Finally, again by analysing the existing design management literature, Svengren's (2011, p. 299) Design Integration Model has been used as the theoretical basis of the case study research carried out during Phase III.

3.3 Face to Face Surveys with Industry Professionals (Phase I)

In order to address the research question concerning if non-designer executives are knowledgeable concerning what design in business entails, a survey has been designed and applied by the author. The survey questionnaire is provided in Appendix D. This exploratory study is the initial part of the field research.

Although a questionnaire has been developed at the begining; the surveys have been realized as semi-structured interview since at this exploratory stage of the research the aim was to gain as much insights as possible from industry professionals.

The exploratory research has been carried out in Turkey in 18 different companies, operating both in manufacturing and services. With respect to size, companies can be grouped into three segments: SMEs (six); Large (+250 employees) Local Companies (seven); Multinational Corporations (five). The subjects of the survey have been

selected among non-designer professionals from 12 different industries (machinery production, plastics, energy, chemicals, textiles, ship building, IT, consultancy, marine, telecom, real estate, retail).

When the undergraduate degrees of participants are analyzed, it is seen that the sample population comprises of twelve engineers, three graduates of management studies and three graduates of various non-design disciplines. Out of the 18 managers interviewed, nine of them had no graduate degree; followed by six having an MBA degree and three an MSc. degree in engineering. From these results we conclude that the sample population has a high level of formal education in non-design areas. Fourteen of the managers interviewed were industry professionals, whereas four of the respondents were company owners at the same time. Out of the 14 professionals interviewed, five were in charge of sales and marketing, four in charge of operations, three in charge of information technologies, one in charge of finances and one in charge of quality departments.

This exploratory research is the initial phase of the research. Due to time and budget constraints, the selection of respondents was restricted for practical reasons ie. the ones next door have been selected. In other words, the researher's own network (friends and relatives etc.) was used in the exploraty field study (Phase I) as the sample population. This is a weakness of the study. However, the presence of 12 different industries both from manufacturing and services is believed to offset some of the error coming from biased sample selection.

3.4 On-line Surveys with Marketing Managers (Phase II)

An on-line internet survey has been conducted using the VETI system. VETI is an on-line survey platform used by the students and the faculty of Istanbul Technical University. VETI has been selected as the medium in order to foster reliability and institutional identity in the hope that response rate would be increased.

The responses have been collected between 10th January-1st April 2013. In total, 34 managers accepted to participate to the survey. 23 valid questionaires have been obtained. The responses have been analyzed both qualitatively (content analysis) and quantitatively (descriptive statistics). Due to the small number of valid responses further statistical analysis turned out to be not meaningful.

Companies listed in 2011 “ISO 500” and “ISO Second 500” Lists have been used as the sample population. ISO Company Lists group companies into 11 manufacturing industries. Among the 23 valid questionnaires, companies from 8 different manufacturing industries have been represented. A detailed summary of the industries that the companies belong to are presented in Appendix B.

Before the survey the largest 1000 manufacturing companies have been contacted in order to obtain the name and the e-mail address of the highest ranking marketing manager in the company. Once, the e-mail address of the highest-ranking marketing officer was obtained, an e-mail message requesting his/her survey participation was forwarded to the marketing managers. The same e-mail message included a password to log-on to the VETI system

All of the 1000 companies in the sample were contacted and it was estimated that at least 20% of the companies (200 companies) would participate to the survey. However, since the respondents were the highest ranking marketing executives, it turned out to be rather problematic to reach them. And consequently persuading them to participate to the survey turned out to be rather difficult. As a result, only 34 companies participated to the questionnaire. In the end, 23 valid completed questionnaires have been obtained. The loss in the number of valid questionnaries was mainly due to the VETI system problems. VETI connection failed several times while the respondents were filling their answers in the on-line questionnaires.

3.5 Case Studies (Phase III)

Various research methods have been considered and applied in an inclusive and pluralistic fashion throughout this study. As previously stated, initially it was planned to conduct a survey to the largest 1000 companies in the ISO list. This could not be achieved due to the low response rate. The research design was modified. Therefore the survey phase (Phase II) served as an exploratory study in the end.

A multiple case study research was decided to be carried out during the explanatory phase (Phase 3) since in most situations, case study research is known to seek an answer for “how and why” questions (Yin, 2003).

In this study, the author’s objective is to understand in detail a real-life phenomenon (ie. design integration) which encompasses important contextual conditions pertinent

to functional, sensory and conceptual integration of design. For this reason neither an experiment, nor history is suitable because the former deliberately separates a phenomenon from its context and the latter deals with the context but the phenomenon is not contemporary. Another option which is survey on the other hand, deals with context and phenomenon but the context is extremely limited (Yin, 2009).

Yin (2009) defines case study research as an inquiry which i) *copes* with the technically distinctive situation in which there will be many more variables of interest than data points; ii) *relies* on multiple sources of evidence; iii) *benefits* from prior development of theoretical propositions to guide data collection and analysis.

Indeed, during Phase 2 of this study, data has been collected through a survey but the author is curious about other unrevealed parameters that could affect the outcome concerning design awareness and design sensitivity scores.

Case studies are important for evaluation research because they i) *explain* the presumed causal links in real-life interventions that are too complex for the survey or experimental strategies; ii) *describe* an intervention and real-life context in which it occurred; iii) *illustrate* certain topics within an evaluation in descriptive mode; iv) *enlighten* those situations in which the intervention being evaluated has no clear, single set of outcomes (Yin, 2009).

As it has been already stated in Chapter 1, at the beginning of the study a new conceptual model has been proposed by the author to explain functional integration of design.

Design Awarenes + Design Sensitivity + Design Coordination
= Functional Integration of Design

The on-line survey results (Phase 2) suggest that design awareness, design sensitivity and design coordination may go in different directions for a given company. Therefore the planned case studies will aim to elaborate on *when*, *how* any *why* design awareness and design sensitivity go in different directions. The objective is to reveal corporate dynamics affecting functional integration of design.

Traditionally case study research has been considered as "soft" research (Yin, 2009,p.21), however when systematic procedures are carried out it is one of the most hard types of research because the investigator has to be flexible enough to grasp

new knowledge coming from the field without jeopardizing the pre-specified procedures.

According to Yin (2009), case study investigators need to be comfortable in asking good questions, listening and interpreting the answers; being adaptive and flexible to be able to perceive newly encountered situations as opportunity rather than threats; addressing procedural uncertainties during the course of a study. They should also have a profound understanding of the issues being studied and know how to avoid bias.

3.5.1 Types of case studies and how cases were selected

Yin (2009, p. 21) classifies case study research into three: i) exploratory/causal; ii) descriptive iii) explanatory. On the other hand, Langrish (1993) elaborates case study selection in detail. According to Langrish (1993), there are six basic types of case study selection:

> **The comparative**; this approach is derived from agricultural research using carefully devised plots of land and controlled variables. A few cases are not enough for an agricultural approach but nonetheless PhD students seem to like the sense of structure obtained from selecting say small, medium and large firms in two industries.
>
> **The representative**; this approach is based on vague notions of a statistically valid sample. A few cases can rarely be a truly representative sample but the idea seems to appeal to those with false notions of scientific validity.
>
> **The best practice**; if one of the aims of case studies is to improve practice, it seems a good idea to go and look at examples of "best practice" but what is "best"? Researchers have used prize winners, polls of experts and various numerical indexes as ways of selecting the best. All of these are subject to the fact that the best rarely stays the best. This is only a problem to people who think they are doing physics. Biology is different; all animals die but this does not invalidate the concept of survival of the fittest.
>
> **The ones next door**. Selection of examples can often be restricted for practical reasons. It is as well honest to be and not invent some spurious rationale. Historians will jump with joy at the discovery of a cellar full of letters and documents. They do not worry if this is not a 'proper' way of selecting a study…
>
> **The 'cor, look at that'**. A lot of fun and interest can be obtained from picking unusual examples. The 'representative' can be boring; the unusual can offer surprise and perhaps challenge the conventional wisdom.

> **The taxonomic**. Cases are examples. Interesting results are obtained where they are examples of different parts of a taxonomy i.e. the sub-groups of the class being investigated. This may be similar to the comparative but it grows out of a biological taxonomy i.e. the subgroups of the class being investigated. This may seem to be similar to the comparative but it grows out of a biological taxonomy and not a set of physics-type variables. Sometimes the taxonomy is developed after the cases have been started. What starts out as a 'cor look at that' approach or 'the ones next door' may reveal a taxonomy that dictates the selection of further cases. (Langrish, 1993)

The taxonomic selection has been adopted for this study because after analyzing the survey results obtained from 23 companies coming from 8 industries, it turned out that Business to Consumer (B2C) companies outperformed Business to Business (B2B) companies in terms of design sensitivity scores. In other words, all companies having design sensitivity score less than the average turned out to belong to the Business to Business class. This finding is parallel to the existing literature. On the other hand, there was one B2B sector (namely packaging) whose expected design sensitivity score was low (since it belongs to B2B) but resulting design sensitivity score was high. This peculiarity serves as the basis of the taxonomy for the selection of cases.

The author is curious about companies having high design sensitivity scores because the ultimate goal is to examine under which circumstances a holistic approach to design exists. In this respect, companies scoring high values of design sensitivity (according to Kotler score) are more likely to be exemplary in terms of a holistic approach to design. Also, a high level of design sensitivity is estimated to lead to a high level of functional integration. As it has already been mentioned, functional integration of design is proposed to comprise of design awareness of managers, design sensitivity measured within the company and design coordination observed between various departments. Results obtained from the survey carried out in Phase 2 suggest that high design sensitivity scores are not always accompanied by high levels of design awareness or high values of design coordination scores. The lack of design awareness may be explained more easily because the unit of analysis for awareness is the manager. On the other hand, it is more difficult to explain the lack of coordination. Because without proper coordination, high scores of design sensitivity may not be meaningful. The author wants to find out if and how functional integration of design is achieved in highly design sensitive – but not

necessarily well coordinated companies? Therefore the case studies will focus on companies having high design sensitivity scores. Those companies are supposed to be located at the right hand side of the vertical axis of 3.1.

The author assumes that among high scoring companies, industry specific parameters may be influential on the performance concerning the effective deployment of design. Therefore two industries are chosen from each of the right hand side quadrants. Food industry has been chosen to represent the *high expected, high resulted* design sensitivity score. Packaging industry has been chosen to represent *low expected, high resulted* design sensitivity score. Both companies operating in the food industry are B2C companies. Both companies operating in packaging industry are B2C companies.

Figure 3.1 : Design sensitivity score quadrants determining the case taxonomy.

Although brand management literature treats design as a function of brand, Phase 2 of this study has demonstrated that higher values of design sensitivity may also exist in companies without strong consumer brands. For instance, companies operating in the packaging industry do not have strong consumer brands. Both businesses operate purely in B2B. However, design sensitivity scores are higher than the average. Therefore the author is curious about the dynamics related to design sensitivity that exist in the packaging industry which operates in the B2B sector. Figure 3.2 illustrates companies that will be analyzed in case studies.

3.5.1.1 Right upper quadrant companies

Perfetti Van Melle has been chosen because it operates in food industry as a B2C company. Matlı is another B2C company operating in the food industry. Since the

industry is a B2C industry, expected design sensitivity scores are high. The result scores of both companies are also high. Both companies are of comparable size. Both companies depend on external design sourcing. In this aspect, the selection of companies has been realized in accordance with what Yin (2009) explains as a controlled experiment. On the other hand, if similar results turn out to be obtained from both companies, the cases may be considered as replicative because a similar context prevails in both cases.

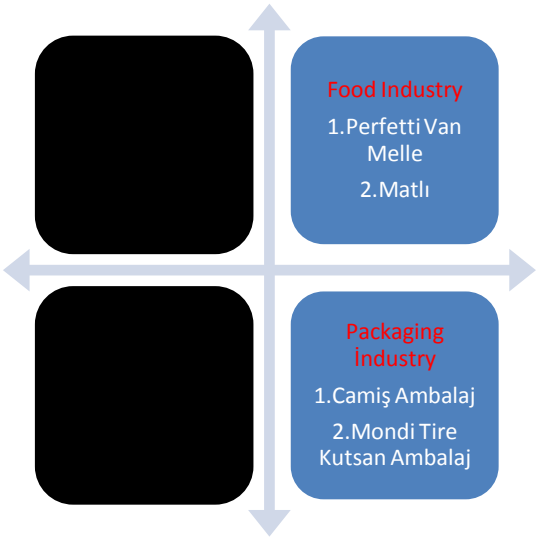


Figure 3.2 : Companies to be analyzed in case studies.

3.5.1.2 Right lower quadrant companies

Camiş Ambalaj has been chosen because it operates in packaging industry as a B2B company. Mondi Tire Kutsan is another B2B company operating in the packaging industry. Since the industry is a B2B industry, expected design sensitivity scores are low. However, to the surprise of the author, the result scores of both companies are high. Both companies are of comparable size. Both companies depend on in-house design sourcing. In this respect, the selection of companies has been realized in accordance with what Yin (2009) explains as a controlled experiment. On the other hand, if similar results are obtained from both companies, the cases may be considered as replicative because a similar context prevails in both cases.

Table 3.1 illustrates the company profiles of the four selected companies where case studies were conducted. The first four rows represent information related to the company. The last four rows reveal information related to the marketing executives surveyed in Phase 2.

3.5.2 The role of theory in case studies

"The role of theory development, prior to the conduct of any data collection, is one point of difference between case studies and related methods such as ethnography and grounded theory" (Yin, 2009, p. 35).

For case studies, theory development as part of the design phase is essential irresponsive a case study's purpose is to develop or to test theory (Yin, 2009). In Chapter 1, the following conceptual model has been adapted from Svengren (2011, p. 299).

Table 3.1 : Company profiles for selected cases.

Company	**Matlı**	**Perfetti Van Melle**	**Camiş**	**Mondi Tire Kutsan**
Indusrty	food	food	packaging	packaging
ISO Rank (2011)	276	159	385	182
Foreign Capital %	0	100 %	0	63.4 %
Established in	1970	1979	1987	1974
Design sourcing	external	external	In-house	In-house
Position Interviewed	marketing director	marketing director	mrktg&sales manager	mrktg manager
Education	management	management	engineering	management
Date of Birth (of the interviewed executive)	1976	1972	1965	1981
% of time allocated to design related issues	30 %	25 %	30 %	60 %

From the surveys conducted in Phase 2, the following findings have been obtained:

F1: The highest ranking marketing executive is a non-designer i.e. s/he does not have formal design education.

F2: The highest ranking marketing executive is involved in the design process and a substantial amount of his/her time is allocated to design related issues.

F3: Design awareness of the highest ranking marketing executive is low as the free recall of physical manifestations of design is low.

F4: Kotler design sensitivity of the company is high. Soylu design sensitivity is slightly lower but still high.

F5: Design coordination in the company is at medium level.

F6: Silent design prevails in many corporate domains.

In Section 2.3 of this study, the relationship between design and marketing has been explained as follows:

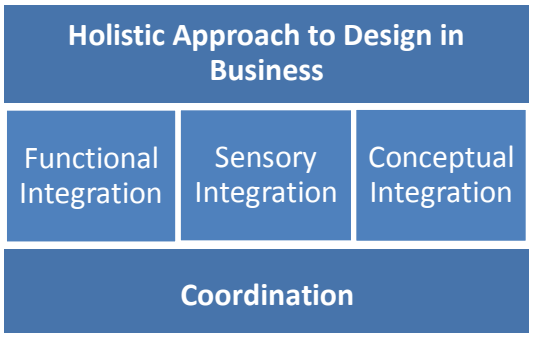


Figure 3.3 : Holistic approach to design.

In traditionally structured organizations design is generally squeezed between Marketing and R&D (Tether, 2005). In more design aware companies on the other hand, the activity is carried out by designers however the final decisions are still made by non-designers. If a design or R&D department is not available within a company, marketing is supposed to assume most of the design related issues.

Building on the argument above, in Phase 2 of the study the highest ranking marketing executives have been approached. For the selected four companies it was confirmed that the marketing executives do not have a formal design education. On the other hand, the survey results also reveal that these executives allocate at least a quarter of their time (min. 25% ; max. 60%) to design related decision making.

These findings suggest that non-designer marketing executives are indeed involved in design related decision making. The findings also reveal that the same executives have low to medium scores in design awareness (F3). Besides, although company design sensitivity scores turn out to be high (F4), design coordination between departments is at medium level. (F5). In other words, determinants of functional integration of design diverge in different directions.

Therefore the planned case studies will aim to reveal whether functional integration of design actually exists in the given set of companies. For this purpose, two

additional managers from each company will be surveyed; all the three managers will be interviewed in detail. In addition, visual proofs and other concrete evidence will be collected.

Mixed methods research is where the researcher mixes or combines quantitative or qualitative research techniques, methods, approaches, concepts or language into a single study (Johnson & Onwuegbuzie, 2004, p.17). The approach is different from the conventional situation where different methods are used in separate studies that may later be synthesized. Mixed method research forces the methods to share the same research questions, to collect complementary data, and to conduct counterpart analyses (Yin, 2009).

In this study, a survey is planned within a case study since mixed methods research can enable investigators to address broader and more complicated research questions than case studies alone. The marketing executives have already been surveyed in Phase 2. These survey results will be compared with the survey results coming from the surveyed two additional managers. The surveys will take place after the interviews are completed.

Also the planned case studies will elaborate on the availability of sensory integration (designing for 5 senses) and conceptual integration (design at strategic level). The ultimate aim is to determine the parameters affecting a holistic approach to design in the selected companies.

3.5.3 Research design

Research design is the logical sequence that connects the empirical data to a study's initial research questions and ultimately to its conclusions (Yin,2009, p. 26). According to Nachmias and Nachmias (1992, p. 77-78), it is a logical model that allows the researcher to draw inferences concerning relations among the variables under investigation. Philliber et. al (1980) define it as a blueprint that includes what questions to study, what data is relevant, what data to collect, how to analyze the results.

Yin (2009) proposes five components of a research design to be of particular importance:

1. a study's questions

2. its propositions (if any)
3. its unit(s) of analysis
4. the logic linking the data to the propositions
5. the criteria for interpreting the findings

Yin (2009, p. 27-28) suggests to move in three steps for overcoming the perplexity the novice investigator faces concerning *a study's questions*: The first step is to narrow the number of focus points to a key topic or two using the existing literature. The second step entails dissecting a few key studies on the topic of interest and identifying the questions in those few studies. The information concerning the conclusion of these questions is particularly important (ie. if they end with new questions or loose ends for future research). The third step involves examining another set of studies on the same topic. They may provide support for potential questions or suggest ways of sharpening them.

The research questions in this study are:

1. What is the level of design awareness among non-designer executives in company A?
2. How sensitive is Company A towards design?
3. How design coordination is achieved in Company A?
4. Does sensory integration of design exist in Company A? If yes, how?
5. Is design treated at strategic level in Company A? If yes, how?

A study's propositions direct attention to something that should be examined within the scope of the study. If the case study research is exploratory it may not have a proposition, however it should still have some purpose.

In this study the propositions are illustrated in Figure 3.3. Holistic approach to design is estimated to be constructed through functional, sensory and conceptual integration.

The unit of analysis may be the individual, the project or the organization. Selection of the appropriate unit of analysis will start to occur once the primary research questions have been accurately specified (Yin, 2009, p. 30). In some cases, the individual, the project and the organization may all be the unit of analysis from different perspectives. Such embedded units of case analyses depend on the level of inquiry. The main unit of analysis is addressed by the main study questions.

According to Moore *et al*. (in Lapan *et al*. 2012, p. 245), **bounding of the case** includes identifying the aspects to be studied using research questions, the time frame to be included and the exact physical locations that are part of the research. Yin (2009, p. 29) states that time boundaries are needed to define the beginning and end of the case are necessary.

In this study, there are two units of analysis. These are the non-designer executive and the company. In this aspect the case is an embedded case. The companies to be analyzed will be approached in February and March 2014. The case study data covers the period between 2001-2013.

According to Yin (2009) the desired case should be some real-life phenomenon, not an abstraction such as a topic, an argument, or even a hypothesis. Yin (2009) also suggests that each case study and unit of analysis either should be similar to those previously studied by others or should innovate in clear, operationally defined ways.

Pattern matching, explanation building, time-series analysis, logic models and cross-case synthesis are used as the analytic techniques for *linking data to propositions*. In this study pattern matching and cross case analysis are planned to be used.

For interpreting a study's findings, at the design stage of the case study research, anticipating and enumerating the important rival explanations is crucial. Thus it becomes possible to include information about rival explanations as part of the data collection process.

"If you only think of rival explanations after data collection has been completed, you will be starting to justify and design a future study, but you will not be helping to complete your current case study" (Yin, 2009, p. 34).

3.5.4 Criteria for judging the quality of research designs

According to Yin (2009) four tests have been commonly used to establish the quality of any empirical social research:

> **Construct Validity:** Identifying correct operational measures for the concepts being studied. To meet construct validity an investigator is to ensure to cover two steps:
>
> Define neighborhood change in terms of specific concepts and relate them to the original objectives of the study.
>
> Identify operational measures that match the concepts.

Internal Validity (for explanatory cases): Seeking to establish a causal relationship, whereby certain conditions are believed to lead to other conditions, as distinguished from spurious relationships. A case study involves an inference every time an event cannot be directly observed.

External Validity: Defining the domain to which a study's findings can be generalized.

Reliability: Demonstrating that the operations of a study- such as the data collection procedures- can be repeated, with the same results. Yin (2009)

Table 3.2 summarizes tactics for increasing validity. In this study, three executives from each company will be interviewed and the case report will be reviewed by these executives in order to establish construct validity. For some data (e.g. data in Table 3.1), website analysis, product design analysis and strategy analysis will also be carried out. Also, the chain of evidence illustrated in Table 3.3 will be used in order to increase construct validity.

In this study for increasing internal validity, rival explanations will be considered and elaborated in detail. The issue of external validity will be addressed by means of adopting an existing theoretical model (Svengren, 2011, p. 299). The reliability of case study research will be increased by means of providing a database for each case study in Appendix A. The chain of evidence in Table 3.3 demonstrates how these issues will be dealt with throughout this study.

Table 3.2 : Case study tactics for four design tests (Yin, 2009, p.41).

Tests	Case Study Tactic	Tactic Occurs during
Construct Validity	use multiple sources of evidence	data collection
	establish chain of evidence	data collection
	have key informants review draft case study report	composition
Internal Validity	do pattern matching	data analysis
	do explanation building	data analysis
	address rival explanations	data analysis
	use logic models	data analysis
External Validity	use theory in single-case studies	research design
	use replication logic in multiple-case studies	research design
Reliability	use case study protocol	data collection
	develop case study database	data collection

Table 3.3 : Chain of evidence for multiple case studies.

Concepts Investigated	Research Questions (Level 2 Questions)	Main Tools To Asses	Sources of Evidence (Triangulation)	Result Reporting
Functional Integration of Design				
Design Awareness	How much design awareness exists among non designer executives in Company A?	1) Design Management Europe Self Assessment Tool (Part A Q1 Q2 Q4) 2) Free Recall of physical manifestations of design (Soylu, 2015).	Three managers of Company A involved in design related decision making.	1-4 scale
Design Sensitivity	How much design sensitive is company A?	1) Kotler Sensitivity Audit (Part 1) (Kotler, 1984) 2) Soylu Sensitivity Audit (Appendix A)	Three managers of Company A involved in design related decision making.	1-10 scale
Design Coordination	How design coordination is achieved in company A?	1) Phase 2 survey 2) Phase 3 case study interview (Level 1 Q: How is design coordination achieved in your company?)	Three managers of Company A involved in design related decision making.	Detailed explanation.
Sensory Integration of Design	How is sensory integration of design treated in company A?	Phase 3 case study interview (Level 1 Q: How important is that your company's products and services appeal to the 5 senses?)	1) Three managers of Company A involved in design related decision making. 2) Web site and product analysis done by the author.	Detailed explanation.
Conceptual Integration of Design	How is design treated at strategic level?	Phase 3 case study interview (Level 1 Q: How is design related to your company's strategy?)	1) Three managers of Company A involved in design related decision making. 2) Strategy, vision and mission statements (if any) will be checked.	Detailed explanation.

3.5.5 Why embedded multiple case study?

According to Yin (2009, p. 46) -with respect to the quantity of cases investigated and the units of analysis- case study research is classified as follows: single case designs, multiple case studies, holistic case studies and embedded case studies.

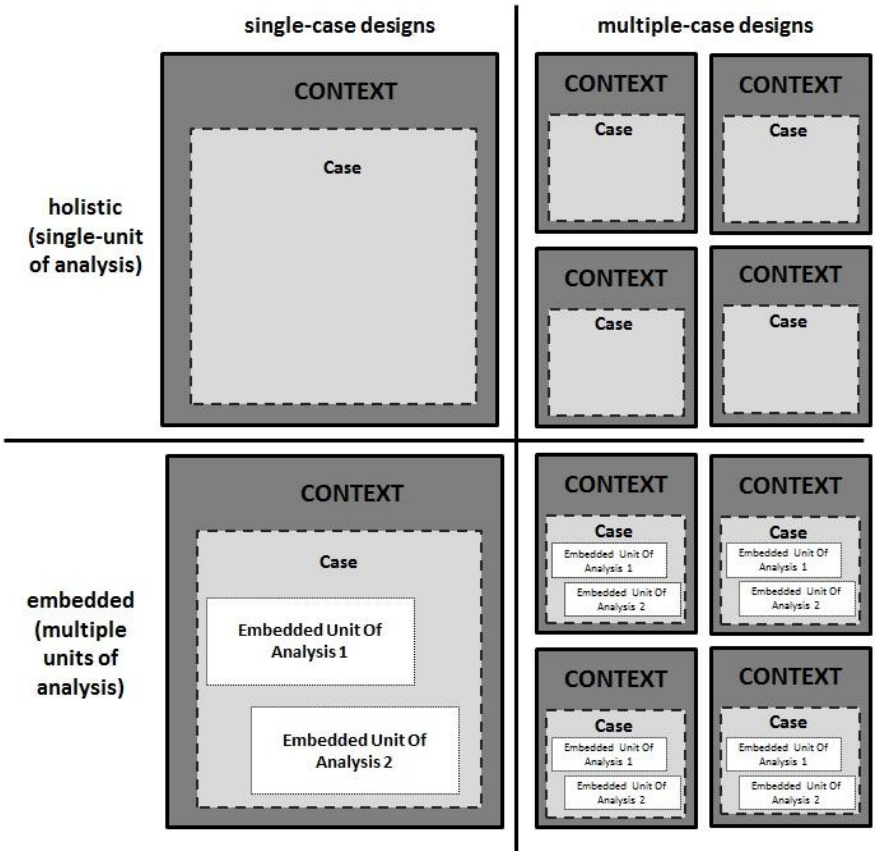


Figure 3.4 : Basic types of designs for case studies (Yin, 2009, p. 46).

According to Yin (2009) single-case design is justifiable where the case represents

1- the *critical case* in testing a well-formulated theory;

2- an *extreme* case or a *unique* case;

3- *a representative* or *typical case* for of an everyday or common place situation.

4- *a revelatory case*, when the investigator has the opportunity to observe and analyze a phenomenon previously inaccessible to social science inquiry;

5- a *longitudinal case*, when studying the same single case at two or more different points in time.

In addition to the above described 5 conditions, single case study design may be preferred over multiple case study design when resources and time required to conduct a multiple case study may not be available.

If the single case has one unit of analysis then it is called a holistic case design. Sometimes within the single case there may be sub-units of analysis. In such cases, it is called an embedded case design. According to Yin (2009) the holistic design is advantageous when no logical subunits can be identified or when the relevant theory underlying the case study is itself of a holistic nature.

In this study, the author can identify two distinct units of analysis. The first unit to be analyzed is the non-designer executive active in design related decision making. The second unit of analysis is the company. Therefore potential problems related to holistic case design will be avoided.

Yin (2009) elaborates on the potential problems that arise as follows:

> A typical problem with the holistic design is that the entire case study may be conducted at an unduly abstract level, lacking sufficiently clear measures or data.
>
> A further problem with the holistic design is that the entire nature of the case study may shift during the course of the study. The initial study questions may have reflected one orientation, but as the case study proceeds, a different orientation may emerge, and the evidence begins to address different research questions. One way to increase the sensitivity to such slippage is to have a set of subunits. Thus, an embedded design can serve as an important device for focusing a case study inquiry.
>
> An embedded design, however, also has its pitfalls. A major one occurs when the case study focuses only on the subunit level and fails to return to the larger unit of analysis. This problem will be avoided by means of linking the sub-units in the theory constructed at the beginning of the case study.

By definition, the unusual case, the critical case and the revelatory case all are likely to involve only single cases. Also, the conduct of a multiple-case study can require extensive resources and time beyond the means of a single student or independent research investigator.

On the other hand, multiple-case study design is always preferred to single case design if any of the 5 situations listed above are not in question. A major insight is to consider multiple cases as one would consider multiple experiments – that is, to follow a "replication" design. Some of the replications might attempt to duplicate the exact conditions of the original experiment. Other replications might alter one or two experimental conditions considered unimportant to the original finding, to see whether the finding could still be duplicated. Only with such replications would the original finding be considered robust (Yin, 2009).

Each case must be carefully selected so that it either predicts similar results or contrasting results but for anticipatable reasons. According to Yin (2009, p. 54) 2 or 3 cases would be literal replications, whereas 4 or 6 might be designed to pursue two different patterns of theoretical replications. For the purpose of this study, 4 cases have been selected. 3.5 illustrates how the case study method will be deployed.

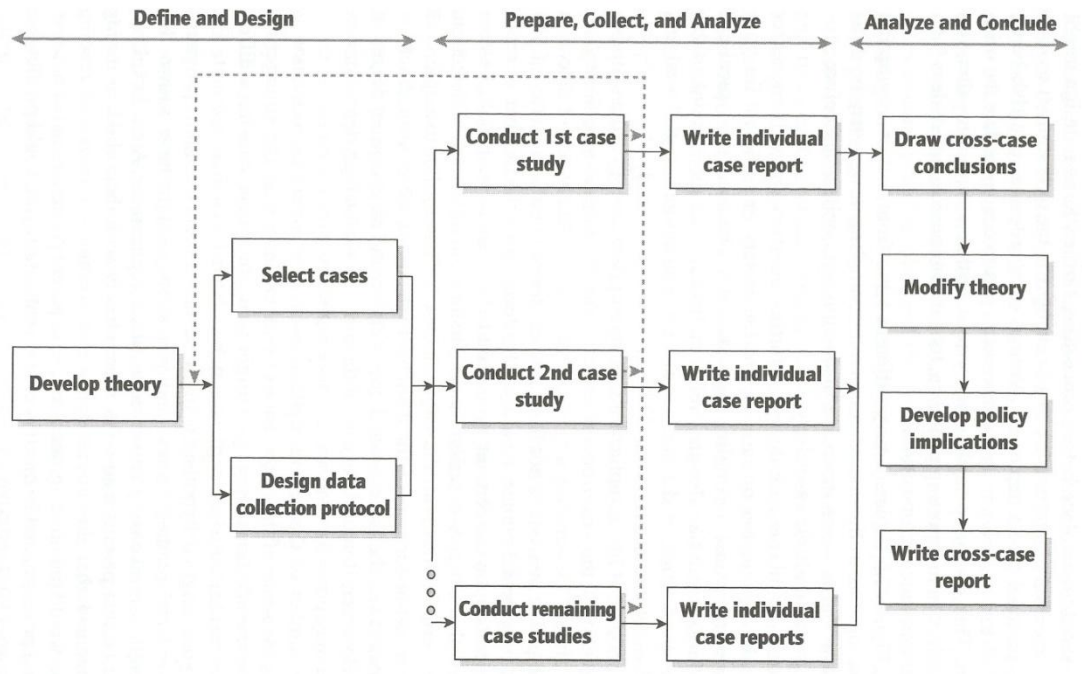


Figure 3.5 : Case study research flow chart(Yin, 2009, p. 57).

An important part of Figure 3.5 is the dashed-line feedback loop. The loop represents the situation where important discovery occurs during the conduct of one of the individual case studies. Such a discovery may require you to consider one or more of the study's original theoretical propositions. At this point, "redesign" should take place before proceeding further. Such redesign might involve the selection of alternative cases or changes in the case study protocol. Without such redesign, you risk being accused of distorting or ignoring the discovery just to accommodate the original design. This condition leads quickly to a further accusation- that you have been selective in reporting your data to suit your preconceived ideas. (Yin, 2009, p. 56-58)

Selecting replicating cases requires prior knowledge of the outcomes, with the multiple-case inquiry focusing on how and why the exemplary outcomes might have occurred and hoping for literal (or direct) replications of these conditions from case to case.

In this study, online surveys (Phase 2) were conducted to gain a superficial understanding of how much design awareness, design sensitivity and design coordination exists within the selected companies. Detailed company profile information has been gathered from secondary sources to make sure that the changing parameters are taken into account. This approach is similar to the controlled experiment approach that Yin (2009) emphasizes is necessary while conducting the case studies.

3.5.6 How will the data be collected?

3.5.6.1 The case study protocol

The protocol is a major way of increasing the reliability of case study research and is intended to guide the investigator in carrying out the data collection from a single case. As a general matter, a case study protocol should have the following sections:

- an overview of the case study project (Appendice J and K).
- field procedures (Filed Procedures, Appendix H).
- case study questions (Research Questions, Section 3.5.3).

The potentially relevant questions can occur at any of five levels:

- Level 1: questions asked of specific interviewees
- Level 2: questions asked of the individual case
- Level 3: questions asked of the pattern of findings across multiple cases
- Level 4: questions asked of an entire study
- Level 5: normative questions about policy recommendations and conclusions

According to (Yin, 2009) the investigator should heavily concentrate on Level 2 for the case study protocol. The verbal line of inquiry is different from the mental line of inquiry, and this is the difference between Level 1 and Level 2 questions. On the other hand, Level 3 question cannot be addressed until the data from all the single cases are examined.

A protocol is important because it keeps the researcher targeted on the topic of the case study. Preparing the protocol forces the researcher to anticipate several problems, including the way the case study reports are to be completed (Yin, 2009).

During data collection the following issues turn out to be important:

> Multiple sources of evidence: Sources of evidence may be documents, archival records, interviews, direct observation, participant-observation and physical artifacts. Case study research requires evidence from at least two or more sources converging on the same facts or findings.
>
> A case study database: It is a formal assembly of evidence distinct from the final case study report.
>
> A chain of evidence: It refers to the explicit links among the questions asked, the data collected and the conclusions drawn.(Yin, 2009)

This study will rely on documentation, surveys, interviews, direct observation and physical artifacts as sources of evidence.

According to Yin (2009) interviews should be guided conversations rather than structured queries and require the investigator to operate on two levels simultaneously ie. Satisfying the needs of the inquiry (Level 2 questions) and putting forth friendly questions (Level 1 questions).

There are two types of interviews: i) an in depth interview ii) a focused interview. In the former, the investigator may ask the informant to propose his/her own insights and those insights become the basis for further inquiry. The interviewee can also suggest other persons to interview and other sources of evidence. This type of interview takes longer and may require more than one session. In the latter, the interview questions still remain open-ended and assume conversational manner but it takes shorter amount of time and questions derived from the case study protocol are to be followed.

For the purpose of this study, focused interviews are planned to be carried out. Since the interviewees are high ranking officers, their time availability is likely to be one of the major constraints. Nevertheless, their own insights are planned to be taken into consideration on the specific points investigated.

Yin (2009) suggests that a survey may also be designed as part of an embedded case study which would produce quantitative data as part of the case study evidence. Even observing directly the condition of buildings or work spaces indicates something about the climate and impoverishment of an organization; the location or the furnishings of an interviewee's office may be one indicator of the status of the interviewee within an organization (Yin, 2009, p. 112).

A final source of evidence is a physical or cultural artifact- a technological device, a tool or instrument, a work of art, or some other physical evidence. When relevant, the artifacts can be an important component in the overall case (Yin, 2009).

3.5.6.2 Three principles of data collection

The benefits from these six sources of evidence can be maximized if the investigator follows the three following principles (Yin, 2009, p. 114):

Principle 1: Use Multiple Sources of Evidence

According to Patton (2002) there are four types of triangulation:

1. Different data sources (data triangulation)
2. Different evaluators (investigator triangulation)
3. Different perspectives to the same data set (theory triangulation)
4. Different methods (methodological triangulation)

With data triangulation, the potential problems of construct validity also can be addressed because the multiple sources of evidence essentially provide multiple measures of the same phenomenon.

In this study, in each company three managers are surveyed and interviewed using two different measurement tools. Also secondary sources on company profile are investigated: Websites, products and strategy are analyzed for the purpose of data triangulation.

The evidence gathered from different sources will be cross-checked for their reliability. If all the findings from different data sources turn out to indicate the same results, then the reliability of the findings increases. On the other hand, if findings diverge then different results will be separately reported for each case (Figure 3.6).

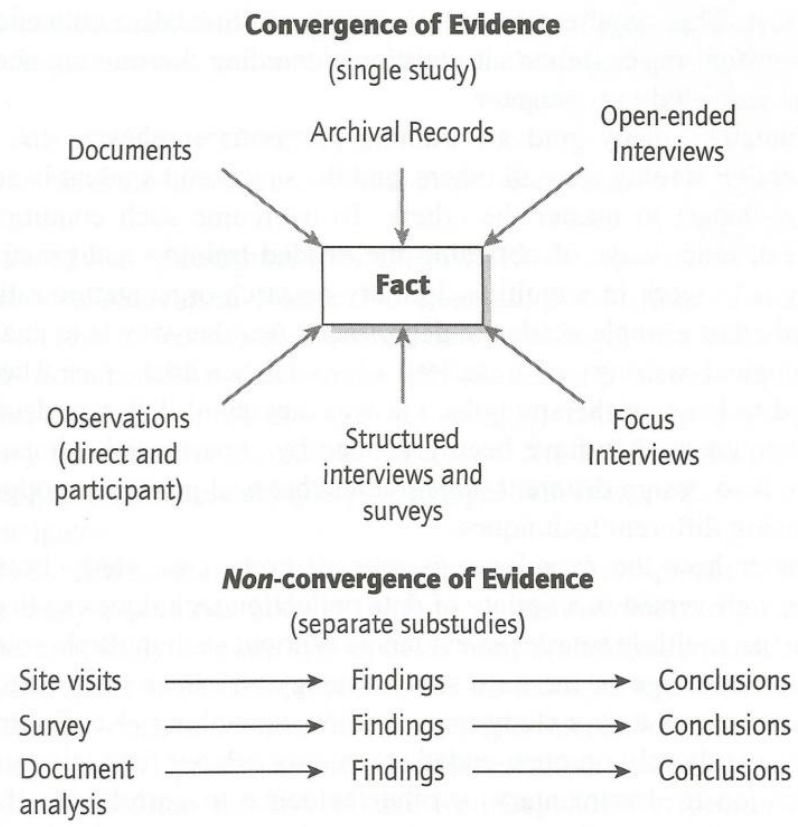


Figure 3.6 : Convergence and non-convergence of multiple sources of evidence (Yin, 2009, p.117).

Principle 2: Create a Case Study Database

Every case study research should strive to develop a formal, presentable database, so that in principle, other investigators can review the evidence directly and not be limited to the written case study reports. In this manner, a case study database increases the reliability of the entire case study.

In this study, all the data coming from surveys, interviews and documents will be properly documented and referenced in the Appendices.

Principle 3: Maintain a Chain of Evidence

Maintaining a chain of evidence means linking case study questions with the case study protocol topics and database in the report. This is mainly achieved by proper referencing. Maintaining the chain of evidence increases the reliability of the information and it is based on a notion similar to that used in forensic investigations. The chain of evidence used in this study is demonstrated in Table 3.3.

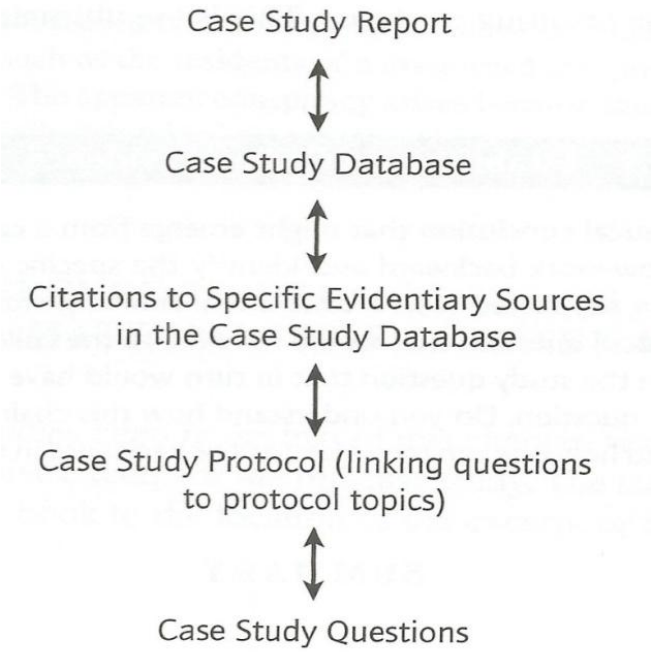


Figure 3.7 : Maintaining a chain of evidence (Yin, 2009, p. 123).

3.5.7 How will the data be analyzed?

According to Yin (2009, p.126) there are four major strategies and five techniques for analyzing case study data which are not mutually exclusive. The strategies are relying on theoretical propositions, developing a case description, using both qualitative and quantitative data and examining rival explanations. On the other hand the five analytic techniques are pattern matching, explanation building, time-series analysis, logic models, and cross-case synthesis. In this research pattern matching has been used as the data analysis technique.

Relying on theoretical propositions is considered to be the most preferred strategy to follow according to Yin. (2009, p. 130). In this study, propositions (Chapter 1, Section 1.4) that have been derived from the adaptation of Svengren's (2011, p. 299) conceptual model are used.

4. EXPLORATORY STUDY FINDINGS

This chapter summarizes the findings obtained from the exploratory field research. As it has already been mentioned in the previous chapter, the exploratory field research has been carried out in two phases. These are face to face surveys with industry professionals (Phase I) and on-line surveys with marketing managers (Phase II). Phase I served to answer the question "Are non-designer professionals aware of what design in business entails?" On the other hand, the main purpose of Phase II was to determine the Kotler Design Sensitivity Scores of the participating companies. In the light of the findings of Phase II, companies for the main field study (case study research in Phase III) have been determined.

4.1 Face to Face Survey Findings-Phase I

During the exploratory research, a face to face survey has been conducted.(For survey questionnaire refer to Appendix D). Initially, brief personal information (Section 1) about subjects and concise company profile information (Section 2) was collected. The aim was to ensure that the respondents did not have a formal design education.

While responding to the questions in Section 3, the same non-designer professionals were asked five questions that aimed to reveal respondent's design awareness and the availability of overt design resources within the company. The main objective was to capture as many physical manifestations of design as possible on a free recall basis. After collecting the answers of Section 3, the same non-designer professionals were asked to fill Section 4 in the same session.

Section 4 comprised of a matrix that listed various physical manifestations of design (i.e. design related activities) in the rows and functional departments in the columns. The rows were derived from existing literature and the corporate functions were listed based on the industry experience of the authors. The columns also included options such as "we do not have such an activity", "there is no design in this activity" and "I have no idea". The subjects were asked to fill in the table by means of looking

at the design related activity and then deciding on which function/ functions in the company were involved in the ultimate decision making related to that activity. The subjects were also requested to feel free to add any columns or rows if necessary.

The questions in Section 3 were asked because it was believed that after seeing the table in the Section 4, some learning would occur which would affect the free recall of the subjects. Filling the matrix in Section 4 was meant to be used as an exercise to enable the respondents to concentrate on the subject more profoundly. Results revealed that exposure to the matrix increased the respondents' design awareness on physical manifestations of design. For example, in Section 3, four (total nr. 18) of the respondents stated that there was no design activity at all within their company; in Section 4 of the research, all of the four respondents marked at least one design activity from the matrix. This suggests that four (22%) of the respondents were not aware that existing design activities within their company were actually a design activity. Table 4.1 illustrates design activities listed by non-designer professionals on a free recall basis. The data is grouped with respect to industries.

Content analysis was carried out to determine how the mentioned activities could be grouped with respect to corporate domains and whether a pattern existed concerning the recall of physical manifestations of design with respect to sector and industry. For this purpose the responses given to question Nr. 2 in Section 3 (Appendix D) have been analyzed in detail. Particularly, the words used before the word "design" have been taken into account. Those words have been classified considering the context of industry the company operates in. Then the words have been grouped into one of the four categories proposed by the author in the Design Germination Model. Results were grouped into 4 groups:

Product Service Systems (PSS) Design: All product-service-process related physical manifestations of design.

Communication Design: All communication related physical manifestations of design.

Identity Design: All identity related physical manifestations of design.

Environment Design: All environment related physical manifestations of design.

Table 4.1 : Physical manifestations of design obtained on a free recall basis with respect to industry.

Industry	**Manufacturing or Services (M or S)**	**Physical Manifestations of Design** "Q: Which design activities are carried out in the company you work for?" (Answers obtained on a free recall basis from 18 professionals from 18 different companies)	**Corporate Domain Affected By Design** (Domain implied by the manager. The physical manifestation of design recalled by the respondent has been classified into one of the main domains by the author.)
Machine Production	Manufacturing	"System design for efficiency increase."	Company 1: Product-service systems design (PSS design)
Plastics	Manufacturing	"Mould design."	Company 2: PSS design
Energy	Manufacturing	"We don't do any design."	Company 3: NA
Chemicals	Manufacturing	"Advertising and leaflet design."	Company 4: Communication Design
Textiles/ Acessories (3 companies)	Manufacturing	"Zipper puller design." "Label design." "Machinery design."	Company 5: PSS design Company 6: PSS design Company 7: PSS design
Shipbuilding	Man. + Ser.	"Ship construction and repair design"	Company 8: PSS design
IT (3 companies)	Man. + Ser.	"Design of products and automation devices" "Printing design and screen design" "Software and graphic design"	Company 9: PSS design Company 10: PSS design Company 11: PSS design
Consultancy	Service	"Website design"	Company12:Identity design
Real Estate	Service	"There is no design related activity in our company."	Company 13: NA
Marine (3 companies)	Service	"Logo, uniform, website, stationary design" "We don't do design." "There is no design activity here."	Company14: Communication and Identity Design. Company 15: NA. Company 16: NA.
Telecom	Service	"Software and application design for mobile devices."	Company 17: PSS design
Retail	Service	"Garment, packaging, retail shop, textile design."	Company 18: PSS and Environment design

Ten of the companies (total nr.18) were involved in manufacturing and the first recalled design activity by seven of the professionals turned out to be related to product design. Out of the remaining three professionals, one stated that they had no design activity carried out within their company at all. One professional recalled advertising design and one professional mentioned systems design for efficiency increase.

On the other hand, eight of the companies operated purely in services. The answers were considerably fragmented in the services industry. Three of the professionals operating in services (two in marine and one in real estate) stated that they had no design activities at all carried out within their company. One professional recalled corporate identity applications and mentioned logo, uniform, stationary. Two of the professionals (IT and Telecom) recalled software application designs related to the services they provide. One professional mentioned website design. One professional (retail) recalled product, packaging and retail shop design.

As it is seen from Table 4.1, the responses obtained from manufacturing industry executives are related the product they manufacture. Only one manager did not mention any product related issue and recalled communication design instead. This finding suggests that among manufacturing companies, product design is the most well-known and applied design area. On the other hand, responses obtained from the managers of service companies are rather fragmented. Besides, three out of the four managers "having no idea on design" turned out to come from services.

The major implication of the data in Table 4.1 is that none of the managers interviewed had a full perspective on the territory covered by design. In other words, the professionals interviewed had partial idea concerning what design in a business context may entail. Their free recall responses usually focus on the design of the product and service they offer, thus have a limited coverage.

The authors believe that this is mainly due to a lack of formal education in design and the absence of design courses in business and engineering curricula. On the other hand, a systematic taxonomy of corporate domains of design is likely to help the non-designers to grasp the issue more clearly and develop their own lists of physical manifestations of design more competently.

This exploratory study is important because even after a decade of intensive discussions on design contemplated both on the academic side and the business platforms, non-designer business executives are still not aware of design. Secondly, parallel to the existing literature (Archer, 1972; Topalian, 2002); this study provides further evidence that the hypothesis concerning "what design in business entails is not known to managers", cannot be rejected. Thirdly, this is the first study on design awareness of non-designers carried out in Turkey.

4.2 On-Line Survey Findings – Phase II

In this section, results obtained from each survey question are elaborated in detail. The on-line questionnaire is provided in Appendix E.

Q1 : *"Which design activities are carried out in the company you work for?"*

The inquiry was done using an open ended question to ensure that the data was captured on a free recall basis. The question was placed in the first place to avoid subjects' being influenced by the following multiple choice questions that reveal certain physical manifestations of design to some extent. The results indicate that only one of the subjects was influenced by the following questions. This was detected easily because the content and wording used in his answers showed significant similarities with the information provided in the multiple choice questions. For this purpose the survey was not taken into account during the evaluations.

Preliminary results obtained from content analysis reveal that majority of respondents recall *product* design (13 respondents) and this is followed by *packaging* design (6 respondents). The remaining physical manifestations of design captured on a free recall basis are as follows: *Brochure (3), POP material (3), magazine ads (3), communication (3), fair and exhibition (3), retail (3), billboard (2), company car (2), website (2), social media (2), product presentation (2), corporate ID (2), advertising (2), marketing (2).* On the other hand, *the design of label, promotional material, internet ad, customer services, catalogue, roll-up, signs, logo, interiors, ATL (above trade line), BTL (below trade line), NPD (new product development), launch meetings, PR (public relations), die, production and environments* was mentioned only by a single person.

These fragmented results suggest that the marketing executives have significantly different pictures of what design in business entails. At a first glance, it was thought that the cause might be related to the industry they operate in. However when the data was analyzed with respect to industry, the results did not change.

The second goal of the question was to check if the design activities mentioned by non-designer business executives fell into one of the categories in the conceptual model(ie. corporate domains affected by design) proposed by the author. All the

design activities mentioned by design managers turned out to fit into one of the domains mentioned in the proposed model.

Also using the responses of question one, a content analysis has been carrried out to determine the number corporate domains mentioned by the respondenst. 43,5 % of the marketing managers were able to mention physical manifestations related to only *one* corporate domain affected by design, wheras 30 % mentioned 2 corporate domains affected by design on a free recall basis. In other words 73,5 % of marketing managers could hardly mention at least half of the corporate domains affected by design on a free recall basis. The auhor believes that this score could be an indicator of design awareness for non-designer managers.

Table 4.2 : Soylu design awareness score.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	,00	1	4,3	4,5	4,5
	1,00	**10**	**43,5**	**45,5**	**50,0**
	2,00	**7**	**30,4**	**31,8**	**81,8**
	3,00	**1**	**4,3**	**4,5**	**86,4**
	4,00	**3**	**13,0**	**13,6**	**100,0**
	Total	22	95,7	100,0	
Missing	System	1	4,3		
Total		23	100,0		

Q2; Q3; Q4 : *Questions related to design service procurement. (n.23)*

The goal of questions Nr. 2, 3, 4 was to reveal the availablity ratio of designer titled and design educated employees within the 23 companies surveyed. 70 % (n.16) of the companies had an inhouse *designer titled employee* and 74 % (n.17) of the same companies had a *design educated employee*. On the other hand, 74 % (n.17) of the companies also acquired external design service from design agencies or freelancer designers.

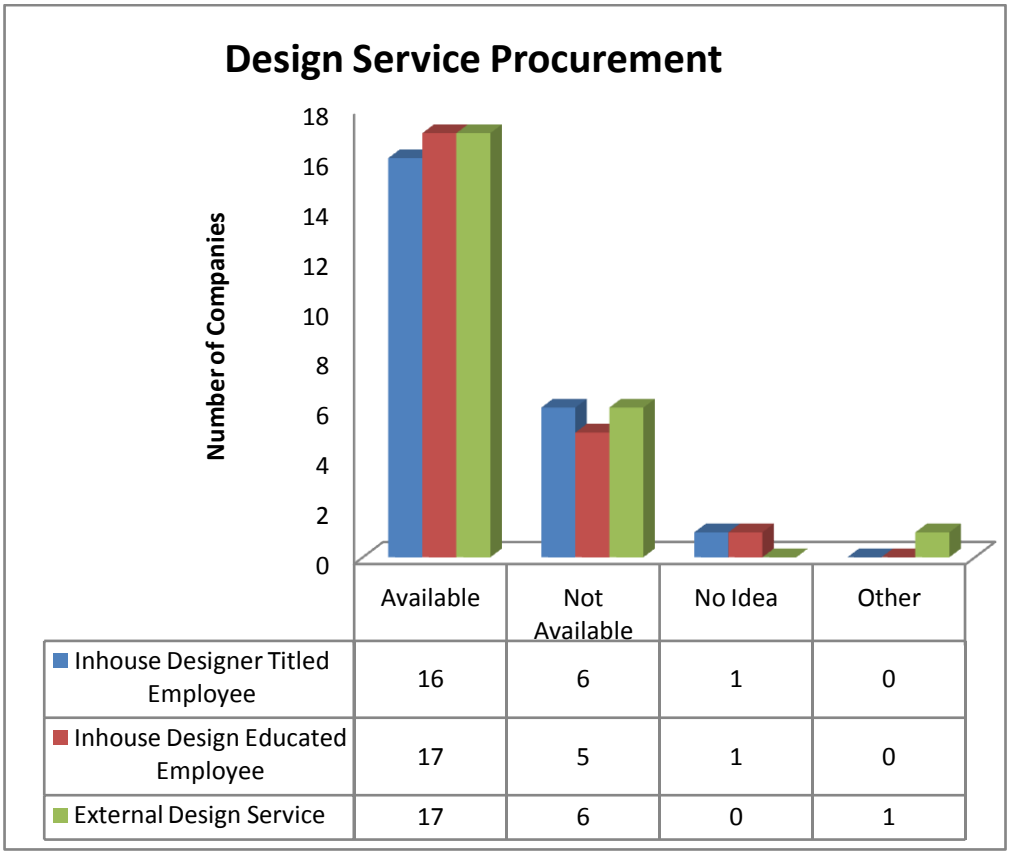


Figure 4.1 : Findings related to design service procurement.

Q5; Q6; Q7; Q8; Q9 : *"To what extent design thinking is utilised in…..?"*

The five consecutive questions in the survey (Appendix E) were related to Kotler's Design Sensitivity Score (Appendix G). The goal of the questions was to determine Kotler Score. According to Kotler, companies with a score higher than 7 are in good shape. On the other hand, companies with a score lower than 4 are missing a major opportunity.

Kotler score is calculated by means of adding up the scores obtained from the five consecutive questions (Q5; Q6; Q7; Q8; Q9). Each question is evaluated on a 3 point scale (never-0, occasional-1, always-2). Therefore, the minimum and maximum total scores range between 0 to 10.

Findings demonstrate that none of the Kotler scores are lower than 4 and scores are rather skewed toward the maximum (Figure 4.2). These high scores suggest that in general the companies were in medium or good shape (Mean 7.65, Std. Dev. 2.01). There may be two reasons why scores turned out to be high. Firstly, the companies are well established large scale companies. Secondly, marketing managers -because

of the marketing and face saving constraints- might have attributed more favorable scores to their companies.

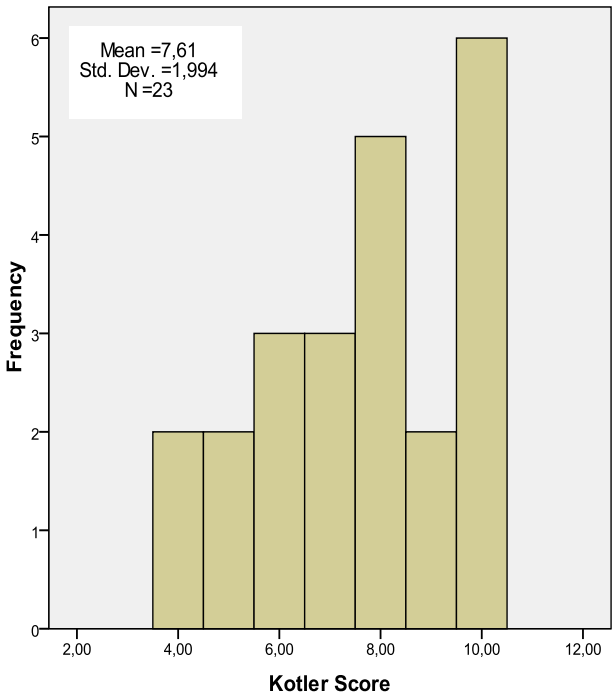


Figure 4.2 : Findings related to Kotler design sensitivity score.

Q10 : "*Availability of designer input…..?"*

The question aimed to determine Soylu Sensitivity Score using a 18*5 matrix (Q10; Appendix D). The corporate domains hinted in Kotler's Audit (Appendix G) and further explained by Soylu's Design Germination Model (Figure 2.6) were elaborated in detail by means of asking if a designer input was available during the design process. The goal of the question was to determine Soylu score and compare it with Kotler score.

Soylu scores are calculated by means of looking at the availability of a designer input in each of the four domains hinted by Kotler and further elaborated by Soylu. Again similar to Kotler, a three point scale is adopted. For each domain, Soylu aggregate score is calculated using a logical evaluation. That is, if all the answers related to that domain in the matrix are *never*, the domain score is *0*, if all the scores in the domain are *always* then the domain score is *2*, *else* is *1*. In other words, if there is even one *sometimes* within the domain, the whole domain turns out to be sometimes.

On the other hand, if a company does not possess all the listed physical manifestations of design within a given domain, the evaluation is done by means of taking into account only the existing manifestations.

Since there are four domains both in Kotler and Soylu, and Kotler asks a fifth question for evaluating overall the marketing department, the effect of this overall question in total scores is offset by multiplying Soylu scores with 1.25 to render the two scores comparable. Otherwise, Soylu score would have a range between 0-8. Having multiplied Soylu score by 1.25, similar to Kotler score, Soylu score also varies between 0-10.

Compared to Kotler Score, Soylu Scores are lower (Mean 6.60; Std. Dev. 1.90). (Figure 4.3). When the scores are analyzed with respect to companies; in 15 of the pairs, Kotler scores are *higher*; in five of the pairs Kotler scores are *lower*, in three of the pairs scores are *equal* (Figure 4.4).

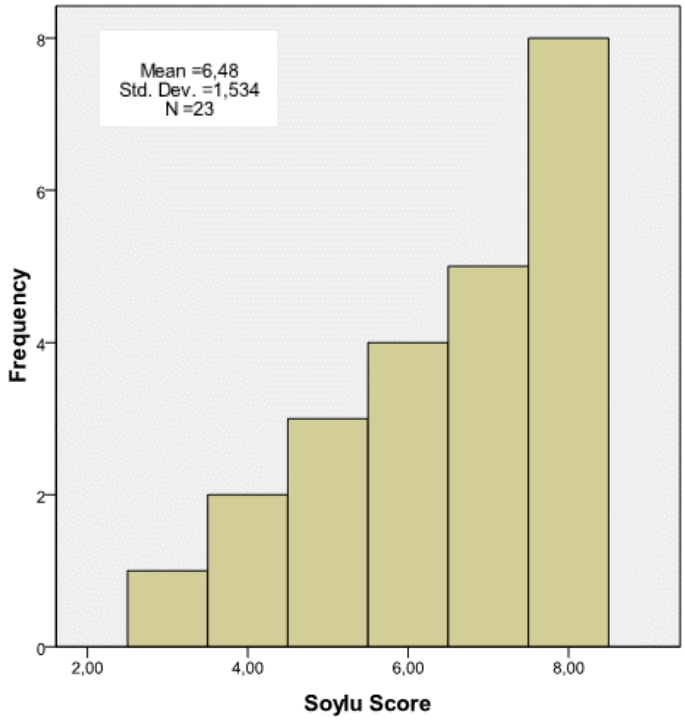


Figure 4.3 : Findings related to Soylu design sensitivity score.

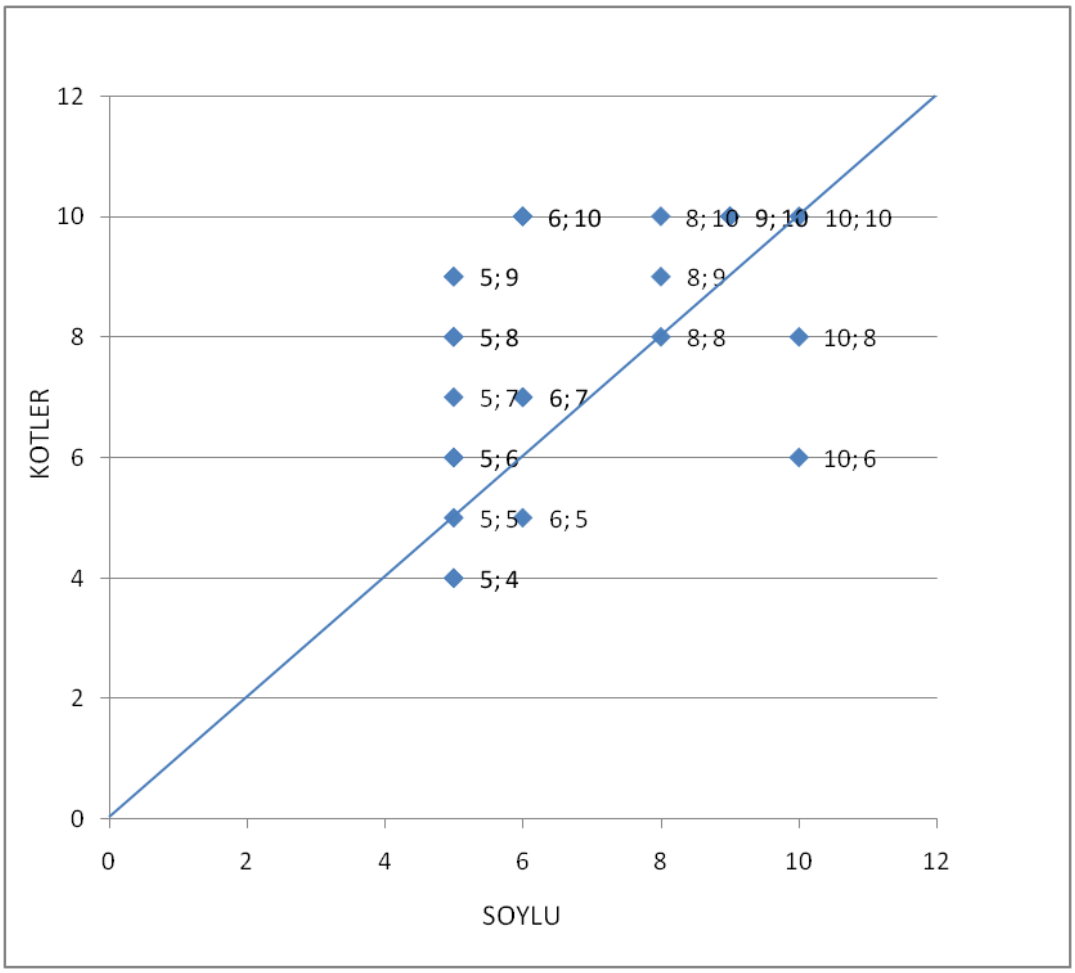
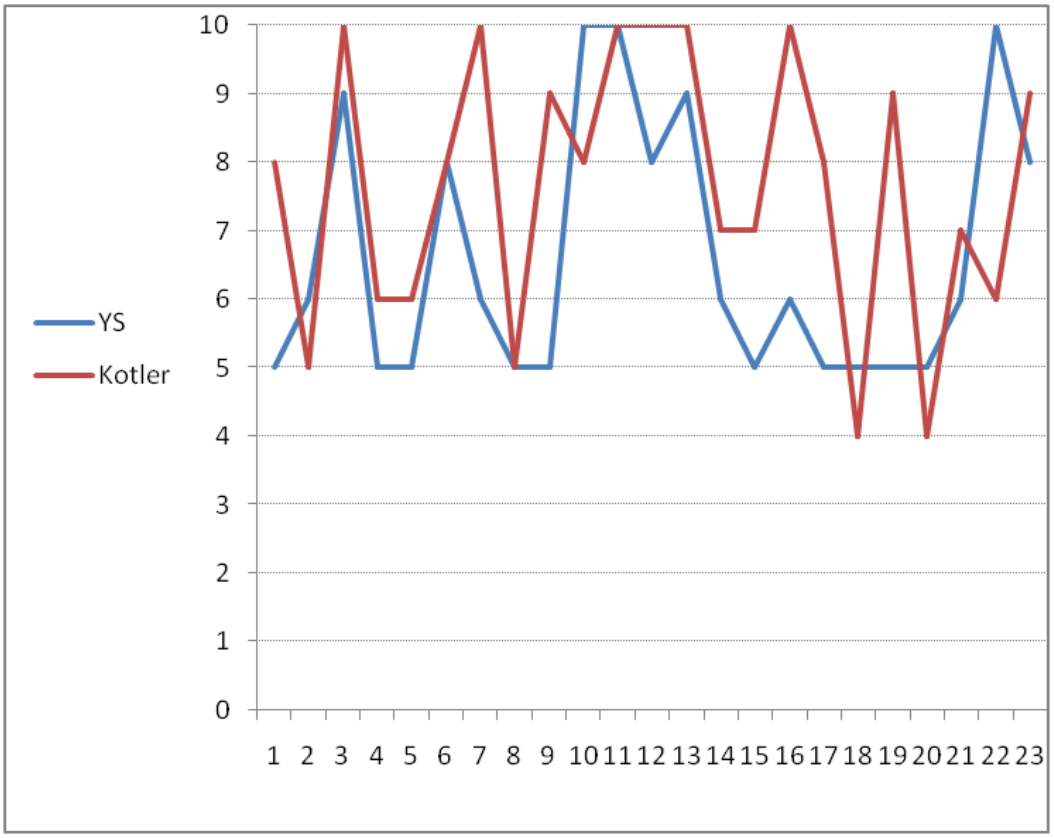


Figure 4.4 : Plot of Kotler versus Soylu scores obtained from 23 valid questionnaires.

In order to justify the statement concerning Soylu Score's being lower in the companies surveyed, a non-parametric test (Wilcoxon two-tail) has been applied. Wilcoxon was chosen since the sample does not have a normal distribution and the number is small (n.23). Figure 4.5 shows the test results and the difference between Kotler and Soylu Scores. (YS labeled line shows Soylu scores).

Lower Soylu scores may suggest that once the vague questioning style used in Kotler and Rath's Audit is replaced with more straightforward questioning (ie. physical manifestation of design and designer input), managers' evaluations may turn out to be more objective.



Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum	Percentiles 25th	50th (Median)	75th
VAR00001	23	6,6087	1,90070	5,00	10,00	5,0000	6,0000	8,0000
VAR00002	23	7,6522	2,01379	4,00	10,00	6,0000	8,0000	10,0000

Ranks

		N	Mean Rank	Sum of Ranks
VAR00002 - VAR00001	Negative Ranks	5[a]	9,30	46,50
	Positive Ranks	15[b]	10,90	163,50
	Ties	3[c]		
	Total	23		

Test Statistics[b]

	Kotler - Soylu
Z	-2,221[a]
Asymp. Sig. (2-tailed)	,026

a. Based on negative ranks.

b. Wilcoxon Signed Ranks Test

Figure 4.5 : Comparison of Kotler sensitivity scores with Soylu scores.

Q11 : "*Who is in charge of ……?"*

The goal of the question was to determine which functional departments are in charge of which physical manifestations of design. The following tables show the ratios related to each department.

In product service systems related domains CEOs/GMs and Marketing Managers take the lead: Product 39,1 % GM/CEO; Service 30,4 GM/CEO; Packaging 30,4 % Marketing Manager.

Table 4.3 : Product design related decision making.

	Freq	Percent	Valid Percent	Cumulative Percent
Design Manager	2	8,7	8,7	8,7
Factory Manager	1	4,3	4,3	13,0
GM/CEO	9	39,1	39,1	52,2
IT Manager	1	4,3	4,3	56,5
Marketing Manager	3	13,0	13,0	69,6
NA	1	4,3	4,3	73,9
Other	1	4,3	4,3	78,3
Owner/Family	3	13,0	13,0	91,3
R&D Manager	2	8,7	8,7	100,0
Total	23	100,0	100,0	

Table 4.4 : Service design related decision making.

	Freq	Percent	Valid Percent	Cumulative Percent
Factory Manager	1	4,3	4,3	4,3
GM/CEO	7	30,4	30,4	34,8
Marketing Manager	3	13,0	13,0	47,8
NA	3	13,0	13,0	60,9
Other	3	13,0	13,0	73,9
Owner/Family	2	8,7	8,7	82,6
R&D Manager	2	8,7	8,7	91,3
Sales/Exports Manager	2	8,7	8,7	100,0
Total	23	100,0	100,0	

Table 4.5 : Packaging design related decision making.

	Freq	Percent	Valid Percent	Cumulative Percent
Design Manager	1	4,3	4,3	4,3
Factory Manager	3	13,0	13,0	17,4
GM/CEO	3	13,0	13,0	30,4
HR Manager	1	4,3	4,3	34,8
Logistics/Procurement Manager	1	4,3	4,3	39,1
Marketing Manager	7	30,4	30,4	69,6
Other	2	8,7	8,7	78,3
Owner/Family	3	13,0	13,0	91,3
R&D Manager	1	4,3	4,3	95,7
Sales/Exports Manager	1	4,3	4,3	100,0
Total	23	100,0	100,0	

In environment design domains the distribution of responsibility is quite fragmented: Buildings 52,2 % GM/CEO; interiors 47,8 % GM/CEO; retail points 21,7 % Marketing Manager; production line 43,5 % Factory Manager; warehouses 30,4 % GM and 30,4 % Logistics/Procurement Managers.

Table 4.6 : Buildings design related decision making.

	Freq	Percent	Valid Percent	Cumulative Percent
Corporate Comm. Manager	1	4,3	4,3	4,3
Design Manager	1	4,3	4,3	8,7
GM/CEO	12	52,2	52,2	60,9
Logistics/Procurement Manager	1	4,3	4,3	65,2
Marketing Manager	1	4,3	4,3	69,6
NA	1	4,3	4,3	73,9
Other	3	13,0	13,0	87,0
Owner/Family	3	13,0	13,0	100,0
Total	23	100,0	100,0	

Table 4.7 : Interior design related decision making.

	Freq	Percent	Valid Percent	Cumulative Percent
Corporate Comm. Manager	2	8,7	8,7	8,7
Design Manager	1	4,3	4,3	13,0
GM/CEO	11	47,8	47,8	60,9
Logistics/Procurement Manager	1	4,3	4,3	65,2
Marketing Manager	2	8,7	8,7	73,9
Other	2	8,7	8,7	82,6
Owner/Family	4	17,4	17,4	100,0
Total	23	100,0	100,0	

Table 4.8 : Retail design related decision making.

	Freq	Percent	Valid Percent	Cumulative Percent
Corporate Comm. Manager	1	4,3	4,3	4,3
GM/CEO	3	13,0	13,0	17,4
Marketing Manager	5	21,7	21,7	39,1
NA	4	17,4	17,4	56,5
Other	7	30,4	30,4	87,0
Owner/Family	1	4,3	4,3	91,3
Sales/Exports Manager	2	8,7	8,7	100,0
Total	23	100,0	100,0	

Table 4.9 : Production line design related decision making.

	Freq	Percent	Valid Percent	Cumulative Percent
Factory Manager	10	43,5	43,5	43,5
GM/CEO	7	30,4	30,4	73,9
Logistics/Procurement Manager	1	4,3	4,3	78,3
Marketing Manager	1	4,3	4,3	82,6
NA	1	4,3	4,3	87,0
Other	1	4,3	4,3	91,3
Owner/Family	2	8,7	8,7	100,0
Total	23	100,0	100,0	

Table 4.10 : Warehouse design related decision making.

	Freq	Percent	Valid Percent	Cumulative Percent
Design Manager	1	4,3	4,3	4,3
Factory Manager	4	17,4	17,4	21,7
GM/CEO	7	30,4	30,4	52,2
Logistics/Procurement Manager	7	30,4	30,4	82,6
Marketing Manager	1	4,3	4,3	87,0
NA	1	4,3	4,3	91,3
Owner/Family	2	8,7	8,7	100,0
Total	23	100,0	100,0	

In corporate identity related domains again Marketing Managers take the lead: website 47.8 %; logo 30.4 %; company car 26.1 %; stationary 26.1 %. In this category only uniforms design decisions are made by executives other than the marketing manager.In 30.4 % of the companies interviewed HR Manager was in charge of uniform design decisions.

Table 4.11 : Website design related decision making.

	Freq	Percent	Valid Percent	Cumulative Percent
Corporate Com. Manager	4	17,4	17,4	17,4
Design Manager	1	4,3	4,3	21,7
GM/CEO	2	8,7	8,7	30,4
IT Manager	3	13,0	13,0	43,5
Marketing Manager	11	47,8	47,8	91,3
Owner/Family	1	4,3	4,3	95,7
Sales/Exports Manager	1	4,3	4,3	100,0
Total	23	100,0	100,0	

Table 4.12 : Logo and signs design related decision making.

	Freq	Percent	Valid Percent	Cumulative Percent
Corporate Comm. Manager	4	17,4	17,4	17,4
Design Manager	1	4,3	4,3	21,7
GM/CEO	5	21,7	21,7	43,5
Headquarters (abroad)	1	4,3	4,3	47,8
Marketing Manager	7	30,4	30,4	78,3
Owner/Family	4	17,4	17,4	95,7
Sales/Exports Manager	1	4,3	4,3	100,0
Total	23	100,0	100,0	

Table 4.13 : Staff uniforms design related decision making.

	Freq	Percent	Valid Percent	Cumulative Percent
Corporate Comm. Manager	1	4,3	4,3	4,3
GM/CEO	4	17,4	17,4	21,7
HR Manager	7	30,4	30,4	52,2
Logistics/Procurement Manager	1	4,3	4,3	56,5
Marketing Manager	5	21,7	21,7	78,3
Other	3	13,0	13,0	91,3
Owner/Family	2	8,7	8,7	100,0
Total	23	100,0	100,0	

Table 4.14 : Vehicle dessign related decision making.

	Freq	Percent	Valid Percent	Cumulative Percent
Corporate Comm. Manager	2	8,7	8,7	8,7
GM/CEO	3	13,0	13,0	21,7
Marketing Manager	6	26,1	26,1	47,8
NA	3	13,0	13,0	60,9
Other	6	26,1	26,1	87,0
Owner/Family	2	8,7	8,7	95,7
Sales/Exports Manager	1	4,3	4,3	100,0
Total	23	100,0	100,0	

Table 4.15 : Stationarydesign related decision making.

	Freq	Percent	Valid Percent	Cumulative Percent
Corporate CommManager	3	13,0	13,0	13,0
Finance/Accounting Manager	1	4,3	4,3	17,4
GM/CEO	2	8,7	8,7	26,1
HR Manager	1	4,3	4,3	30,4
Logistics/Procument Manager	3	13,0	13,0	43,5
Marketing Manager	6	26,1	26,1	69,6
NA	3	13,0	13,0	82,6
Other	2	8,7	8,7	91,3
Owner/Family	2	8,7	8,7	100,0
Total	23	100,0	100,0	

In communication design domain all the physical manifestations of design are led by Marketing Managers: Publications 30,4 %; advertising 43,5 %; promotional material 60,9 %; tradeshow 56,5 %; interaction 39.1 %.

Table 4.16 : Publications design related decision making.

	Freq	Percent	Valid Percent	Cumulative Percent
Corporate Comm.Manager	5	21,7	21,7	21,7
Design Manager	1	4,3	4,3	26,1
GM/CEO	4	17,4	17,4	43,5
HR Manager	1	4,3	4,3	47,8
Marketing Manager	7	30,4	30,4	78,3
Other	2	8,7	8,7	87,0
Owner/Family	2	8,7	8,7	95,7
Sales/Marketing	1	4,3	4,3	100,0
Total	23	100,0	100,0	

Table 4.17 : Advertising design related decision making.

	Freq	Percent	Valid Percent	Cumulative Percent
Corporate Comm. Manager	3	13,0	13,0	13,0
Design Manager	1	4,3	4,3	17,4
GM/CEO	5	21,7	21,7	39,1
Marketing Manager	10	43,5	43,5	82,6
Owner/Family	3	13,0	13,0	95,7
Sales/Exports Manager	1	4,3	4,3	100,0
Total	23	100,0	100,0	

Table 4.18 : Promotion design related decision making.

	Freq	Percent	Valid Percent	Cumulative Percent
Corporate Comm Manager	3	13,0	13,0	13,0
Design Manager	1	4,3	4,3	17,4
GM/CEO	2	8,7	8,7	26,1
Marketing Manager	14	60,9	60,9	87,0
Owner/Family	1	4,3	4,3	91,3
Sales/Exports Manager	2	8,7	8,7	100,0
Total	23	100,0	100,0	

Table 4.19 : Tradeshow design related decision making.

	Freq	Percent	Valid Percent	Cumulative Percent
Corporate Comm Manager	2	8,7	8,7	8,7
Design Manager	1	4,3	4,3	13,0
Factory Manager	1	4,3	4,3	17,4
GM/CEO	4	17,4	17,4	34,8
Marketing Manager	13	56,5	56,5	91,3
Owner/Family	1	4,3	4,3	95,7
Sales/Exports Manager	1	4,3	4,3	100,0
Total	23	100,0	100,0	

Table 4.20 : Interaction design related decision making.

	Freq	Percent	Valid Percent	Cumulative Percent
Corporate Comm Manager	2	8,7	8,7	8,7
Design Manager	1	4,3	4,3	13,0
GM/CEO	11	47,8	47,8	60,9
Logistics/Procurement Manager	1	4,3	4,3	65,2
Marketing Manager	2	8,7	8,7	73,9
Other	2	8,7	8,7	82,6
Owner/Family	4	17,4	17,4	100,0
Total	23	100,0	100,0	

Before asking this question 11, it was postulated that design related decisions are taken by marketing managers in all domains. Findings suggest that this is not the ase particularly in product serv,ice systems domains and environment design domains. Therefore the postulation was not supported by empiric findings. Another objective of the question was to determine the frequency of marketing manager input in design related decision making. It turned out that marketing executives are most frequently active in communications related design decision making. The third objective of this question wasto explore which functional departments are to be contacted in case of external design service offerings.

Q12: "*Is there a coordination between departments concering various design decisions mentioned above?*"

The purpose in asking Q12 was to provide an introduction to Q13. % 73,9 of the respondents confirmed that there is full various coordination between departments within their copany, whereas; % 26,1 stated that here is only partial coordination.

Q13 : "*How is design coordination achieved?*"

As it is seen from the Table 4.21, 43.5 % of coordination is achieved by means of informal meetings; followed by 34.8 % periodic formal meetings. The results of this question were used to calculate the coordination score of each company.

Table 4.21 : Means of design coordination.

	Freq	Percent	Valid Percent	Cumulative Percent
Design coordination is achieved by informal meetings.	10	43,5	43,5	43,5
Design coordination is achieved by informal meetings ANDalso by periodic, formal meetings.	4	17,4	17,4	60,9
Design coordination is achieved by informal meetings AND official announcements.	1	4,3	4,3	65,2
Design coordination is achieved by periodic, formal meetings.	8	34,8	34,8	100,0
Total	23	100,0	100,0	

Q14 : "*What % of your time is dedicated to the design activities mentioned above?*"

The objective of asking question 14 was to determine what percentage of total time was allocated by marketing managers for design related decision making. It was interesting to see that time devoted by Marketing Managers for design related decisions varied between 1% to 70%. The high value of variance contemplated in the sample (Mean 26, stdev. 19).

Table 4.22 : Percentage of time allocated by marketing managers for design related decision making.

Time Alocated (%)	Freq	Percent	Valid Percent	Cumulative Percent
1,00	1	4,3	4,3	4,3
5,00	3	13,0	13,0	17,4
10,00	3	13,0	13,0	30,4
15,00	2	8,7	8,7	39,1
20,00	1	4,3	4,3	43,5
25,00	4	17,4	17,4	60,9
30,00	3	13,0	13,0	73,9
35,00	1	4,3	4,3	78,3
40,00	1	4,3	4,3	82,6
60,00	3	13,0	13,0	95,7
70,00	1	4,3	4,3	100,0
Total	23	100,0	100,0	

Q15 : "*Change observed after responding to the questionnaire.*"

The goal of the question was to determine if marketing managers would admit that any learning concerning design in business occurred after responding to the questionnarire. Majority (56,5%) stated that "there was no change" in their knowledge concerning corporate domains affected by design. It could either be that although they knew all the physical manifestations before answering question 1 they could not remember them on a free recall basis; or they were simply face saving.

Table 4.23 : Change observed after responding to the questionnaire.

	Freq	Percent	Valid Percent	Cumulative Percent
No change observed.	13	56,5	56,5	56,5
Partial change observed.	8	34,8	34,8	91,3
Substantial change observed.	2	8,7	8,7	100,0
Total	23	100,0	100,0	

Q16 : "*Educational background to confirm they have no formal design education*."

This research involves design awareness of non-designers. Therefore, question 16 was included to make sure that the responding marketing executives do not have a formal design education. When the responses were analyzed, it was seen that only one of the respondents claimed to have a formal design education in design (Master's degree). When the school data was analyzed however, it turned out that Ms degree was obtained in History of Art. Therefore findings confirmed that the research has been carried out among non-designer executives. Table 3.24, Table 3.25, and Table 3.26 show the breakdown of undergraduate, graduate and PhD degrees hold by the respondents, respectively.

Table 4.24 : Undergraduate degrees held by respondents.

	Freq	Percent	Valid Percent	Cumulative Percent
Management	6	26,1	26,1	26,1
Engineering	14	60,9	60,9	87,0
Other	3	13,0	13,0	100,0
Total	23	100,0	100,0	

Table 4.25 : Graduate degrees held by respondents.

	Freq	Percent	Valid Percent	Cumulative Percent
Design	1	4,3	4,3	4,3
Management	5	21,7	21,7	26,1
Engineering	2	8,7	8,7	34,8
Other/None	15	65,2	65,2	100,0
Total	23	100,0	100,0	

Table 4.26 : PhD degrees held by respondents.

	Freq	Percent	Valid Percent	Cumulative Percent
Management	1	4,3	4,3	4,3
Engineering	1	4,3	4,3	8,7
Other/None	21	91,3	91,3	100,0
Total	23	100,0	100,0	

Q 17 : *"Please write down the schools you have garaduated from."*

The objective in asking question nr.16 was to double check the responses give to question nr. 16.

Q18 : *"What is the position you hold in the company you work for?"*

Table 3.27 demonstrates positions held by the respondents. The most frequently held position was marketing manager (34.8), followed by sales and marketing manager (13.0 %) and marketing director (13 %). One of the respondents turned out to be , assistant general manager in charge of marketing. In companies where a marketing manager position did not exist, the sales manager was interviewed.

Q19 : *"Please state name of the company."*

This question was asked to link financial data with survey results. The list of company names is provided in Appendix B.

Q20 : *"How old are you?"*

The purpose of asking this question was to reveal whether respondents belonged to different age groups or not. In other words, it was assumed that the managerial position could be held held after certain seniority, therefore the respondents could represent older generations. The findings suggest that this was not the case. There

were respondents from various age groups. Figure 3.5 shows the age distribution of the respondants.

Table 4.27 : Positions held by respondents.

	Freq	Percent	Valid Percent	Cumulative Percent
Assistant General Manager	1	4,3	4,3	4,3
Brand Development Manager	1	4,3	4,3	8,7
Corporate Communications and Brand Manager	1	4,3	4,3	13,0
Marketing Director	3	13,0	13,0	26,1
Marketing Manager	8	34,8	34,8	60,9
Marketing, Sales and Logistics Manager	1	4,3	4,3	65,2
Product Manager	1	4,3	4,3	69,6
Sales and Marketing Manager	3	13,0	13,0	82,6
Sales Director	1	4,3	4,3	87,0
Sales Manager	2	8,7	8,7	95,7
Strategic Management Manager	1	4,3	4,3	100,0
Total	23	100,0	100,0	

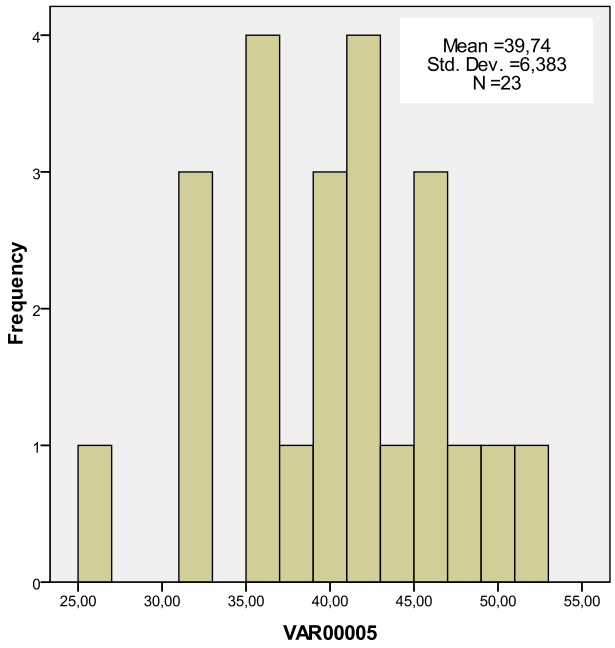


Figure 4.6 : Age Distribution of Respondents

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5. CASE STUDIES

In Chapter 4, the findings of the two exploratory field studies (Phase I and Phase II) carried out have been discussed in detail. Before elaborating on the findings of the main study (Phase III) in Chapter 6, this chapter summarizes company information related to the companies in which case study research has been conducted.

The information provided in this chapter is mostly public information, derived from secondary sources (company websites, Istanbul Chamber of Industry database and company archives). Due to confidentiality issues, researcher's comments have not been included in this chapter. However, company information provided here is critical because it helps us to understand the contextual background of the phenomenon studied. The information could have been provided in the appendices, nevertheless the researcher wanted to highlight the value of contextual information in case study analysis therefore decided to devote a chapter for it.

The following four companies have been selected as the unit of analysis in case studies:

Case Study I : Mondi Tire Kutsan – Turkey

Case Study II : Perfetti Van Melle - Turkey

Case Study III : Camiş Ambalaj A.Ş.

Case Study IV: Matlı Yem Sanayi A.Ş.

Selection criteria has already been discussed in the methodology chapter in detail (Chapter:3; Section 3.5.1).

5.1 Case Study I: Mondi Tire Kutsan –Turkey

Table 5.1 : Mondi Tire Kutsan company profile (Turkey's largest manufacturing companies list 2011-Istanbul Chamber of Industry)

Company Name:	**Mondi Tire Kutsan Kağıt ve Ambalaj Sanayi A.Ş. www.mondigroup.com.tr**
Industry:	341
Date established:	1974
ISO Rank:	182
Turnover:	412,877,146 TL
Export:	-
ExportRatio:	-
Export countires:	Russia, South Africa,
Foreign Capital Ratio:	63.40 %
B2Bvs. B2C:	B2B
Brands:	mondi

5.1.1 Introduction

Mondi Tire Kutsan, has been selected as the first unit of analysis in this case study research. Another unit of analysis is the non-designer executive form the same company. For this purpose three executives related to design decision making have been face-to-face interviewed and surveyed during the period February-April 2014. The positions of the managers and their educational background are presented on Table 5.2:

The company was first approached in 2013 (during Phase II). The on-line survey questionnaire has been completed by the company's Marketing Manager. According to the survey results of Phase II, the company turned out to be one of the highest scoring companies with respect to Kotler's Design Sensitivity Audit. Therefore

Mondi-Tire Kutsan is a case which exemplifies highly design sensitive global companies operating in the B2B sector.

Table 5.2 : Positions interviewed at Mondi.

Position Interviewed	Education	Duration with the Company
Marketing Manager (TR)	BSc. Management (Hacettepe University)	2 years
R&D Manager(TR)	BSc. and MSc. in Environmental Engineering (9 Eylul University)	4 years
Sales Manager(TR)	Bsc. in Management (Ege University)	3 years

During Phase II, the following positions have determined to be active in design related decision making:

- R&D Manager
- Sales Manager
- General Manager
- Production Manager
- Logistics Manager
- Marketing Manager
- HR Manager
- IT Manager

Based on this finding in Phase II, the persons holding the positions mentioned in Table 5.2, have been approached and interviewed in Phase III of the research. One of the interviews took place on 19th Feb. 2014 in the sales office in Ümraniye-Istanbul . Two of the interviews were realized in Tire factory-İzmir on 10th March 2014. All the executives spoke Turkish. For confidentiality reasons, all the interviews have been coded and the findings have been anonymised in Chapter 6.

As it is clearly seen form Table 5.2, none of the executives interviewed have a formal design education, i.e. they do not possess a graduate or undergraduate design degree.

5.1.2 Mondi in the world

The information in this section was retrieved from the company's website (Url-2) on 7th May, 2014. Mondi is an international packaging and paper company employing 24,400 people in production facilities across 30 countries. In 2013, Mondi had revenues of €6.5 billion and a return on capital employed (ROCE) of 15.3%. The

Group's key operations are located in central Europe, Russia, the Americas and South Africa.

Mondi is involved in the manufacture of packaging paper and converted packaging products; uncoated fine paper; and speciality products and processes, including coating, release liner and consumer flexibles.

Mondi is fully integrated across the paper and packaging process, from the growing of wood and manufacture of pulp and paper (including recycledpaper) to the converting of packaging papers into corrugated packaging and industrial bags.

5.1.3 Mondi milestones

The information in this section was retrieved from the company's website (Url-2) on 7th May, 2014.

1989-1992: The Mondi Group is formed by Mondi South Africa, which was founded in 1967 and the acquisition of Frantschach and Neusiedler, which were founded in Austria in 1881 and 1793 respectively.

1997: Acquisition of Świecie, one of Poland's largest paper mills.

2000: Acquisition of 50 per cent and an option to acquire a further 1 per cent of the Ružomberok mill (subsequently exercised in 2006), Slovak Republic.

2002: Increased ownership interest in the Syktyvkar mill to over 90 per cent which increased thereafter to 97.88 per cent, Russia.

2003: Rebuild of PM18 paper machine in Ružomberok, Slovak Republic.

2004: Expansion of pulp mill in Ružomberok, Slovak Republic.

2005: Expansion of pulp mill in Richards Bay, South Africa.

Rebuild of PM31 paper machine in Merebank, South Africa.

Divestiture of nine corrugated packaging plants and one flexibles plant, Europe.

2006: Divestiture of seven corrugated packaging, one bag converting and two flexibles plants in Europe, Asia, Africa.

Acquisition of Mondi Stambolijski, Bulgaria.

2007: Demerger of the Mondi Group from Anglo American plc, with a dual listing on the London Stock Exchange (LSE) and Johannesburg Stock Exchange (JSE).

Acquisition of majority stake in Tire Kutsan, Turkey.

Divestiture of five corrugated packaging plants, Europe.

2009: Completion of the investments in the new lightweight recycled containerboard machine ECO7 and in the new state-of-the-art corrugated box plant in Świecie, Poland.

2010: Acquisition of the industrial and consumer bag operations of the Smurfit Kappa Group in western Europe and disposal of corrugated box plants in the UK.

Completion of the investment in the extension and modernisation of the Syktyvkar mill, Russia.

2011: Demerger of Mondi Packaging South Africa.

2012: Acquisition of Nordenia International, consumer packaging business.

Acquisition of Duropack's two corrugated packaging operations in Germany and the Czech Republic.

Acquisition of the remaining minority interest in Mondi Świecie, Poland.

2013: Syktyvkarbark boiler commissioned in Russia.

Frantschach recovery, boiler commissioned in Austria.

Richards Bay steam turbine commissioned in South Africa.

Stambolijski recovery, boiler economiser commissioned in Bulgaria.(Url-2)

5.1.4 Mondi-Tire- Kutsan Turkey

Mondi Tire Kutsan was established in Izmir, in 1974, by 1900 founding partners, as a local initiative to provide packaging materials for local agricultural products.The major portion of the funding for the factory has been realized by a loan taken from the World Bank. The remaining funds were collected from the 1900 local partners who were residents of Tire (Personal Interview, 10th March, 2014).

Mondi Tire Kutsa has been listed on the Istanbul Stock Exchange since 1991. Later because of the financial difficulties contemplated in 1998, the company was sold to Ülker Group. In late 2007, the company joined Mondi Group, one of the world's leading suppliers of paper and packaging, with operations across 28 countries. Mondi Tire Kutsan develops custom products for individual requirements, and capitalizes on the benefits of being an integrated paper and packaging company. A proactive approach to developing new solutions is backed by ongoing R&D, dedicated infrastructure, committed employees and advanced processes. Mondi Tire Kutsan has experience in packaging design and print/materials choice andclaims to be a highly reliable partner for clients.

Mondi Tire Kutsan has 6 factories in Turkey. Each factory employs at least one designer. The main design studio is located at its Tire premises. The company has 1200 employes and 700 clients in total in Turkey. Mondi Tire Kutsan has been growing constantly according to the ISO 500 list. In 2001, the company was the 351th largest manufacturing company. As of 2011, the company has become the 180th largest manufacturing company of Turkey.

Figure 5.1 : Mondi Tire Kutsan factory entrance (İzmir, March 2014).

Figure 5.2 : Mondi Tire Kutsan factory interiors. (İzmir, March 2014).

5.1.5 Mondi strategy

The following statements related to Mondi strategy have been taken directly from the company's website (Url-2):

> **Leading market positions:** We build on leading positions in packaging and uncoated fine paper, particularly in high-growth emerging markets.

High-quality, low-cost asset base: We maintain our low-cost, high-quality position by selectively investing in production capacity in lower-cost regions and realising the benefits of upstream integration (including forestry).

Customer focused development: We focus on developing markets and products which follow our customers' needs and requirements. Our intention is to leverage customer relationships by developing products that fulfil their needs, and to follow customers into new geographic markets.

Focus on performance: We focus on continuous productivity improvement and cost reduction, delivered through business excellence programmes and rigorous asset management.(Url-2)

5.1.6 Products and design awards

As it is seen from the previous paragraphs, Mondi Strategy does not include design. When the executives were intervieweed, the researcher asked whether a designer was on the Board. The answer given to this question was negative.

Nevertheless, the company has received several design awards. In 2012, in the competition organized by Packaging Manufacturer's Association, Mondi got 3 design awards. The boxes Balım stand, Choco Energic Display and Rumeli Box products got the rewards.

Figure 5.3 : Packaging manufacturers association competition 2012 winner.

Figure 5.4 : Paper packaging products designed by Mondi Tire Kutsan.

5.2. Case Study II: Perfetti Van Melle –Turkey

Table 5.3 : Perfetti Van Melle company profile (Turkey's largest manufacturing companies list 2011 - Istanbul Chamber of Industry)

Company Name:	**Perfetti Van Melle Gıda San. ve Tic. A.Ş. www.perfettivanmelle.com.tr**
Industry:	Food
Date established:	1979
ISO Rank:	159
Turnover:	465,567,833 TL
Export:	180,063,000 USD
ExportRatio:	64.98 %
Export countires:	USA The Netherlands, Belgium, France, Poland, Germany, Italy, Spain, Central Asia Turkish Republics, Greece, the Middle East, the Caucasus and North Africa
Foreign Capital Ratio:	100%
B2B vs. B2C:	B2C
Brands:	VIVIDENT XPLAY, Chupa Chups

5.2.1 Introduction

Perfetti Van Melle -Turkey, has been selected as the first unit of analysis in this case study research. Another unit of analysis is the non-designer executive form the same company. For this purpose three executives related to design decision making have been face-to-face interviewed and surveyed during the period February-April 2014. The positions of the managers interviewed and their educational background is presented in Table 5.4:

The company was first approached in 2013 (in Phase II). The on-line survey questionnaire has been completed by the company's Marketing Manager. According to the survey results of Phase II, the company turned out to be one of the highest

scoring companies with respect to Kotler's Design Sensitivity Audit. Also during Phase II, the following positions have determined to be active in design related decision making:

- Marketing Director
- Sales Director
- General Manager
- Industrial Operations Director
- Human Resources Director
- Research and Development Director

Table 5.4 : Positions interviewed at Perfetti Van Melle.

Position Interviewed	**Education**	**Duration with the Company**
Marketing Director (TR)	BSc. Management (METU) MSc. International Relations (Galatasaray)	16 years
Industrial Operations Director(TR)	BSc. Food Engineering (Hacettepe)	6 years
R & D Director (Ex-patriot)	Bsc. Biology (abroad) MSc. Food Technology (abroad)	2.5 years

Based on this finding in Phase II, the persons holding the positions mentioned in Table 5.4, have been approached and interviewed in Phase III of the research. Two of the interviews took place on 24th Feb. 2014 and the third one took place on 7th March 2014 in the company headquarters, in Istanbul. The first two executives spoke Turkish, the third executive was an ex-patriot. Therefore, the former two interviews were in Turkish and the latter interview was in English. For confidentiality reasons, all the interviews have been coded and the finding have been anonymised in Chapter 6.

As it is clearly seen form Table 5.4, none of the executives interviewed have a formal design education, i.e. they do not possess a graduate or undergraduate design degree in design.

5.2.2 Perfetti Van Melle in the world

The information in this section was retrieved from the company's website (Url-3) on 7th May, 2014. Perfetti Van Melle is a privately owned company that manufactures and distributes candies and chewing gums in 150 countries in the worldwide.

Although the legal entity of the company was established in 2001, by the merger of Italian Perfetti with Dutch Van Melle, both companies have a long tradition of sugar confectionery manufacturing; the former being established in 1946 in Lainate (Italy) and the latter in 1900 in Breskens (The Netherlands). On the other hand, both companies have been co-operating in a number of countries since 1979. In 2006, Perfetti Van Melle acquired the Spanish Chupa Chups which was also established right after the Second World War in 1950.

Today the company employs 19,000 people, in 35 countries. It has presence in the Aisa Pacific Region, Europe, Middle East, Africa and America. The headquarters are located in Italy (Lainate) and the Netherlands (Breda). Perfetti Van Melle owns 39 companies, 31 manufacturing sites. In 2012, the company had an annual net sales revenue of 2,488 Million Euros. 39 % of this revenue comes from chewing gums and 61 % from candies. The company has been growing rapidly since the Chupa Chups acquisition in 2006. Since then, the company has grown by 57 % (Url-2).

5.2.3 Perfetti Milestones

The information in this section was retrieved from the company's website (Url-3) on 7th May, 2014.

2001: Merger of Perfetti with Van Melle (PVM).

2003: PVM achieves the 3rd position in the global confectionery market after Cadbury and Wrigley. In Asia, PVM is the market leader in many countries. Re-organisation is Europe starts: Production sites are consolidated, new investments are made in Russia.

2004: Activities in Europe and Asia are expanded. A new manufacturing plant in Russia and a new company in Bangladesh are opened.

2005: PVM makes a joint venture with Chupa Chups and Lofthouse Fleetwood to market its products in Germany.

2006: A new company and a manufacturing site is opened in Sri Lanka.

In July 2006, Chupa Chups is acquired.

2007: The 3rd factory is opened in India. A new plant is opened in Vietnam.

2008: Construction of a new plant in Spain starts. The factory is Poland is closed down, while maintaining company offices and commercial distribution.

A second factory in Shangai is built.

Chupa Chups celebrates its 50th birthday.

2009: A new factory in Spain begins to operate to replace the old one. A second plant in Shangai is completed.

2010: The new plant in Bangladesh comes to operation.

2011: PVM celebrates its 10th birthday. PVM US launches Mentos UP2U, the new gum: 1 pack, 2 flavours, you choose.

2012: Fruitella celebrates its 80th anniversary. New corporate offices are opened in Amsterdam. PVM Italy obtaind ISO 14001 certification.(Url-3)

Between 2005-2011, the headquearters building offices and warehouse) in Italy has been renovated. A total amount of 15 Million Euros has been spent for the renovation. A book (Figure 5.5) narrating the renovation process has been written by the after the building has been completed. The book is sold at Amazon website.

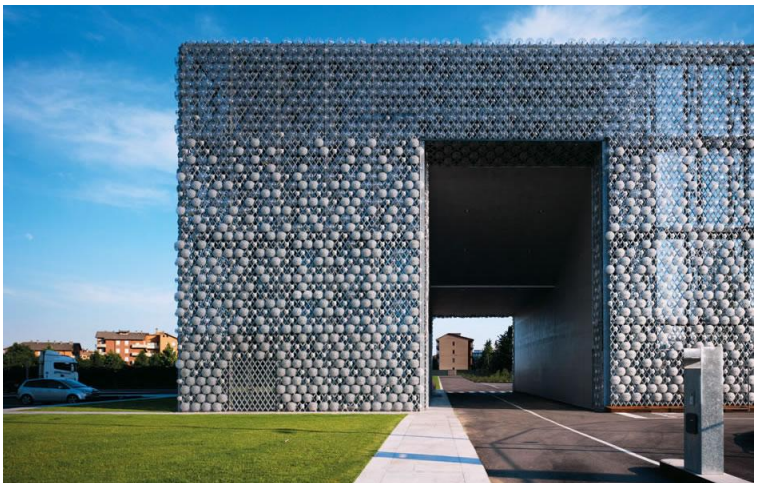


Figure 5.5 : Perfetti Van Melle Lainate Building (Italy) after 2005-2011 renovation.

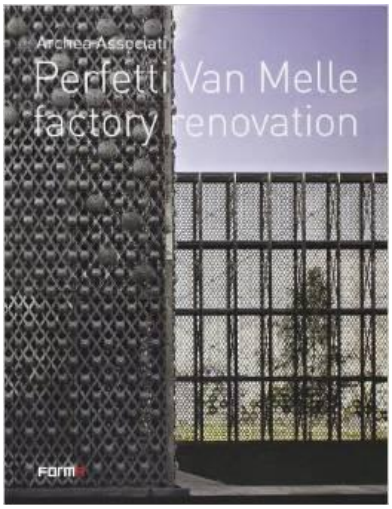


Figure 5.6 : Archea Assocciati. Perfetti Van Melle factory innovation. (Book written by Massimiliano Giberti and Philipp Meuser.)

5.2.4 Perfetti history

The information in this section was retrieved from the company's website (Url-3) on 7th May, 2014.

> The story of this large company began in Lainate, a township just outside Milan, in 1946. It was here that the two Perfetti brothers. Ambrogio and Egidio, founded the Dolcificio Lombardo. In the mid 1950's the two brothers had the inspiration that led to their company's first and decisive qualitative leap forward: the production and launch of chewing gum, the legendary American product that was introduced into Italy by allied soldiers. This decision marked the arrival of the first chewing gum entirely made in Italy: "Brooklyn", known everywhere as "la gomma del ponte", the chewing gum of the bridge. An authentic cultural icon, the Brooklyn legend lives on today. 1968 marked another milestone in the company's development: the creation of gum base, a business that immediately became an indispensable strategic asset for the production of gum base, the raw material for chewing gum. Today the company is one of the top international gum base producers, supplying all the group's companies as well as many other confectionery producers. The 1970's witnessed the launch of the brands that were to become favorites with consumers around the world: Big Babol, Morositas, Vigorsol, Happydent, Vivident and Alpenliebe.
>
> Since then Perfetti has continued to grow, pursuing a highly innovative policy that inspires the company to offer new products and brands every year. Special attention to consumers and acute awareness of market trends have always been the hallmark of the company's activities.
>
> The ability to anticipate consumer demands and trends has played a vital role in the success of Perfetti. In the 1980's and 1990's Perfetti launched an aggressive policy of commercial expansion to accompany its strategy of constant innovation. In Italy, the acquisition of large players in the sector, such as Caremoli (owners of the Golia brand) Gelco and La Giulia, allowed Perfetti to extend its range even further into all market sectors. The acquisition of Frisk ushered the company into the mini mint tablet sector and ensured a presence on the Japanese market.
>
> Encouraged by its leadership in the domestic market, the company launched an impressive process of international expansion, opening new production facilities and distribution units on five continents- from Greece and Turkey in the Mediterranean area, to the emerging markets of China, Indonesia, India and Vietnam,culminating in the ultramodern factory opened in Brazil in 1999.(Url-3)

5.2.5 Van Melle history

The information in this section was retrieved from the company's website (Url-3) on 7th May, 2014.

The story began in 1900 in Breskens, where Izaak Van Melle started converting the bakery founded 60 year earlier by his grandfather into a small confectionery factory. It only took him a few years to transform the small family concern into a thriving company.

Towards the end of the Second World War, the Breskens factory was destroyed and the company was forced to move to Rotterdam. After a few months of settling in, it was business as usual. The famous Mentos and Fruittella brands began to grow in volume and distribution range. It was at time that modern stick and roll formats appeared. The company expanded rapidly, spreading around the globe.

The company focused on the qualitative improvement of its products and adopted a strategy for international expansion based on its expertise in "supplying superior quality products to quality markets". Several European countries (France, Belgium and Germany) soon became the setting for commercial units, supplied by the Rotterdam factory, created an efficient distribution network. In just a few years, Van Melle would succeed in taking the freshness and taste of its unmistakable brands to the most remote corners of the earth. In the 1980's, Van Melle decided to relocate its main factory to Breda, where the greater space allowed its productive capacity to increase. Immediately afterwards the company broadened its product range, orientating its interest towards candies for children through the acquisition of large companies, such as Gebr, Verdujin, Look-o-Look and Peco.

It was also during this period that Van Melle started its far-reaching international expansion by opening commercial units and factories in the Brazil, the USA, Thailand, Indonesia and the Philippines. Its growth in other international markets continued throughout the 1990's with the opening of the eastern European borders. During this time, the company set up commercial facilities across the whole region and built a production unit in Poland. In the late nineties Van Melle set its sights on the emerging Asian market, where it once again displayed remarkable operational foresight. As well as creating commercial units, the company also set up large-scale production facilities in Indonesia, China and India. To improve its home market position, Van Melle acquired Klene, a Dutch company famous for its liquorice products.

Chupa Chups lollipops have been sweetening the lives of millions since 1958, but the real beginnings of the world's best-loved lollipop trace back in the mid 19th century, when Josep Bernat, the grandfather of the founder of the Chupa Chups Group, opened a small sweet factory in Barcelona.

The business was destroyed during the Spanish civil war, but the art of candy making survived and was passed down through the generations. In 1950, one of Josep Bernat's grandsons, Enric, opened his own small confectionery factory and business boomed. Later he took the control of a food and confectionery company, Granja Asturias S.A, producing over 200 products.(Url-3)

5.2.6 Chupa Chups history

The information in this section was retrieved from the company's website (Url-3) on 7th May, 2014.

> In 1958 Enric hired a French consulting firm to study sweet-eating habits. He had noticed that sweets did not appear to be designed for children as the sweet consumption invariably results in a very sticky mess. After the research that showed that 67 percent of consumers were children under 16, Enric Bernat decided to create a sweet that could keep both the children and their parents happy, a product that would be like "eating a sweet with a fork". This idea revolutionized sweet eating habits in Spain and the product that was to become Chupa Chups® lollipop was born.
>
> The very first name of the lollipop was GOL. Spanish for "goal" due to the lollipop's resemblance to a football. But Enric Bernat was not totally convinced with this name and decided to change the name into "CHUPS". Later the name was changed into Chupa Chups®, as young consumers, singing the song created to advertise the lollipops, began asking for Chupa Chups (Spanish world for Lick a Chups) instead of the actual Chups®.
>
> The Chupa Chups® brand name was finally registered in 1962 and in 1964 the company adopted the same name, changing from Granja Asturias S.A. to Chupa Chups, S.A.
>
> As the product kept developing and expanding into markets all over the world, it needed a more universal design. So one day in 1969 Enric Bernat travelled to Figueras, 150 km north of Barcelona, in order to pay a visit to the world famous Salvador Dali.
>
> Over lunch and in less than one hours this great artist sketched out on a piece of newspaper what was to be the basis of the Chupa Chups® logo still in existence today. The brand name was centered in the middle of a simple and attractive design based on a daisy.In the 60's, Enric Bernat created a strong distribution network in Spain: an immense fleet of 800 Seat cars were used to distribute the Chupa Chups® lollipops among 300.000 outlets all around the country. Every one of these cars was decorated with the Chupa Chups® design so that people could recognize them in the streets and also simply advertise the product. Innovation in technology has always been a strong feature of the Chupa Chups® group. Enric Bernat decided to manufacture his own machinery to produce his products and, since the first production lines were put in motion, this machinery has been updated and renewed to ensure the highest standards are consistently met. Nowadays a huge percentage of Chupa Chups® lollipops still manufactured using the most up-to-date technology at the main plant in San Esteve Sesrovires near Barcelona.
>
> With the introduction of SMINT® in 1994 and Cremosa® in 2003, in addition to the well loved traditional lollipops, the Chupa Chups® has enlarged its product portfolio to meet the increasingly demanding needs of its adult and health conscious consumers (Url-3).

5.2.7 Perfetti Van Melle strategy

The following statements have been taken from Perfetti Van Melle's company website (Url-3):

The Mission Statement:

We will enhance our world leadership in confectionery by creating value for people through delightful and imaginative high quality products.

The Vision Statement:

- We develop, manufacture and market high quality and innovative products for our consumers through efficient use of our resources in partnership with our customers.
- Create a fulfilling workplace for our employees built on trust, mutual respect and appreciation of their diversity.
- Value the role we play in our communities, as a socially and environmentally committed organization.
- Generate economic value through superior growth and profitability.
- Perfetti Van Melle claims to have built its success on quality, innovation, knowledge of markets and consumer desires.
- Quality involves the selection of finest raw-materials, the development of cutting-edge production processes, and research into ever newer and better production formulas. Most of Perfetti Van Melle's production facilities have obtained ISO 9001-2000 quality certification.
- The confectionay sector is in constant evolution and innovation is an essential element in keeping pace with competition and the market. PVM gives strategic importance to R&D of new, up-to-date products. The central laboratories of Lainate and Breda assisted by local laboratories are constantly researching new products and quality improvements to the existing ones.
- Our marketing services conduct constant detailed market research and in-depth analysis of the target market and its development. PVM also remains in tune with consumers by placing great emphasis on a series of other innovative, attractive initiatives. These include developing new formats and packaging, designing original product concepts; creating alternative effective promotional tools, and high impact, eye-catching advertising campaigns.(Url-3)

5.2.8 Perfetti Van Melle Turkey

The information in this section was retrieved from the company's website (Url-3) on 7th May, 2014.Within the scope of internationalization of Perfetti, a company was

established for investing in Turkey in 1988. Following the establishment of the company in October 1988, construction of the factory started, the factory was completed in 1990. The facility was established on an area of 7000 m2 at Esenyurt-İstanbul. The headquarters is also located in the same place. The products produced in this factory started to take their places on the shelves in April 1990. As of 2011, the company is still owned 100 % by Perfetti Van Melle.

The facility only produces chewing gum. It exports all chewing gum varieties needed by the Group for Europe and Near East. The facility produces different types of products including bubble gum, sweetened dragée gum, liquid filled gum and stick gum.

Perfetti Van Melle soon became the market leader in Turkey. PVM Turkey distributes all around the country either through its dealers or with its sales fleet.

Perfetti Van Melle has certified its quality in Turkey by receiving ISO 9001:2000 and HACCP certificates. Perfetti Van Melle Gıda San. ve Tic. A.Ş. maintains its place among the top 500 industrial companies of Turkey since 2001. When Perfetti Van Melle rankings are analyzed at the ISO 500 company list between 2001-2010, it is seen that the company has been in progress. In 2001, Perfetti was the 397th largest manufacturing company of Turkey; whereas by 2010, it is the 209thlargest manufacturing company. The total turnover of Perfetti Van Melle is 250 Million USD as of 2011. Exports make 60 % of this sales figure. Europe and Near East are among the major export markets. Perfetti Van Melle Turkey has more than 1500 employees and 70 % market share in the local market (Ozutku and Algur, 2012).

Figure 5.7 : Perfetti Van Melle Esenyurt Building (Turkey).

5.2.9 Perfetti Van Melle brands

Some of the major brands are: Vivident, Mentos, Frisk, Fruitella, Alpenliebe, Golia, Happydent, Big Babol, Airheads, Chupa Chups and Smint.

In addition to these global brands, Perfetti Van Melle offers a wide range of products. According to Perfetti (Url-2), the popularity of its products is rooted in individual, local and regional markets: The ability to develop products, versions and flavours that suit different demands and opportunities of local markets is one of the keys to success (Url- 2).

Figure 5.8 : Vivient is the leader chewing gum brand sold at more than 100,000 sale points in Turkey since 1991 (Url-3)

Figure 5.9 : Chupa Chups lollipops exist since 1958. (Url-3)

Approximately 1 of every 4 lollipops consumed in the world is Chupa Chups. The logo of the brand was drawn by Spanish artist Salvador Dali and the brand is distributed and consumed in the global markets (Url-3)

5.3 Case Study III: Camiş Ambalaj

Table 5.5 : Camiş Ambalaj company profile (ISO 500 List 2011).

Company Name:	**Camiş Ambalaj Sanayi A.Ş.** **www.camisambalaj.com**
Industry:	341
Date established:	1987
ISO Rank:	385
Turnover:	199,364,157 TL
Export:	2,726,000 USD
ExportRatio:	2.30 %
Export countires:	Russia, Bulgaria, Georgia, Ukraine, Egypt, Italy and Bosnia-Herzegovina
Foreign Capital Ratio:	0.00
B2B vs. B2C:	B2B
Brands:	Camiş Ambalaj

5.3.1 Introduction

Camiş Ambalaj, has been selected as the first unit of analysis in this case study research. Another unit of analysis is the executive from the same company. For this purpose three executives related to design decision making have been face-to-face interviewed and surveyed during the period February-April 2014. The positions of the managers interviewed and their educational background is presented in Table 5.6:

Table 5.6 : Positions interviewed at Camiş Ambalaj.

Position Interviewed	Education	Duration with the Company
Marketing Manager (TR)	Mechanical Engineering (YTÜ)	12 years
R&D Manager (TR)	Industrial Product Design (MSÜ)	26 years
Product Design Responsible	Industrial Product Design (İTÜ)	1.5 years

The company was first approached in 2013 (in Phase II). The on-line survey questionnaire has been completed by the company's Marketing Manager. According to the survey results of Phase II, the company turned out to be one of the highest scoring companies with respect to Kotler's Design Sensitivity Audit. Among the four companies studied, Camiş Ambalaj was the only company that recruited a design manager at R&D. Therefore, this was the only company where non-designer interviewee rule was not abided by. During Phase II, the following positions have determined to be active in design related decision making:

- Design Manager
- General Manager
- Marketing Manager

Later on, it turned out that the design manager in fact was titled as the R&D Manager. On the other hand, since it was impossible to reach the general manager, product design responsible was intervieweed instead. The latter was a junior employee. The problem related to her juniority is believed to be offset to some extent by the R&D Manager's experience in the same position (26 years) and his being knowledgeable concerning all design related decision making.

Based on this finding in Phase II, the persons holding the positions mentioned in Table 5.6, have been approached and interviewed in Phase III of the research. All of the interviews took place on 5th March, 2014, at company headquarters, in Istanbul. All the interviews were conducted in Turkish. For confidentiality reasons, all the interviews have been coded and the findings have been anonymised in Chapter 6.

5.3.2 Camiş Ambalaj company profile

The information in this section was retrieved from the company's website (Url-4) on 7th May, 2014.

Camiş Ambalaj Sanayi A.Ş., a ŞİŞECAM affiliate, has been conducting business on manufacturing and sale of offset-printed laminate and cardboard consumer packages, trays and multi-packs for automatic filling lines, displays for displaying purposes and promotional packages since 1987.

The main factory is located in Istanbul. In its second factory, the most extensive packaging facility of Turkey, established in 1997 in province of Eskişehir, Camiş Ambalaj Sanayi A.Ş. manufactures high-quality flexo and flexo-printed consumer and transport packages (Inner boxes-outer boxes-Jumbo outer boxes), trays and multi-packs for automatic filling lines, and packages for fresh fruits and vegetables. Upon establishment of Eskişehir facilities, and within concept of evolution into single-purpose production manner, Tuzla facilities are allocated for offset printing, and Eskişehir facilities, on the other hand, are allocated for flexo-printed package manufacturing, only.

Camiş Ambalaj Sanayi A.Ş., established for the purpose of providing ŞİŞECAM affiliates with paper-cardboard packaging products, provides its customers with complete service and support from design to manufacturing, after-sale service and package engineering. The company has been satisfying all package needs of its affiliates manufacturing Glassware and Glass Containers and it ensures required domestic market and export quality, and thanks to its alluring products, it makes favorable contributions regarding costumer appreciation.

Camiş Ambalaj Sanayi A.Ş., realizing 200 millions USD annual sales, with its 550 employees strengthened its market potential and maximized its capacity use by leaping forward other sectors other than ŞİŞECAM. Other than ŞİŞECAM, Camiş Ambalaj Sanayi A.Ş., meets high-quality package demands of particularly food and beverage sectors and other sectors such as ceramics, white-goods, cleaning, electric-electronic, shoe & slipper, machinery spare parts, fruit and vegetable, and seedling & decorating plants. The company has 4% market share in offset packaging sector and 6% market share in corrugated packaging sector.(Url-4)

Figure 5.10 : Camiş Ambalaj Tuzla Plant and Eskişehir Plant

Being a fully integrated company, it is capable of providing services at every stage from marketing to creative design, from manufacturing to after-sale services and packaging engineering, Camiş Ambalaj Sanayi A.Ş aims 100% customer satisfaction, and has set its principle as providing solutions to customer problems under Total Quality point of view. The

company received ISO 9001 Quality Assurance System Certificate in 1993. Camiş Ambalaj, combining its quality concept with environmental consciousness, is the first company in Turkey to receive TS-ISO 14001 Environment Management System Certificate in 1997, recently received OHSAS 18001 Occupational Health and Safety Management System certificate in 2007.

Camiş Ambalaj Sanayi A.Ş., having proven its achievements both in world and domestic markets, supports and improves such achievements with awards given by national and international package contests.(Url-4)

5.3.3 Products and design awards

Every year World Packaging Organisation (WPO) organizes a competition. 250 manufacturers from 35 countries participated to the competition in 2013. Taking into account all the categories, in total 4 companies from Turkey have been awarded with a prize in 2013 and Camiş Ambalaj has been awarded the winning prize, as the only paper packaging manufacturer from Turkey(Personal Interview, 5th March 2014).

According to the R&D Manager, the packaging is designed with the idea to expose and carry four beverage bottles. Packaging consists of a box and a handle (which is also a separator). After the box is constructed, handle part is located, separators are unrolled and then bottles are placed. In order to prevent products to be taken one by one, flaps are locked on upper part. Exhibition either in a row, or side by side is possible. Recycled and environmentally friendly materials are used in the production process(Personal Interview, 5th March 2014).

Figure 5.11 : WPO competition 2013-2014 winner.

5.3.4 Camiş Ambalaj design studio services

Camiş Ambalaj has an in-house design studio. A team of 11 people comprising of industrial designers, graphic designers and technical drawing specialists work in the studio. The design studio is located in Tuzla plant and feeds the designs developed here are manufactured at either Tuzle or Eskişehir plants. In Camiş Ambalaj a particular emphasis on packaging engineering is observed. During the interviews both the R&D Manager and the marketing manager mentioned the importance of packaging engineering. The former showed the resesearcher a standard book on packaging engineering and the latter re-iterated the word *packaging design* with*packaging engineering*. Also the R&D Manager mentioned that İTÜ graduates were better performing then MSÜ graduates in 3D design because of the engineering based education, he thought they received. The design services offered by the company are grouped into five stages, namely package design, model building, graphic design, proof printing and color separation according to the information obtained from the company website (Url 4):

> **Package Design:** The most appropriate purpose-oriented package design at international standards is created with a proactive approach under the light of gained experiments and by considering customer demands, product-specific information and competition conditions of the product's own sector. Package designs created by means of proactive approach are subject to analysis under laboratory conditions and continuous improvement is ensured by conducted test products in the direction of on-site observations regarding product use, and of feedbacks.
>
> **Building a Model:** The designs are built as model samples on model table by using computer-aided programs.
>
> **Graphic Design:** The graphic design department both provides creative and authentic ideas for graphic design which is one of the most effective ways of making the product distinctive and can convert every type of graphic applications, provided by the customer, into required printing technologies, in a quick manner.
>
> **Proof Printing:** Created graphic designs are presented to customers by the aid of big-size digital proof machines.
>
> **Color Separation:**The compnay provides digital files and film print-out service which are needed by preliminary preparation units in the sector.(Url-4)

Figure 5.12 : Camiş Ambalaj design studio.

5.4 Case Study IV: Matlı

Table 5.7 : Matlı company profile (ISO 500 List 2011).

Company Name:	**Matlı Yem San. ve Tic. A.Ş.** **www.matli.com.tr**
Industry:	312
Date established:	1970
ISO Rank:	276
Turnover:	343,605,719 TL
Export:	1,108,000USD
ExportRatio:	54%
Export countires:	Bursa, Marmara Region, Istanbul, Iraq
Foreign Capital Ratio:	0,00
B2B vs. B2C:	B2C
Brands:	PROYEM, matli, Burdan yumurta

5.4.1 Introduction

Matlı, has been selected as the first unit of analysis in this case study research. Another unit of analysis is the non-designer executive form the same company. For this purpose three executives related to design decision making have been face-to-face interviewed and surveyed during the period February-April 2014. The positions of the managers interviewed and their educational background is presented in Table 5.8.

Table 5.8 : Positions interviewed at Matlı.

Position Interviewed	**Education**	**Duration with the Company**
Marketing Director (TR)	Management (İÜ)	3 years
R&D Director (TR)	Zootecnolohy (PhD – Ege)	2 years
Brand Manager (TR)	Management (Bahçeşehir University)	4 years

The company was first approached in 2013 (in Phase II). The on-line survey questionnaire has been completed by the company's Marketing Director. According to the survey results of Phase II, the company turned out to be one of the highest scoring companies with respect to Kotler's Design Sensitivity Audit. Also during Phase II, the following positions have determined to be active in design related decision making:

- The Owner
- Marketing Director
- General Manager
- Manufactuirng Director
- R&D Manager
- Human Resources Director
- IT Director

Based on this finding in Phase II, the persons holding the positions mentioned in Table 5.8 have been interviewed. All the interviews took place on 8th April, 2014, in company headquarters, in Bursa. All the interviews were conducted in Turkish. For confidentiality reasons, all the interviews have been coded and the finding have been anonymised in Chapter 6.

As it is clearly seen form Table 5.8, none of the executives interviewed have a formal design education, i.e. they do not possess a graduate or undergraduate design degree in design.

5.4.2. Matlı company profile

The information in this section was retrieved from the company's website (Url-5) on 7th May, 2014.

Matlı is a food group which operates with the aim of meeting the protein needs of Turkey. Ömer Matlı, founder of Matlı Food Group, started his career by selling onions in the Karacabey-Bursa, in 1965. Ömer Matlı, who then started livestock trade and, in line with this, dairy farming at the beginning of 1970's, started rice production with the commercial reputation brought by the success from his previous work and his accumulated capital. He became a businessman from being a merchant, with the rice factory he established in 1980.

Ömer Matlı decided to produce animal feed in 1986. This investment decision was realized by producing 10 tonnes of dairy cow and beef cow feed per hour in a factory in Karacabey in 1988. In addition to this, the first modern corn drying facility in the region was established in 1992. Özer and Önder Matlı, who took over the business with the death of Ömer Matlı in 1995, continued the investment activities of the company and realized the Full Fat Soy production facility in 2004 and Ömer Matlı Animal Production Training and Research Center in 2005. Furthermore, they invested in large ruminant, small ruminant and poultry feed production facilities established in Konya (2006), Turgutlu (2009), Çorlu (2011), Samsun (2013) and Gaziantep (2014).

Matlı Food Group combined its 50-year feed production experience with egg production and launched its cutting-edge egg production facility in the Canbaz village of the Karacabey-Bursa, in April 2010.

Today, Matlı Food Group is the 248thlargest company of Turkey with its 500+ employees, 425 retailers and nearly 2000 suppliers. The business is split into two business units and the company owns two brands, which are namely Proyem and Burdan.

5.4.2.1 Proyemfeed

The information in this section was retrieved from the company's website (Url-5) on 7th May, 2014. Matlı claims to be a company which adopted delivering quality products with the most suitable price as a principle, following Turkish and world's agriculture stock markets.

Matlı, a company which offers raw materials for use by the feed industry as well as its own integration and takes into consideration that a quality product is produced with quality raw materials only, is always in search of raw material resources and types. In Matlı's high technology laboratory, alternative raw material options are assessed by advanced processes.

In Karacabey and Konya facilities, feed for special purposes is produced as well as feed for large ruminants, small ruminants and poultry. Proyem brand was established as a brand that claims to protect and raise the service and quality levels, being focused on the profitability of the breeder. Proyem, which was established for this purpose with a team whose members are technically qualified, increases its product, information and service quality with the support of Ömer Matlı Academy and Uludağ University

5.4.2.2 Burdan eggs

The information in this section was retrieved from the company's website (Url-5) on 7th May, 2014.

Burdan Egg, was established by Matlı A.Ş., which transferred its 25-year professional feed production experience to egg production, and was launched in April 2010 in the Canbaz village of the Karacabey-Bursa. The facility has the high level production technologies that are used in the egg production industry worldwide. Burdan Egg, which has a production capacity of 1.350.000 eggs/day, aims to reach the production capacity of 1.850.000 eggs/day at the end of the project.

Burdan Egg facilities operate with all their strength to add value to the current value of eggs, a rich source of protein. Burdan Egg claims to be the first and only egg facility with the BRC (British Retail Consortium) certificate, which is an**International Global Food Safety Standard**, has also been the first and only egg facility entitled to **Halal Certificate** approved by TSE and Religious Affairs

Administration. The eggs are produced by hens which are fed with 100% feed of plant origin.

Burdan Egg facilities which are established on a total area of 300.000 m^2 have three separate units within.

- Chick Rearing Facility
- Egg Production Center
- Egg Sorting and Packaging Center

The following information was directly taken from the company's website (Url-5) on 7th May, 2014:

Chicken Rearing Facility

There are four poultry houses with an indoor area of 10.500 m^2, established on an area of 56.000 m^2. The houses have a total capacity of 620.000 chicks. There is also a social facility in the chick rearing facility, along with the houses. At the chick houses, feeding, lighting and ventilation systems are automatic. Automation is ensured with pressure, temperature, humidity, water pressure sensors and timers. High level biosecurity measures are in place in order to protect the health of animals which are kept in houses that are under control 24 hours from day 0 to week 16, and necessary vaccinations and health checks are carried out in order to protect the health of people and poultry and afterwards the eggs are transported to production facilities.

Egg Production Facility

There are 12 chicken houses with a capacity of 1.770.000 chicken, on an indoor area of 31.750 m^2 established on an area of 244.000 m^2. All automation and biosecurity measures are in place at the cage system which consistes of eight levels. There is also a social facility at Burdan Egg production facility along with the houses.

When the ''Burdan Egg Production Facilities Project'' is realized completely, there will be 14 houses with the addition of two EU-type enriched cages. 6 of these houses will have a capacity of 125.000 chickens and 8 of them will have a capacity of 175.000 chickens. Thus the facility is aimed to have an indoor area of 36.000 m^2 and total capacity of 2.150.000 chickens and total egg production capacity of 1.850.000 eggs/day.

Egg Sorting and Packaging Facility

Without being affected from external conditions, Burdan Eggs pass to egg weighing and packaging facility from the cages at egg production facility over conveyor belts through indoor tunnels. Burdan Eggs, which then pass to the full automatic sorting and packaging machine, first are separated by the full automatic dirty-cracked detector and then pass through the UV system which ensures the elimination of harmful microorganisms on the outer surface of eggs. Burdan Eggs then pass to the weighing section and are weighed

individually with a precision of 0.01 grams. At the end of weighing, the eggs are classified according to their weights.

With the sorting machine owned by the Burdan Egg production facility, which is equipped with the latest technology, it is possible to collect 12.000 eggs/hour. Sorting machine which sorts eggs according to their weights can prepare 6-egg, 10-egg, 15-egg and 30-egg packages. Names of houses in which these eggs are produced are written onto sorted Burdan Eggs before packaging. Then the production date, expiry date and batch number are written thus identifying all products. Produt tracking system ensures the traceability of Burdan Eggs, which prioritize customer satisfaction and food safety. (Url-5)

Figure 5.13 : Matlı Karacabey Factory from the outside.

Figure 5.14 : Matlı Karacabey Factory inside.

5.4.3. Matlı strategy

The following strategy statements have been taken directly from the company's website (Url-5):

Vision Statement

"To be the food brand that meets the protein needs of Turkey."

Mission Statement

"Healthy Generations, Quality Lives."

Values

- Respect: We respect human-beings, i.e. our suppliers, work partners, customers and consumers; on the other hand we respect the environment, animals which consume our products, and in brief we respect life and we strive to protect the rights of all the living things we mentioned above. Our plans and practices always are and will be designed based on this rule.
- Modesty: We are doing our job with the highest quality and effort, however we are always striving to do better without forgetting that there are others who are better than us. As a company, we are trying to avoid arrogance in every way, and trying to maintain and finalize our business relationships with kindness. We are not trying to make use of the socety, instead we are trying to serve the society.
- Loyalty and embrace: We are bonded to our country, our company, our job, our team and our brands by heart, and we are working with loyalty. We embrace all areas of our job without separating. We are a team that is closely connected and strong.
- Justice: We embrace to establish and sustain a relationship that is responsible and based on bilaterally honest earning with everyone we interact with. We do not only aim to prioritize our own interests, but also to contribute to all our stakeholders and not compromise justice whether we make a profit or suffer a loss, by embracing the results of our decisions.
- Agility: Wentinue to be a company that can adapt to the dynamic conditions of the market in which we compete, adapt very quickly to new work types, handle and assess new opportunities quickly and select different teams for different missions to work as agile task force.(Url-5)

5.4.4. Burdan re-launch

When the researcher visited the company, the company was preparing for a re-lauch of the its B2C brand Burdan. For this purpose a new logo, a TV commercial film, new packaging designs have been developed for eggs.(Personal Interview, 8th April,

2014). Figure 5.15 illustrates the packaging before and after the launch respectively. Figure 5.16 shows the layout of a newspaper advertising.

Figure 5.15 : Packaging before and after the relaunch of Burdan branded eggs (Courtesy of the company.)

Figure 5.16 : Newspaper advertising for the re-launch.

6. CASE STUDY FINDINGS

This chapter summarizes key findings obtained from the case studies conducted in four manufacturing companies in Turkey. From each company, at least three managers have been interviewed. The researcher particulary chose one marketing manager and one R&D Manager from each company so that findings could be compared. In total, the responses of 12 industry professionals from four different companies have been evaluated. Observations carried out during site visits, archive documents and data obtained from the websites have also been used as secondary sources of information for data triangulation.

Case study interviews have been carried out between February-April 2014 in the companies outlined in Chapter5. Due to confidentiality issues while presenting case study findings, the company and manager names have been disguised.

6.1 Company A Findings

6.1.1 Findings related to functional integration in company A

Functional integration of design means that there is input by an educated designer (either in-house or external) when design related activities are carried out. In other words, a company having functional integration of design refrains from silent design.

In order to understand the level of functional integration of design within the company, the matrix in Table 6.1 has been developed by the author. The rows indicate the list of physical manifestations of design (18 in total); whereas the columns indicate the frequency of the designer input contemplated in any particular physical manifestation of design. The matrix has been filled-in by all the managers managers interviewed. The following question has been asked before they started filling-in the matrix: "*When the corporate domains listed in the table below are designed in your company, does an in-house designer or an external designer input exist*?"

Table 6.1 : Functional integration matrix.

	Never	**Some times**	**Always**	**We don't have such a corporate domain.**	**I have no idea.**
Product					
Service					
Packaging					
Buildings					
Interiors					
Retail points					
Production Line					
Warehouses					
Website					
Logo and signs					
Staff uniforms					
Company cars					
Stationary					
Publications					
Advertising					
Promotional material					
Trade Show design					
Interaction design					

The radar charts in Figures 6.1 demonstrate the detailed answers given to this question by each manager interviewed in Company A. Levels 1,2,3,4 in the radar charts indicate the columns of the matrix: Level 1 in the radar charts stands for *no idea/such corporate domain,* Level 2 stands for *there is **never** an educated designer input,* Level 3 stands for *there is **sometimes** en educated designer input,* Level 4 stands for *there is **always** an educated designer input*.

The consolidated chart at the bottom of Figure 6.1demonstrates the overall results of the three interviewed managers for Company A. As it is seen from the figures, answers given by the managers of the same company turn out to be miscellaneous. In other words, in Company A where the marketing manager says "we always have designer input in web design", the R&D manager and managers of the same company say "we sometimes have designer input in web design". The information asymmetry seen in Figure 6.1 suggests that managers of the same company are not aware how that particular physical manifestation is designed - to be more precise- they are not knowledgeable if a designer input exists. This finding also suggests

theexistence of a relatively low importance attributed to design related issues within the company.

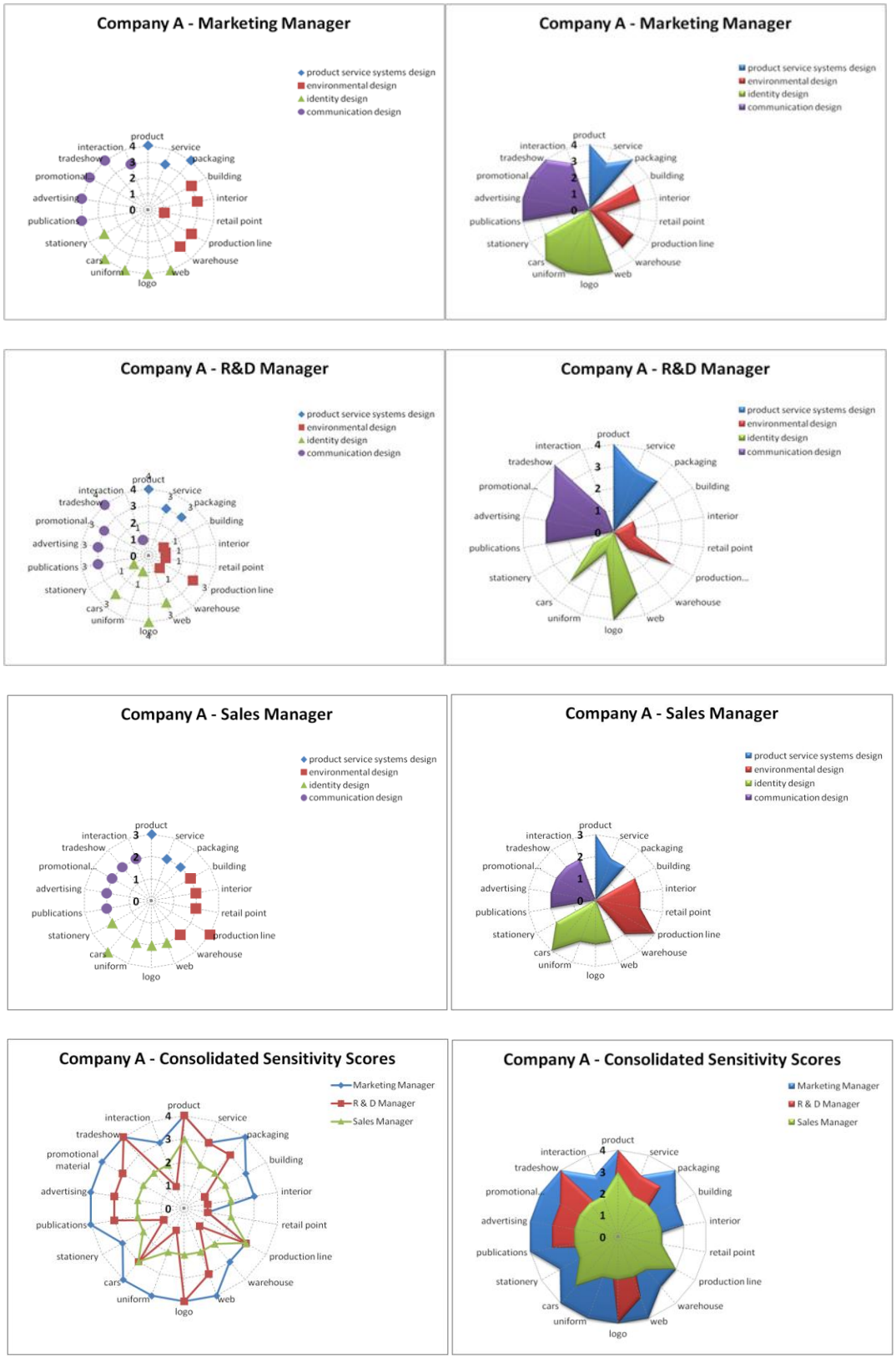


Figure 6.1 : Company A - functional integration matrix results.

Findings also suggest that there is a substantial amount of silent design in the company studied. In order to demonstrate the level of silent design the radar charts on the right hand side of Figure 6.1 have been developed. Each leaf of the clove on the radar chart demonstrates one corporate domain affected by design. Going in the clockwise direction the blue leaf stands for *product service systems design*, red leaf *environment design*, green leaf *identity design* and violet leaf *communication design*. For a given domain, the more the leaf of the clove is close to complete, the more ouvert design is observed. In other words, if the company relies on silent design, color shaded area turns out to be small and the shape deviates from being close to a complete slice.

Since marketing executives turned out to be the most knowledgeable people within the company for comparison purposes their responses have been taken into account. In this respect, according to the answers obtained from the Marketing Manager of Company A, silent design is observed the most in environmentdesign domains most frequently. Indeed concerning environment design, one striking decision making process has been observed by the author. When the manufacturing premises of Company A were visited, during the lunch break, it was seen that decisions related to the landscape architecture were given by the assistant of the CEO. The CEO Assistant, who was a high school graduate, discussed with her colleagues from housekeeping whether it would be possible for them to dig the garden 50 cm deep and plant new grass by themselves. The workers were reluctant to do so, reminded her that the main power supply of the two factories passed under that grass area and they also suggested that the company should better get into contact with a landscape architecture agency. The CEO Assistant insisted on that they should do it by themselves due to the cost of the external service.

6.1.2 Findings related to design coordination in company A

Author: How is design coordination achieved in your company?

Company A - Marketing Manager (Comp. A, MM):

“In many countries and factories, we have design departments. The coordination between departments and countries is achieved by Product Innovation Managers in charge of each country…. new product development and innovation is carried out by means of periodic meetings, feedback and special infrastructure….the intranet

enables all design departments to share product specifications….information concerning where the product is used, for which customer and industry it was developed etc…"

Author: "This is all related to product design, I guess. What about communication design?"

Comp. A, MM: "What do you mean by communication design?"

Author: Promotional materials, advertising, websites, tradeshows…

Comp. A, MM:

"Let me talk about those issues as well. When I first read the word design, I thought it is product design, because product design is always considered as design in our company. The other group of activities is carried out by marketing. It is us. Corporate communication and marketing is within the same department. All communication, social media, printed material, tradeshow participation and all related visual material is designed by the marketing department… We are working with design agencies. We have one PR and one advertising agency. They know us very well. They know our philosophy very well. But from time to time, we buy external design service for minor projects from freelancers, due to cost concerns."

Author: "Do you have an internal designer within the marketing department?"

Comp. A, MM: "Since we work in B2B, frankly speaking, we do not have such a need."

Author: "How is integration achieved in the design work done by the external agencies and the design work done by in-house design department?"

Comp. A, MM:

"We sometimes procure external design service for product visuals. But rarely. Why? Because we work on customer oriented projects… it would be better to think of the two departments as separate. But say if it is a new box that we are going to promote, then marketing of course steps in. We give the brief to the agency and then evaluate the design suggested by the agency together with the design department."

Author: "How is design coordinated within your company?"

Company A - R&D Manager (Comp. A, RDM)

"It is not exactly coordination. There is some amount of communication. Marketing speaks with other functions. Because logo is something related to packaging, also tradeshows. They try to achieve an integrated presentation. There is the agency we work with… Coordination is achieved with meetings. Not formal, periodic ones. Something in between."

Company A - Sales Manager (Comp. A, SM)

"A new idea comes from the customer. That idea is transferred to the design department by the sales representative. The design department works on a new design with three alternatives. We present it to the customer. The customer decides among the alternatives. Then we develop a new product…"

Author: "Do I understand it correctly? There is a relationship established through the sales department between the customer and the design department."

Comp. A, SM: "Exactly".

Author: "What about advertising, brochures etc. How is design developed in those areas?"

Comp. A, SM: "That kind of stuff is centralized; our corporate communications manager develops them."

When asked about design coordination, all the three managers of Company A at the beginning thought that by design product design was meant and elaborated on the new product development process. When the author asked them about communication design the marketing manager was first perplexed, she later said that that kind of stuff was coordinated by marketing, by themselves!

In Company A, product design and communication & identity design are treated as two totally different lines of application; the former being shaped in the hands of the R&D department while the latter is dominated by marketing… Only limited design coordination between the two departments exists when new product launch is concerned. The coordination is achieved by meetings.

When we look at the educational background of the three managers intervieweed, we see that all of them are non-designers (Table 6.2). This explains partially why the marketing manager does not see communication design as a design discipline.

Table 6.2 : Undergraduate/graduate degrees of the interviewees.

Company	Position Interviewed	Education
A	Marketing Manager	Management
A	R&D Manager	Engineering (MSc)
A	Sales Manager	Management

On the other hand, the managers were also asked to self-asses the design coordination practices observed in their company in the last three years. For this purpose, PART B, Question 5 of Design Management Europe Self Assessment Tool (Er et al, 2010) was used:

> **Question 5:** Within the frame of all what you have said up to now, please choose the option that best describes the level of design coordination over the last 3 years in your company.
>
> a) No need to coordinate design activities.
>
> b) Limited coordination within boundaries of departments or functions
>
> c) Coordination of total design process in the company, including design outputs.
>
> d) Continuous coordination at a high level to achieve design management excellence.

The average score of the responses obtained from this question indicated very high levels of design coordination (average score is between Level 3 and Level 4).The details concerning design coordination results are provided in Table 6.3.

Concerning design coordination, interviewees were also asked to choose which methods were used to coordinate design activities within their companies (Appendix B; question 13). In Company A, meetings turned out to be the major means of coordination.

6.1.3 Findings related to triggers of innovation in company A

As previously stated, innovation is driven either by technology or design. For design driven innovation, top management attitude toward design and strategic deployment of design become crucial. Since the design management process should start at the stage of defining the corporate strategies (Er, 2005), design awareness of non-designer executives plays an important role in the successful deployment of design.

During the interviews the managers were asked the following question: "*What triggers innovation in the industry you operate in?"*

Table 6.3 : Self assessment scores related to design coordination and responses related to innovation triggers.

Company	Position Interviewed	Self-Assesment Score Design Coordination	What Triggers Innovation?
A	Marketing Manager	Level 3	NA
A	R&D Manager	Level 3	Design
A	Sales Manager	Level 4	Design

The major reason for asking this question was to start the conversation with a question that the non-designer executives were more likely to be familiar with. The purpose of generalizing the question for the industry, instead of asking it company specific, was to avoid a potential inclination toward technology answers. Managers are more willing to present their company as high tech compared to their rivals, therefore the generalization was intended for avoiding the bias to some extent.

In Company A, the R&D Manager and the Sales Manager thought that innovation was driven by design in their company. The marketing manager did not provide an answer for this question (Table 6.3).

6.1.4 Findings related to sensory integration in company A

Author: "How important is it that your company's products and services appeal to the five senses?"

Company A - Marketing Manager (Comp. A, MM):

"…this is a question related to the end product. If we were perfume manufacturers the smell, the effect on the skin, "fıs fıs" sound of the bottle, these would all affect the design. In our case, it is a bit different…Because it is not an end product, it is packaging…"

Author: "You mentioned that pizza restaurants are your customers? Do they put emphasis on the sense of smell?"

Comp. A, MM:

"Exactly. A very good example….for instance the holes in the pizza boxes we put enable the smell to come out of the box and also by this means the pizza remains crispy."

The same manager further tells how recently one colleague of hers ordered a pizza. The pizza was unexpectedly very crispy; how that particular colleague was happy to see that it was a box manufactured by their own company.

Company A - R&D Manager (Comp. A, RDM):

"We produce packaging…it would not be appropriate to expect that our products appeal to the 5 senses thoroughly, it is not necessary. The packaging we produce appeals to the senses of vision and touch."

Company A - Sales Manager (Comp. A, SM):

"Normally it is important but ours is a commodity product… when you talk about marketing visual aspects are important… apart from that, it is not something companies give importance."

Author: "What about the click sound when you close a box?"

Comp. A, MM:

"If we are manufacturing for on-line sales companies like "Markafoni" or "Hepsiburadacom", since their customer will perceive the product as a gift, then the opening and closing attributes become important."

Company A - Marketing Specialist (Comp. A, MS):

"As a matter of fact, this depends on the type of the box. If it has to be something like a jewelry box then the customer may want to hear that click sound."

Designing for the five senses is an issue almost totally neglected by Company A. If a demand comes from the market, they try to meet it. Being reactive instead of proactive in this aspect may lead the company to miss some market opportunities as seen in the examples related to pizza and on-line sales companies.

6.1.5 Findings related to conceptual integration in company A

Author: "How is design related to your company's strategy?"

Company A - Marketing Manager (Comp. A, MM):

"It has an important place. It is on the top of the list. This is why we have such a large design group. As a matter of fact it is not the design department, it is the innovation department."

Author: "Is there a designer on the company board?"

Comp. A, MM: "No."

Author: "How is design related to your company's strategy?"

Company A - R&D Manager (Comp. A, RDM):

"Design and new product development department is a very important department for our company. The product we produce is very suitable for design.…in each factory we have designers working. Their objective is not only to meet the demand coming from the customers, but they also they follow industrial trends and what is happening abroad and they introduce local customers with suitable solutions coming from sister companies."

Company A - Sales Manager (Comp. A, SM):

"It seriously takes place. We operate in a very competitive industry. The existing production capacity is twice as big as the demand capacity in Turkey. As a differentiator, you have to use design. However sometimes we design the product, then the customer asks another manufacturer to produce it using our design. This is our biggest concern. Whatever we do, even if we obtain a patent, our design is still copied. This hinders our design motivation."

6.1.6 Findings related to Kotler sensitivity scores vs. Soylu sensitivity scores in company A

As stated before, during Phase II, on-line surveys have been conducted. The respondents were highest ranking marketing officers of the companies. In the survey questionnaire (Appendix B), Kotler's Design Densitivity Audit has been used (survey questions nr. 5 to 9). The results obtained from the Kotler Design Sensitivity Audit Part A are demonstrated in Figure 6.2.

Accordingto Kotler (Kotler and Rath, 1984) companies scoring more than 7 are in good shape in terms of design. In this respect, Company A that was chosen for the case studies for Phase III, was in good shape. During the case studies, Kotler Design Sensitivity Audit Part A was applied to the other two executives of the same companies. (Kotler Design Sensitivity Audit comprises of two parts but if in-house design staff is not available, Part B of the audit becomes irrelevant. Therefore in

order to establish a consistency between those companies having an in-house designer versus others totally dependent on external design services, only Part A of the audit was used.)

Figure 6.2 : Kotler design sensitivity scores versus Soylu design sensitivity scores in company A.

Before starting the case studies, it was postulated that companies having a high design sensitivity score, would demonstrate a holistic approach to design. However, during the case studies it was observed that high design sensitivity measured by Kotler's Design Sensitivity Audit Tool, does not necessarily lead to a holistic approach to design.

H1: High design sensitivity (measured by Kotler's Design Sensitivity Audit) leads to a holistic approach to design. (Not supported)

On the other hand, using the conceptual model suggested by the author (Design Germination Model, Chapter 2) and the Functional Integration Matrix in Table 6.1, Soylu Design Sensitivity Scores have been calculated. The calculated Soylu Scores are also demonstrated in Figure 6.2.

When Kotler Design Sensitivity Scores are compared to Soylu Design Sensitivity Scores; it is seen that Soylu Scores turn out to be lower than Kotler Scores for two of the managers, for one manager scores are equal. In other words, it could be that Soylu Scores are closer to demonstrate the real design sensitivity situation of the

companies. Further investigation, preferably with large samples, is needed to determine whether a relationship exists between Soylu Design Sensitivity Scores and a holistic approach to design.

Soylu Scores have been obtained using the structure suggested by Kotler. However, instead of asking about the level of design thinking that goes into each corporate domain affected by design, Soylu asks the availability of designer input in the sub-categories of each domain. The reason for the change in the wording of the question is because the phase "design thinking" may be too complex for non-designer managers because it is open to interpretation.

Also Kotler (1984), in addition to the questions for the major four design domains, asks a fifth question to determine the level of design thinking in the overall marketing. Soylu on the other hand, does not have an overall question for the marketing department. Instead the scores for each sub-category (physical manifestation of design) obtained are evaluated on a logical basis, and one aggregate score is attained for each domain. The sum of the aggregate scores are multiplied by 1.25 in order to get a normalized score that is comparable to Kotler's.

6.1.7 Findings related to design awareness of non-designer executives in company A

All the managers interviewed in Company A turned out to be non-designers (Table 6.2). Since this study aims to reveal design awareness scores of non-designer executives, design awareness was measured using two different methods: The second column on Table 6.4 demonstrates the design awareness scores obtained using Design Management Europe – Self Assessment Tool; whereas the third column in Table 6.4 demonstrates design awareness scores measured by the number of design domains mentioned on a first recall basis.

As it is seen on Table 6.4, all DME Awareness Score averages are above Level 2. At a first glance this suggests that the managers interviewed have high design awareness. However, when interviewed in depth during the case studies, it was seen that the same managers have limited knowledge on what design in business entails. The knowledge they posses heavily depends on the function and industry they work in. On the other hand, Soylu awareness Score averages are all below Level 2. Therefore the author suggests that the number of domains implied by the physical

manifestations of designs mentioned on a free recall basis, could be more indicative to demonstrate the real design awareness of non designer executives.

Table 6.4 : Design awareness scores measured by design management europe – self assessment tool versus Soylu free recall method.

Comp	Position Interviewed	Design Awareness Score Obtained using Design Managemet Europe (DME) – Self Assesment Tool –	Design Awareness Score based on Physical Manifestations of Design Mentioned (obtained on a free recall basis) "Q: *Which design activities are carried out in the company you work for?*"
A	Marketing Manager	Level 3	1
A	R&D Manager	Level 3	1
A	Sales Manager	Level 3	2

6.1.8 Findings related to the relationship between marketing and design management in company A.

Similar to the findings obtained in Phase I and Phase II; Phase III findings also suggest marketing to be the most active function in design related decision making for Company A.

On the other hand, the marketing manager of Company A stated that at least 25 %of her total time was devoted to design related decision making. This suggests that even if there is a design manager in the company, marketing allocates a substantial amount of its time in coordinating design related activities. It should be noted that Company A is a manufacturing company operating in B2B and the role of marketing in design management goes beyond brand related decision making issues. On the other hand, although Company A has a ISO 9001-2000 documentation; the design process development is and the owners of design related decision making are not determined precisely (Appendix A).

6.1.9 Summary of company a findings

This section provides a summary of the findings of Company A. At the beginning of the research it was postulated by the researcher that high scores of design awareness and design sensitivity coupled with a thorough design coordination would lead companies to manage design holistically. A holistic approach to design, on the other

hand is achieved by functional, sensory and conceptual integration. In Company A design awareness (measured by DME questionnaire) and design sensitivity (measured by Kotler audit) turned out to be high. However, a holistic approach to design has not been observed. On the other hand, awareness and sensitivity scores measured by the methods suggested by the author turned out to be lower.

In order to determine the availability of a holistic approach to design; functional, sensory and conceptual integration was analyzed based on the theory suggested by Svengren (2011, p. 299).

In Company A, functional integration is limited to new product development. Sensory integration does not exist at all. Concerning conceptual integration, although there is an internal design department and the company has several local design awards; design is not mentioned in the strategy statement. There is no design executive on the board of the company. Design is seen as a means of product innovation: Design is a service offered to customers free of charge in order to gain competitive advantage. Thus the researcher concludes that there is no holistic approach to design in Company A. Table 6.5 demonstrates consolidated findings for Company A.

6.2 Company B Findings

6.2.1 Findings related to functional integration in company B

As it has been aforementioned, functional integration of design means that there is input by an educated designer (either in-house or external) when design related activities are carried out. In other words,a company having functional integration of design refrains from silent design.

In order to understand the level of functional integration of design within Company B, the matrix in Table 6.1 has been developed by the author. The rows indicate the list of physical manifestations of design (18 in total); whereas the columns indicate the frequency of the designer input contemplated in any particular physical manifestation of design. The matrix has been filled-in by all the managers interviewed in Company B. The following question has been asked before they started filling-in the matrix: "*When the corporate domains listed in the table below*

are designed in your company, does an in-house designer or an external designer input exist?"

Table 6.5 : Company A findings

Design Awareness (Levels 1-4)	**Design Sensitivity (Scores 0-10)**	**Design Coordination (Levels 1-4)**	**Functional Integration**	**Sensory Integration**	**Conceptual Integration**
Level 3 (DME Score) Level 1 (Soylu Score) (mode)	7 (Kotler Score) 5 (Soylu Score) (average)	Level 3 (DME Score) (mode)	Partially exists. Functional integration is limited to new product development.	Does not exist.	Does not exist. Although there is an internal design department and the company has several local design awards; design is not mentioned in the strategy statement. There is no design executive on the board of the company. Design is seen as a means of product innovation: Design is a service offered to customers free of charge in order to gain competitive advantage.

The radar charts in Figure 6.3 demonstrate the detailed results for each manager interviewed in Compnay B. Levels 1,2,3,4 in the radar charts indicate the columns of the matrix: Level 1 in the radar charts stands for *no idea/such corporate domain,* Level 2 stands for *there is **never** an educated designer input,* Level 3 stands for *there is **sometimes** en educated designer input,* Level 4 stands for *there is **always** an educated designer input*. The consolidated charts at the bottom of Figures 6.3,on the other hand, demonstrates the overall results of the three interviewed managers for Company B. As it is seen from the figures, answers given by the managers of the same company turn out to be miscellaneous. In other words, in Company B where the marketing manager says "we sometimes have designer input in product design", the R&D manager of the same company says "we always have designer input in product design". The information asymmetry seen on the consolidated charts in Figure 6.3 suggests that managers of the same company are not aware how that particular physical manifestation is designed- to be more precise-they are not knowledgeable if a designer input exists. This also suggests the existence of a relatively low importance attributed to design related issues within the company.

Findings also suggest that there is a substantial amount of silent design in Company B. In order to demonstrate the level of silent design the radar charts on the right hand side of Figure 6.3 have been developed. Each leaf of the clove on the radar chart demonstrates one corporate domain affected by design. Going in the clockwise direction the blue leaf stands for *product service systems design*, red leaf *environment design*, green leaf *identity design* and violet leaf *communication design*. For a given domain, the more the leaf of the clove is close to complete, the more ouvert design is observed. In other words, if the company relies on silent design, color shaded area turns out to be small and the shape deviates from being close to a complete slice.

Since marketing executives turned out to be the most knowledgeable people within the company for comparison purposes their responses have been taken into account. In this respect, according to the answers obtained from the Marketing Manager of Company B, silent design is observed in all corporate domains of design. Environment, communication and product service systems all have very limited designer input according to the Company B's Marketing Manager.

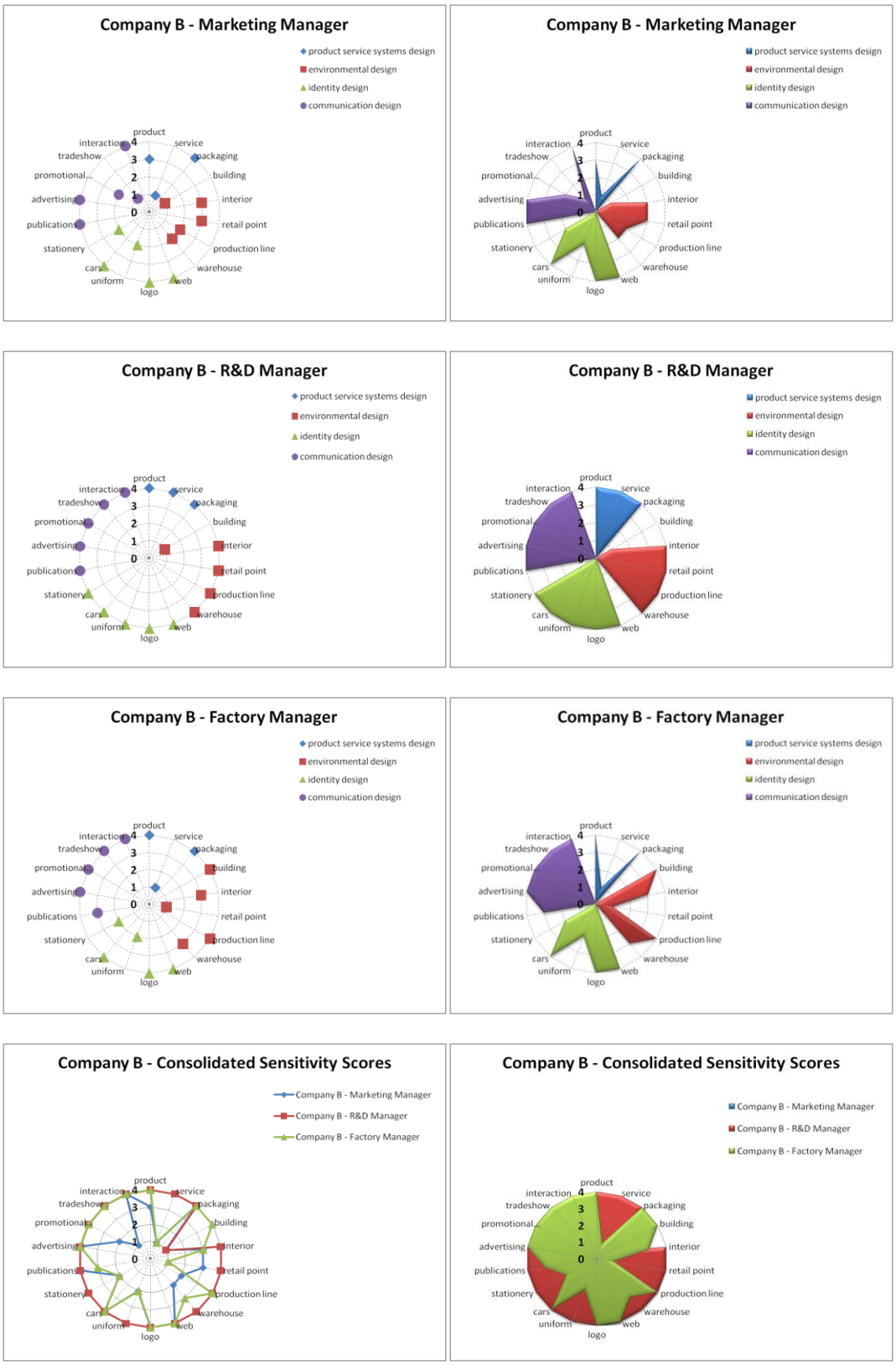


Figure 6.3 : Company B - functional integration matrix results.

6.2.2 Findings related to design coordination in company B

Author: "How is design coordinated within your company?"

Company B - Marketing Manager (Comp. B, MM)

"There are different units coordinating design. Three departments are active. In our company there are two types of design: One is packaging, the other product. On packaging side, marketing and logistics are partially active…. In New Product Development, R&D is naturally dominant… In internal communications, our HR takes the lead, and partially in issues related to external corporate communications. There is a co-operation."

Author: "While you were explaining, I tried to take notes: Packaging, product and then communication. Does this mean there are three categories?"

Comp. B, MM:

"If design means...the design of communication material…. visuals are the most important elements, advertising visuals, then yes, we can say it is a third category."

Author: "Are there any periodic meetings between marketing and R&D? Or do you proceed with announcements?"

Comp. B, MM:

"It is an organic relationship. We have meetings, briefs are exchanged. Feedback is received… these issues are not confined with the two departments. But it would not be wrong to say that design projects are mostly kicked-off by one of the two departments."

Author: "Do you think that the design coordination process is well defined?"

Comp. B, MM:

"It is mostly defined… for instance, from time to time there are ambiguities concerning who is primarily in charge of developing and testing the prototype of a newly developed packaging. There have been transitions from one department to the other. There have been personal issues as well…. As a matter of fact, the process defined here is the pillar of the procedure developed during ISO 9001-2000 quality certification. Therefore in the procedure, it is explained more or less who does what but concerning details, there may be some grey areas."

Author: "How is design coordination achieved in your company?"

Company B - Factory Manager (Comp. B, FM)

"Design, as I read it from your questionnaire, you elaborate on different design subjects. All these design activities take different routes…. Different methodologies are adopted… It is initiated by the leadership of local or global marketing."

Author: Are there periodic meetings related to these?

Comp. B, FM:

"Rather than periodic meetings, there are project status files that we share on monthly basis… This is not an intranet medium. It is exchanged via mail. It is an excel file."

Author: "How is design coordination achieved in your company?"

Company B - R&D Manager (Comp. B, RDM)

"When marketing introduces the project which we call the project brief, marketing already defines the format, flavor, shape, even the weight of the product and we as the technologists, we try to achieve that configuration that is requested by marketing."

Although the marketing manager thinks that the design process is well defined within the company by means of quality systems management, we clearly observe that the marketing manager of Company B is hesitant about the definition of design and where it extends within the company, although he attributes an important role to his department in design related issues and besides the other two managers clearly point marketing as the leader function when design is concerned. Later on, he also admits that there might be some grey areas in the distribution of roles in the ISO 9001-2000 process management definitions.

Indeed during the interviews the dominance of the marketing manager over the whole design process was observed. This may be also due to the seniority of the person (16 years in the same company!). However, when asked about product and environment design issues the same person was not able to depict a holistic picture. (For educational background of the managers interviewed in Company B, please refer to Table 6.6.)

Table 6.6 : Undergraduate/graduate degrees of the interviewees.

Company	Position Interviewed	Education
B	Marketing Manager	Management/Social Sciences (MSc)
B	R&D Manager	Biology/Engineering(MSc)
B	Factory Manager	Engineering

On the other hand, when managers were also asked to self-asses the design coordination practices observed in their company in the last three years by means of using question 5 in Design Management Europe Self Assessment Tool (Er et *al*., 2009), the average score of the responses obtained from this question indicated very high levels of design coordination (average score is between Level 3 and Level 4). The details are provided in Table 6.7.

Table 6.7 : Self assessment scores related to design coordination and responses related to innovation triggers.

Company	Position Interviewed	Self-Assesment Score Design Coordination	What Triggers Innovation?
B	Marketing Manager	Level 4	Technology
B	R&D Manager	Level 4	Both
B	Factory Manager	Level 2	Design

Concerning design coordination, interviewees were also asked to choose which methods were used to coordinate design activities within their companies (Appendix B; question 13). In Company B, informal meetings turned out to be the major means of coordination.

6.2.3 Findings related to triggers of innovation in company B

As previously stated, innovation is driven either by technology or design. For design driven innovation, top management attitude toward design and strategic deployment of design become crucial. Since the design management process should start at the stage of defining the corporate strategies (Er, 2005), design awareness of non-designer executives plays an important role in the successful deployment of design.

During the interviews the managers were asked the following question:

"*What triggers innovation in the industry you operate in?"*

The major reason for asking this question was to start the conversation with a question that the non-designer executives were more likely to be familiar with. The

purpose of generalizing the question for the industry, instead of asking it company specific, was to avoid a potential inclination toward technology answers. Managers are more willing to present their company as high tech compared to their rivals, therefore the generalization was intended for avoiding the bias to some extent.

Results are demonstrated in Table 6.7. The Marketing Manager votes in favour of technology whereas the factory manager sees design as the major source of innovation. The R&D manager of Company B thinks that both are equally important. This situation concerning the marketing manager's being more inclined toward technology is unexpected. A potential explanation could be that the factory manager and the R&D managers being more knowledgeable about the industry they operate in, are aware that they do not operate in high tech industries. Also marketing managers may have responded in favour of technology for showing-off / face saving reasons which is a professional deformation contemplated in many of them.

The fact that the marketing manager does not appreciate design as a trigger of innovation also suggests relatively low importance attributed to design.

6.2.4 Findings related to sensory integration in company b

Author:"How important is it that your company's products and services appeal to the five senses?"

Company B - Marketing Manager (Comp. B, MM):

"Particularly when taste and visual aspects both are taken into account, design becomes more important."

Author: "Is the design of those two attributes decided by R&D?"

Comp. B, MM:

"For visual things, it is marketing. Both the visual aspects of the product and its packaging is determined by marketing. On the other hand, taste is determined by R&D."

Author: "What about smell?"

Comp. B, MM:

"In our industry rather than smell, the term aroma is used. Aroma handles taste and smell simultaneously. On the other hand, sense of touch is also important. When you

grab the packaging, what you feel is important. The feeling of tin box with embossing is much different from the cellophane wrap of the carton box. The sense of hearing is more difficult. For impulse buying products, buying decision is made at the point of sale. In this case, it is difficult that the consumer links what he has heard, with the product. Nevertheless we use it… We have been advertising for 10-15 years on radios. Before the weather forecasts. This consumes high budget and the return on investment is slow…nevertheless we do it"

Author: "How important is it that your company's products and services appeal to the five senses?"

Company B - Factory Manager (Comp. B, MM):

"It is very important. That is the reason of our existence… I cannot say something for the sense of hearing. Concerning the other four, definitely yes."

Company B - RD Manager (Comp. B, RDM):

"Oh, very important of course. Visually it has to be attractive to consumers. Confectionary segment is very competitive. And if you look, it is all colourful, it has to be fun, it has to be entertaining…visually it has to have this attractiveness. The taste, I mean our product is food, so it has to have a good taste, good lasting and good masticability… For the smell also it has to have a really nice, appealing smell because once you open the pack that smell comes and it has to give that perception to chew. You want to try. So yeah, if you consider, all the sensory…"

Author: "And what about hearing?"

Comp. B, RDM:

"Sometimes yes. For example, the coated drajes what we say, I mean product, if you don't hear that crunchiness when you buy it, the coating, it feels like the product is old, like it gives the idea to the consumers that the product is expired sometime. So if you do not give a good crunchiness to the product, if you do not hear that crunchiness, maybe the consumer perceives it as a bad quality product. Also we have new pack materials like wotos and tins, where it shakes. Sometimes you hear the sound of the gum interact with the packaging. So I believe it is also one important parameter."

Author: "Tactile?"

Comp. B, RDM:

"Oh yes. Tactile in the sense that it is a snack product, it has to be easy to be carried, it has to be portable…It has to be smooth. But also tactile in the sense that when it is in your mouth."

"All the projects go through a sensory analysis. We do a sensory analysis depending on the R&D experience. We evaluate all aspects in terms of flavor impact, depending if it is a mixed product on the freshness, as I told you before about masticability …"

"There are some laboratory devices but most of our validation of the product comes from the market experience…"

"…Colour is one of the aspects we take into considerations. The long lasting. Because chewing gum, I mean consumers are always searching for a long lasting gum. And this is also something we are taking into consideration. For the packaging point of view, portability, opening; I mean we always check the portability, we always check how it is to carry or how is it to open, these are qualities that we always evaluate before launching and also of course the main purpose of the barrier of the protection to the product to guarantee the expected shelf life. And this is our responsibility to do that evaluation."

The awareness demonstrated by all the three managers of Compnay B concerning appealing to the five senses was striking. Not only the product but also the promotional activities were elaborated in this aspect. The fact that it operates in the food industry, and its being the only well known consumer brand may be two of the reasons.

During the interview the marketing manager of Company B told the story of a radio jingle that was on air for more than 10 years. Although maintaining it on air is high cost and has indirect impact on sales, he believes that this strategy contributes to their market success. Indeed, the author although, not being a frequent radio listener immediately associated the jingle with the products.

6.2.5 Findings related to conceptual integration in company B

Author: "How is design related to your company's strategy?"

Company B - Marketing Manager (Comp. B, MM)

"Innovation is the word we use in the strategy…I cannot say that packaging, or design to rephrase it more correctly, is mentioned directly in the strategy. But when we talk about innovation, in a sense these are taken into account."

Company B – Factory Manager (Comp. B, FM)

"It does not take place directly… But there are some statements that imply design, things that cannot be achieved without design."

Author: "For instance what?"

Comp. B, FM: "Dominating the market, being a point of excellence for export customers, and establishing customer satisfaction by constant innovation. I think design exists in all of these. I mean we cannot achieve these without design."

Author: "How is design related to your company's strategy?"

Company B - R&D Manager (Comp. B, RDM):

"Completely. As I told you, the competition is also aggressive but we are known for innovation. Need to introduce new products, need to introduce new packages, I think the consumers perceive this. The success of our local brands, I mean which is in the Turkish market. I mean it is recognized as innovation. And design is big part of it. I mean not only in product presentation but also in packaging presentation."

Company B elaborates on innovation in its strategy statement however design in not mentioned. Company B had a design chief reporting to the board of the company at the headquarters.

6.2.6 Findings related to Kotler Sensitivity Scores versus Soylu sensitivity scores in company B

As stated before, during Phase II, on-line surveys have been conducted. The respondents were highest ranking marketing officers of the companies. In the survey questionnaire (Appendix E), Kotler's Design Densitivity Audit has been used (survey questions nr. 5 to 9). The results obtained from the Kotler Design Sensitivity Audit Part A have already been demonstrated in Figure 6.4.

According to Kotler (Kotler and Rath, 1984) companies scoring more than 7 are in good shape in terms of design. In this respect, all the four companies chosen for the

case studies for Phase III, were in good shape. During the case studies, Kotler Design Sensitivity Audit Part A was applied to the other two executives of the same companies. (Kotler Design Sensitivity Audit comprises of two parts but if in-house design staff is not available, Part B of the audit becomes irrelevant. Therefore in order to establish a consistency between those companies having an in-house designer versus others totally dependent on external design services, only Part A of the audit was used.)

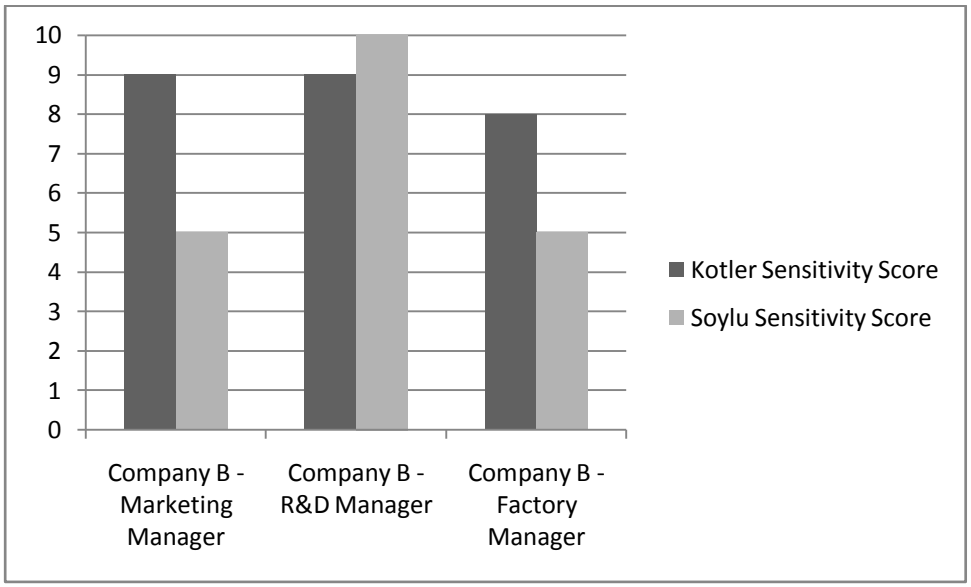


Figure 6.4 : Kotler design sensitivity scores versus Soylu design sensitivity scores in company B.

Before starting the case studies, it was postulated that companies having a high design sensitivity score, would demonstrate a holistic approach to design. However, during the case studies it was observed that high design sensitivity measured by Kotler's Design Sensitivity Audit Tool, did not necessarily lead to a holistic approach to design.

H1: High design sensitivity (measured by Kotler's Design Sensitivity Audit) leads to a holistic approach to design.

On the other hand, using the conceptual model suggested by the author (Design Germination Model, Chapter 2) and the Functional Integration Matrix in Table 6.1, Soylu Design Sensitivity Scores have been calculated. The calculated Soylu Scores are also demonstrated in Figure 6.4.

When Kotler Design Sensitivity Scores are compared to Soylu Design Sensitivity Scores; it is seen that Soylu Scores turn out to be lower than Kotler Scores for two of

the managers, for one manager the opposite is true. Only one manager has a higher Kotler Score than Soylu Score. In other words, it could be that Soylu Scores are closer to demonstrate the real design sensitivity situation of the companies. Further investigation, preferably with large samples, is needed to determine whether a relationship exists between Soylu Design Sensitivity Scores and a holistic approach to design.

Soylu Scores have been obtained using the structure suggested by Kotler. However, instead of asking about the level of design thinking that goes into each corporate domain affected by design, Soylu asks the availability of designer input in the sub-categories of each domain. The reason for the change in the wording of the question is because the phase "design thinking" may be too complex for non-designer managers because it is open to interpretation.

Also Kotler (1984), in addition to the questions for the major four design domains, asks a fifth question to determine the level of design thinking in the overall marketing. Soylu on the other hand, does not have an overall question for the marketing department. Instead the scores for each sub-category (physical manifestation of design) obtained are evaluated on a logical basis, and one aggregate score is attained for each domain. The sum of the aggregate scores are multiplied by 1.25 in order to get a normalized score that is comparable to Kotler's.

6.2.7 Findings related to design awareness of non-designer executives in company B

All the managers interviewed in Company A turned out to be non-designers. (Table 6.6). Since this study aims to reveal design awareness scores of non-designer executives, design awareness was measured using two different methods: The second column on Table 6.8 demonstrates the design awareness scores obtained using Design Management Europe – Self Assessment Tool; whereas the third column in Table 6.8 demonstrates design awareness scores measured by the number of design domains mentioned on a first recall basis.

As it is seen on Table6.8, except for Company D, all DME Sensitivity Score averages are above 2. At a first glance this suggests that the managers interviewed have high design awareness. However, when interviewed in depth during the case studies, it was seen that the same managers have limited knowledge on what design

in business entails. The knowledge they posses heavily depends on the function and industry they work in.

Therefore the author suggests that the number of domains implied by the physical manifestations of designs mentioned on a free recall basis, could be more indicative to demonstrate the real design awareness of non designer executives.

Table 6.8 : Design awareness scores measured by Design Management Europe – self assessment tool versus Soylu free recall method.

Comp	Position Interviewed	Design Awareness Score Obtained using Design Managemet Europe (DME) – Self Assesment Tool –	Design Awareness Score based on Physical Manifestations of Design Mentioned (obtained on a free recall basis) "Q: *Which design activities are carried out in the company you work for?*"
B	Marketing Manager	Level 3	3
B	R&D Manager	Level 4	1
B	Factory Manager	Level 3	1

6.2.8 Findings related to the relationship between marketing and design management in company B

Similar to the findings obtained in Phase I and Phase II; Phase III findings also suggest marketing to be the most active function in design related decision making for Companies B.

On the other hand, the marketing manager of Company B stated that 30 % of his total time was devoted to design related decision making. This suggests that marketing allocates a substantial amount of its time in coordinating design related activities. Since company B operates in FMCG, this is not an unexpected finding. On the other hand, although all of the companies have an ISO 9001-2000 documentation; the design process development is and the owners of design related decision making are not are not determined precisely (Appendix A).

6.2.9 Summary of company B findings

This section provides a summary of the findings of Company B. At the beginning of the research it was postulated by the researcher that high scores of design awareness and design sensitivity coupled with a thorough design coordination would lead

companies to manage design holistically. A holistic approach to design, on the other hand is achieved by functional, sensory and conceptual integration. In Company B design awareness (measured by DME questionnaire) and design sensitivity (measured by Kotler audit) turned out to be high. However, a holistic approach to design has not been observed. On the other hand, awareness and sensitivity scores measured by the methods suggested by the author turned out to be lower.

In order to determine the availability of a holistic approach to design; functional, sensory and conceptual integration was analyzed based on the theory suggested by Svengren (2011, p. 299).

In Company B, functional integration partially exists. There is a double standard regarding local and global issues. In global design issues (identity, products, communication) chief design officer located at the headquarters, is dominant. Environment design issues are neglected in the local subsidiary as opposed to the sophisticated architectural applications seen in the headquarters.

In Company B, sensory integration partially exists. This is the only company taking into account all five senses both in product-service systems design and communication design.

In Company B, conceptual integration partially exists: “Designing original product concepts” is part of the vision statement. As it has been mentioned before, the company has a Chief Designer reporting to the Board. (In fact the chief designer is the owner of the creative agency that has been collaborating with Company B for many years. The chief designer is now also on the payroll of Company B.) Ouvert design acitivites are carried out as part of R&D or Brand Management projects. Therefore the researcher concludes that there is no holistic approach to design in Company B. Table 6.9 demonstrates consolidated findings for Company B.

Table 6.9 : Company B findings

Design Awareness (Levels 1-4)	**Design Sensitivity (Scores 0-10)**	**Design Coordination (Levels 1-4)**	**Functional Integration**	**Sensory Integration**	**Conceptual Integration**
Level 3 (DME Score) Level 1 (Soylu Score) (mode)	9 (Kotler Score) 7 (Soylu Score) (average)	Level 4 (DME Score) (mode)	Partially exists. There is a double standard regarding local and global issues. In global design issues (identity, products, communication) chief design officer is dominant. Environment design issues are neglected in the local subsidiary as opposed to the sophisticated architectural applications seen in the headquarters.	Partially exists. This is the only company taking into account all five senses both in product-service systems design and communication design.	Partially exists. “Designing original product concepts” is part of the vision statement. The company has a Chief Designer reporting to the Board. (In fact the chief designer is the owner of the creative agency that has been collaborating with Company B for many years. The chief designer is now also on the payroll of Company B.) Design acitivites are carried out in R&D or Brand Management projects.

6.3 Company C Findings

6.3.1 Findings related to functional integration in company C

Functional integration of design means that there is input by an educated designer (either in-house or external) when design related activities are carried out. In other words, a company having functional integration of design refrains from silent design.

In order to understand the level of functional integration of design within the company, the matrix in Table 6.1 has been developed by the author. The rows indicate the list of physical manifestations of design (18 in total); whereas the columns indicate the frequency of the designer input contemplated in any particular physical manifestation of design. The matrix has been filled-in by all the managers interviewed. The following question has been asked before they started filling-in the matrix: "*When the corporate domains listed in the table below are designed in your company, does an in-house designer or an external designer input exist*?"

The radar charts in Figure 6.5 demonstrate the answers given to this question by each manager interviewed. Levels 1,2,3,4 in the radar charts indicate the columns of the matrix: Level 1 in the radar charts stands for *no idea/such corporate domain*, Level 2 stands for *there is **never** an educated designer input*, Level 3 stands for *there is **sometimes** en educated designer input*, Level 4 stands for *there is **always** an educated designer input*. The consolidated charts at the bottom of Figure 6.5 on the other hand, demonstrate the overall results of the three interviewed managers of Company C. As it is seen from Figure 6.5, answers given by the managers of the same company turn out to be miscellaneous. In other words, in a company where the marketing manager says "we always have designer input in packaging design", the R&D manager of the same company says "we sometimes have designer input in packaging design". The information asymmetry seen on the consolidated charts in Figure 6.5 suggests that managers of the same company are not aware how that particular physical manifestation is designed- to be more precise-they are not knowledgeable if a designer input exists. This also suggests the existence of a relatively low importance attributed to design related issues within the company.

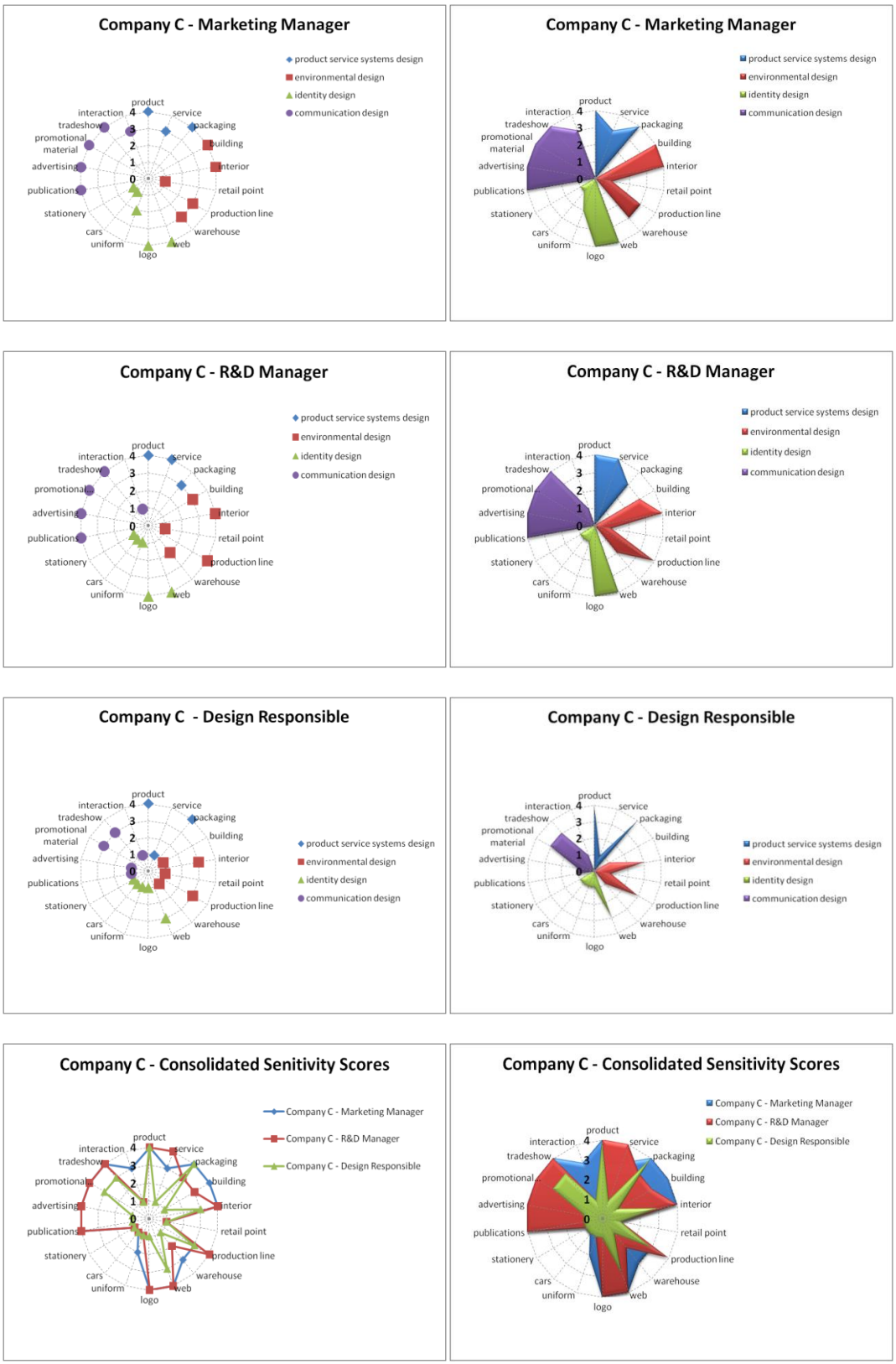


Figure 6.5 : Company C - functional integration matrix results.

Findings also suggest that there is a substantial amount of silent design in the companies interviewed. In order to demonstrate the level of silent design the radar

charts on the right hand side of Figure 6.5 have been developed. Each leaf of the clove on the radar chart demonstrates one corporate domain affected by design. Going in the clockwise direction the blue leaf stands for *product service systems design*, red leaf *environment design*, green leaf *identity design* and violet leaf *communication design*. For a given domain, the more the leaf of the clove is close to complete, the more ouvert design is observed. In other words, if the company relies on silent design, color shaded area turns out to be small and the shape deviates from being close to a complete slice.

Since marketing executives turned out to be the most knowledgeable people within the company for comparison purposes their responses have been taken into account. In this respect, according to the answers obtained from the Marketing Manager of Company C, silent design is observed the most in identitiy and environment design. An anecdote concerning environment design was told by the Product Design responsible of Company C. Company C has a rather complex manufacturing site. The offices are also located in the same area and there is a limited number of signs indicating the place of the offices. One day, people working in the design department got bored of conducting people coming for HR interviews. They decided to put a "Design Department" sign on the door and did so. The next day, the sign was immediately removed by an unknown authority.

6.3.2 Findings related to design coordination in company C

Author: "How is design coordination achieved in your company?"

Company C - R&D Manager (Comp. C, RDM)

"Our company was established in 1986. In that period, the design department has also been founded… There are 3 units within the design department: constructional design, graphic design and colour separation. There are 11 people working at the moment. One person (myself) is in charge of all the three departments….In order to achieve coordination, we organize meetings between the three departments. Is this done frequently? It depends on the volume and the importance of the projects. Apart from that we have daily design meetings at 9:30. Who attends these meeting? People from production, quality, design, marketing… What is the objective? It is an

evaluation meeting about what can be done in terms of feasibility, cost cutting, environmentally friendliness of new products. Besides, production related problems are also discussed and designs are revised accordingly. It takes approximately 15-20 minutes, sometimes half an hour."

Author: "Are these meetings totally related to the product? Do you ever have communication design related issues on the agenda of these meetings?"

Comp. C, RDM:

"No. Communication related issues are elaborated in certain periods of the year when a need arises. For instance, when a magazine ad is to be designed. They are ad hoc…."

"We got the World Packaging Organization (WPO) Prize last year. When the communication of that was to be done in our corporate magazine, all the visuals, page design etc. is done by our department… Another ad was going to be printed the other day, our General Manager requested us to prepare an A4 advertorial. There are such projects. Bu essentially everything we do is about the product…"

"Ads, visual interaction these are ad hoc, but since we are educated in design, we contribute to such projects, we design them…the main thing is product design."

Author: "How is design coordination achieved in your company?"

Company C - Marketing Manager (Comp. C, MM):

"For design coordination we organize meetings where different departments come together. These meetings are done every day. Colleagues from marketing, design, production and quality participate to those meetings. "

Author: "Are those meetings only product related? Are issues concerning communication design, environment design and identity design ever discussed?"

Comp. C, MM:

"No, all is about products. The issues you mentioned are coordinated between the holding company and marketing on a project basis. Of course, the design department also steps in."

Author: "How is design coordination achieved in your company?"

Company C - Product Design Responsible (Comp. C, PDR)

"Design coordination is always done in a systematic way and it is always improved by taking and giving advices from different departments."

Design coordination, related to product issues, is closely monitored in Company C. Daily meetings provide evidence for this. Product design coordination is elaborated in detail as an inter-functional task. Although operating totally in B2B sector, Company C heavily invests in product design. There are 11 people working in the design department. In fact product design is regarded as a service offered to the mother company, also it is a differentiating tool for export markets.

The R&D manager in company C, being an industrial designer himself, is active as an advisor in the design related issues other than product design. (Table 6.10 demonstrates the education area of all the managers interviewed). As it has already been mentioned above, from time to time he contributes to communication design related issues such as preparing advertorials. This finding supports Archer's (Archer, 1972, p.19) statement concerning an industrial designers role on problems of packaging, advertising, exhibition and marketing. Archer (1974, p.19) claims that the industrial designer is concerned with those areas because the solution of such problems requires visual appreciation in addition to technical knowledge and experience. Nevertheless, the management responsibility of communication design and identity design is totally assumed by the holding company. On the other hand, there is evidence that environment design issues do not have an owner at all. Particularly issues related to signage do not have an owner. This is criticized by the designers in the design department (Appendix A).

Table 6.10 : Undergraduate/Graduate Degrees of the Interviewees.

Company	Position Interviewed	Education
C	Marketing Manager	Engineering
C	R&D Manager	Industrial Design (MSc)
C	Product Design Responsible	Industrial Design

On the other hand, when managers were also asked to self-asses the design coordination practices observed in their company in the last three years by means of using Question 5 in Design Management Europe Self Assessment Tool (Er et *al.*, 2009), the average score of the responses obtained from this question indicated very

high levels of design coordination (average score is between Level 3 and Level 4). The details are provided in Table 6.11.

Table 6.11 : Self assessment scores related to design coordination and responses related to innovation triggers in company C.

Company	Position Interviewed	Self-Assesment Score Design Coordination	What Triggers Innovation?
C	Marketing Manager	Level 4	Both
C	R&D Manager	Level 3	Design
C	Product Design Responsible	Level 3	Design

Concerning design coordination, interviewees were also asked to choose which methods were used to coordinate design activities within their companies (Appendix E; question 13). In Compnay C, periodic meetings turned out to be the major means of coordination. However, in Company C, only issues concerning product development are discussed during those daily meetings; communication, identity and environment design related issues are not included in the agenda.

6.3.3 Findings related to triggers of innovation in company C

As previously stated, innovation is driven either by technology or design. For design driven innovation, top management attitude toward design and strategic deployment of design become crucial. Since the design management process should start at the stage of defining the corporate strategies (Er, 2005), design awareness of non-designer executives plays an important role in the successful deployment of design.

During the interviews the managers were asked the following question:

"*What triggers innovation in the industry you operate in?"*

The major reason for asking this question was to start the conversation with a question that the non-designer executives were more likely to be familiar with. The purpose of generalizing the question for the industry, instead of asking it company specific, was to avoid a potential inclination toward technology answers. Managers are more willing to present their company as high tech compared to their rivals, therefore the generalization was intended for avoiding the bias to some extent.

Results are demonstrated in Table 6.11. Findings suggest that the managers of Company C think that design triggers innovation (only the marketing manager responded as both.)

6.3.4 Findings related to sensory integration in company C

Author: "How important is it that your company's products and services appeal to the five senses?"

Company C - R&D Manager (Comp. C, RDM):

"We are an intermediary in that respect. What do we do? We convert customer demand to three dimensional products. Therefore they (the clients) have to answer this question."

Author: "I understand that appealing to the five senses depends on the industry your customer operates in?"

Comp. C, RDM:

"Correct. Something the industry dictates. We do not have such a concern. What happens if we appeal? Nobody knows. What return do we get out of that? I am thinking loudly… Packaging does not stand on its own. For instance there are the bottles. It is a whole with the bottles. So I do not know…"

Comp. C, RDM:

"… for instance this lemon squeezer box. This box was requested from a customer from the UK....they wanted a pack of two, something that would look different on the shelves…. they wanted to be able to touch the glass lemon squeezer. They wanted to touch the product without opening the box. This is how they prefer it in the UK…"

Company C - Marketing Manager (Comp. C, MM):

"It is important that the products appeal to the five senses. First of all, our product should be advantageous in terms of visual characteristics. By this means, it can be differentiated from all the other products on the shelves. Besides, in carrying and protection a product the packaging also plays this important role."

Author: "What about the senses other than seeing? Hearing or smelling for instance?"

Comp. C, MM:

"There rather than design, technology is active. For instance, you produce chewing gum packaging. A banana flavored chewing gum. You can produce the packaging by means of using technologies that will make the packaging smell like bananas. Of course this changes with respect to the industry."

Author: "How important is it that your company's products and services appeal to the five senses?"

Company C - Product Design Responsible (Comp. C, PDR):

"Being a packaging company the appearance is the most important factor. The other senses are taken less into consideration."

6.3.5 Findings related to conceptual integration in company C

Author: "How is design related to your company's strategy?"

Company C - R&D Manager (Comp. C, RDM):

"It is on the top list. Because we see its benefits. All we will go on benefiting from design. Because as I told you think of it as a device, by means of which we achieve customer satisfactions. It is followed by quality and service in this aspect. But essentially with this differentiation we remain in the minds of people. We know that we add value to our customers. Therefore we cannot neglect design. And I claim that we are the only company in Turkey in this area. Such a creative company in paper industry in Turkey does not exist. Therefore in order to proceed the satisfaction we feel, the value it adds to customers, we will support design as long as the company exists. We have a team. There is no such team in Turkey."

Company C - Marketing Manager (Comp. C, RDM):

"Design is an important part of the strategy. In fact, not only design but also packaging engineering is also an important part of the strategy. I mean rather than manufacturing products that have visual advantages, it is also important to meet the functional needs of our customers. On the other hand, there is the cost advantage that packaging engineering brings us. Thus we offer competitive products to the market."

Findings suggest that Compnay C which have design studio for product designing purposes, mentions design on the top of the list. In Company C, the R&D manager

does not report to the board but he is consulted related to design issues from time to time.

6.3.6 Findings related to kotler sensitivity scores versus soylu sensitivity scores in company C

As stated before, during Phase II, on-line surveys have been conducted. The respondents were highest ranking marketing officers of the companies. In the survey questionnaire (Appendix E), Kotler's Design Densitivity Audit has been used (survey questions nr. 5 to 9). The results obtained from the Kotler Design Sensitivity Audit Part A are demonstrated in Figure 6.6.

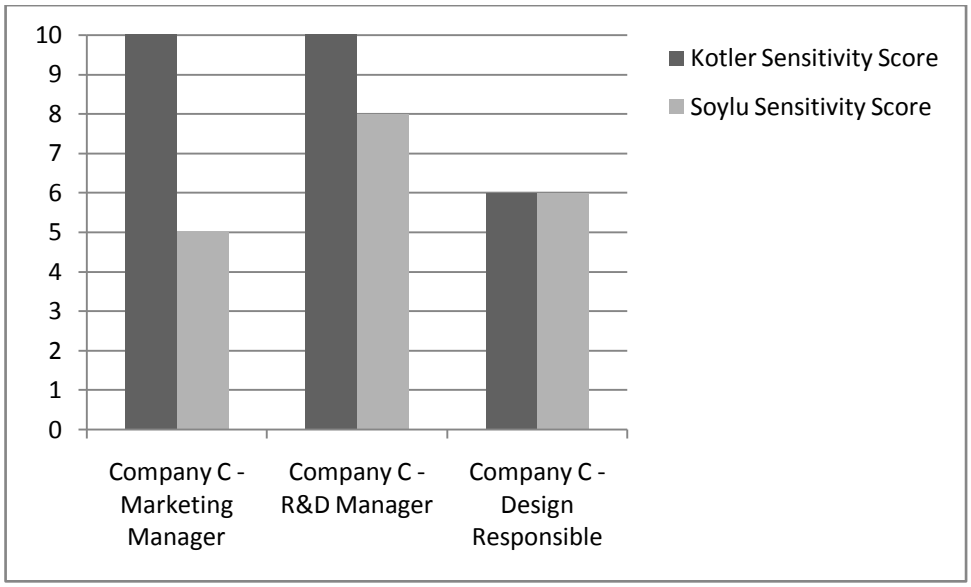


Figure 6.6 : Kotler Design Sensitivity scores versus Soylu Design Sensitivity Scores in Company C.

According to Kotler (1984) companies scoring more than 7 are in good shape in terms of design. In this respect, all the four companies chosen for the case studies for Phase III, were in good shape. During the case studies, Kotler Design Sensitivity Audit Part A was applied to the other two executives of the same companies. (Kotler Design Sensitivity Audit comprises of two parts but if in-house design staff is not available, Part B of the audit becomes irrelevant. Therefore in order to establish a consistency between those companies having an in-house designer versus others totally dependent on external design services, only Part A of the audit was used.)

Before starting the case studies, it was postulated that companies having a high design sensitivity score, would demonstrate a holistic approach to design. However,

during the case studies it was observed that high design sensitivity measured by Kotler's Design Sensitivity Audit Tool, did not necessarily lead to a holistic approach to design.

H1: High design sensitivity (measured by Kotler's Design Sensitivity Audit) leads to a holistic approach to design. (Not supported)

On the other hand, using the conceptual model suggested by the author (Design Germination Model, Chapter 2) and the Functional Integration Matrix in Table 6.1, Soylu Design Sensitivity Scores have been calculated. The calculated Soylu Scores are also demonstrated in Figure 6.6.

When Kotler Design Sensitivity Scores are compared to Soylu Design Sensitivity Scores; it is seen that Soylu Scores turn out to be lower than Kotler Scores for two of the managers, whereas for one manager scores are equal. In other words, it could be that Soylu Design Sensitivity Scores are closer to demonstrate the real design sensitivity situation of the companies. Further investigation, preferably with large samples, is needed to determine whether a relationship exists between Soylu Design Sensitivity Scores and a holistic approach to design.

Soylu Scores have been obtained using the structure suggested by Kotler. However, instead of asking about the level of design thinking that goes into each corporate domain affected by design, Soylu asks the availability of designer input in the sub-categories of each domain. The reason for the change in the wording of the question is because the phase "design thinking" may be too complex for non-designer managers because it is open to interpretation.

Also Kotler (1984), in addition to the questions for the major four design domains, asks a fifth question to determine the level of design thinking in the overall marketing. Soylu on the other hand, does not have an overall question for the marketing department. Instead the scores for each sub-category (physical manifestation of design) obtained are evaluated on a logical basis, and one aggregate score is attained for each domain. The sum of the aggregate scores are multiplied by 1.25 in order to get a normalized score that is comparable to Kotler's.

6.3.7 Findings related to design awareness of non-designer executives in company c

Two managers interviewed in Company C turned out to be non-designers. The second column on Table 6.12 demonstrates the design awareness scores obtained using Design Management Europe – Self Assessment Tool; whereas the third column in Table 6.12demonstrates design awareness scores measured by the number of design domains mentioned on a first recall basis.

Table 6.12 : Design awareness scores measured by Design Management Europe – self assessment tool versus Soylu free recall method. (The managers marked with an (*) are those having a formal design education.)

Comp	Position Interviewed	Design Awareness Score Obtained using Design Managemet Europe (DME) – Self Assesment Tool –	Design Awareness Score based on Physical Manifestations of Design Mentioned (obtained on a free recall basis) "Q: *Which design activities are carried out in the company you work for?*"
C	Marketing Manager	Level 3	1
C	R&D Manager*	Level 3	1
C	Product Design Responsible*	Level 2	1

As it is seen on Table 6.12, DME Sensitivity Score averageis above 2. At a first glance this suggests that the managers interviewed have high design awareness. However, when interviewed in depth during the case studies, it was seen that the same managers have limited knowledge on what design in business entails. The knowledge they posses heavily depends on the function and industry they work in.

Therefore the author suggests that the number of domains implied by the physical manifestations of designs mentioned on a free recall basis, could be more indicative to demonstrate the real design awareness of non designer executives.

6.3.8 Findings related to the relationship between marketing and design management in company C

Company C demonstrated a different profile in terms of design related decision making: In Company C, design related decision making is lead by the design department. It should be noted that Company C was the only company having a designer R&D Manager.

The marketing manager of Company stated that 50 % of his total time was devoted to design related decision making. This suggests that even if there is a design manager in the company, marketing allocates a substantial amount of its time in coordinating design related activities. Compnay C is a manufacturing companies and it does not have even a logo printed on its products, meaning that the role of marketing in design management goes beyond brand related decision making issues. On the other hand, although Company C has a ISO 9001-2000 documentation; the design process development and the owners of design related decision making are not are not determined precisely (Appendix A).

6.3.9 Summary of company C findings

This section provides a summary of the findings of Company C. At the beginning of the research it was postulated by the researcher that high scores of design awareness and design sensitivity coupled with a thorough design coordination would lead companies to manage design holistically. A holistic approach to design, on the other hand is achieved by functional, sensory and conceptual integration. In Company B design awareness (measured by DME questionnaire) and design sensitivity (measured by Kotler audit) turned out to be high. However, a holistic approach to design has not been observed. On the other hand, awareness and sensitivity scores measured by the methods suggested by the author turned out to be lower.

In order to determine the availability of a holistic approach to design; functional, sensory and conceptual integration was analyzed based on the theory suggested by Svengren (2011, p. 299).

In Company C, functional integration partially exists and it mainly focuses on new product development. Concerning identity and communication design issues the design manager is consulted on project basis. Silent design dominates in environment design issues.

In Company C, sensory integration does not exist. Company C is reactive rather than proactive in designing for five senses.

In Company C, conceptual integration partially exists: Design is part of the strategy. The company has invested in design studio activities considerably. However, there is no design chief at board level or reporting to the board. Design is a service offered

to customers free of charge in order to gain competitive advantage particularly in export markets. Table 6.13 demonstrates consolidated findings for Company C.

Table 6.13 : Company C findings

Design Awareness (Levels 1-4)	**Design Sensitivity (Scores 1-10)**	**Design Coordination (Levels 1-4)**	**Functional Integration**	**Sensory Integration**	**Conceptual Integration**
Level 3 (DME Score) Level 1 (Soylu Score) (mode)	8 (Kotler Score) 6 (Soylu Score) (average)	Level 3 (DME Score) (mode)	Partially exists. Functional integration focuses on new product development. Concerning identity and communication design issues the design manager is consulted on project basis. Silent design dominates in environment design related issues.	Does not exist. The company is reactive rather than proactive in designing for five senses.	Partially exists. Design is part of the strategy. The company has invested in design studio activities considerably. However, there is no design chief at board level or reporting to the board. Design is a service offered to customers free of charge in order to gain competitive advantage particularly in export markets.

6.4 Company D Findings

6.4.1 Findings related to functional integration in company D

Functional integration of design means that there is input by an educated designer (either in-house or external) when design related activities are carried out. In other words, a company having functional integration of design refrains from silent design.

In order to understand the level of functional integration of design within the company, the matrix in Table 6.1 has been developed by the author. The rows indicate the list of physical manifestations of design (18 in total); whereas the columns indicate the frequency of the designer input contemplated in any particular physical manifestation of design. The matrix has been filled-in by all the 12 managers interviewed. The following question has been asked before they started filling-in the matrix: "*When the corporate domains listed in the table below are designed in your company, does an in-house designer or an external designer input exist*?"

The radar charts in Figures 6.7 demonstrate the detailed results for each manager interviewed. Levels 1,2,3,4 in the radar charts indicate the columns of the matrix: Level 1 in the radar charts stands for *no idea/such corporate domain,* Level 2 stands for *there is **never** an educated designer input,* Level 3 stands for *there is **sometimes** en educated designer input,* Level 4 stands for *there is **always** an educated designer input*. The consolidated charts at the bottom of Figure 6.7 on the other hand, demonstrate the overall results of the three interviewed managers for the same company. As it is seen from the figures, answers given by the managers of the same company turn out to be miscellaneous. In other words, in Company D where the marketing manager says "we always have designer input in building design", the R&D manager of the same company says "we sometimes have designer input in product design". The information asymmetry seen on the consolidated charts in 6.7 suggests that managers of the same company are not aware how that particular physical manifestation is designed- to be more precise-they are not knowledgeable if a designer input exists. This also suggests the existence of a relatively low importance attributed to design related issues within the company.

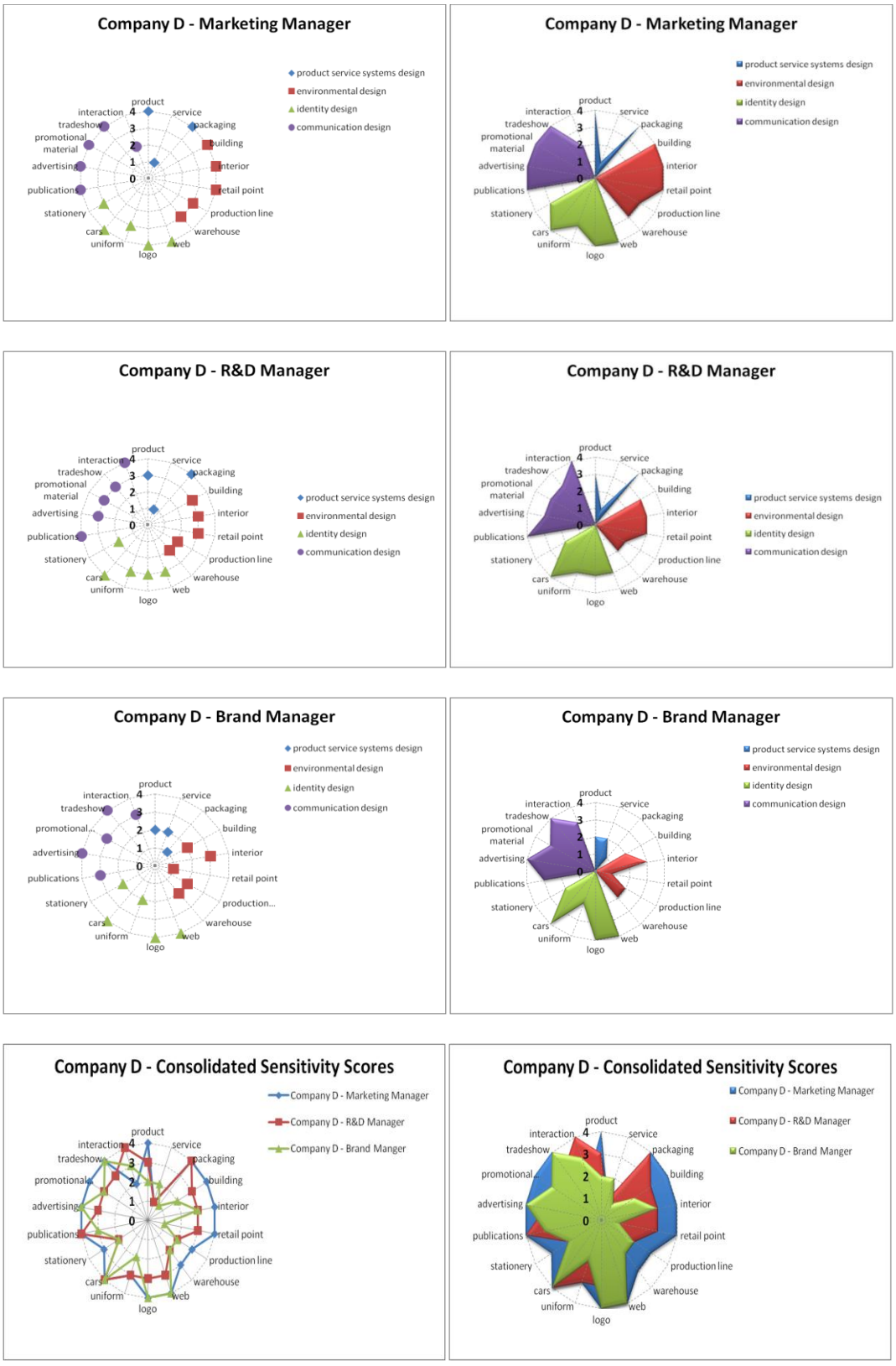


Figure 6.7 : Company D - functional integration matrix results.

Findings also suggest that there is a substantial amount of silent design in the companies interviewed. In order to demonstrate the level of silent design the radar charts on the right hand side of Figure 6.7 have been developed. Each leaf of the clove on the radar chart demonstrates one corporate domain affected by design. Going in the clockwise direction the blue leaf stands for *product service systems design*, red leaf *environment design*, green leaf *identity design* and violet leaf *communication design*. For a given domain, the more the leaf of the clove is close to complete, the more ouvert design is observed. In other words, if the company relies on silent design, color shaded area turns out to be small and the shape deviates from being close to a complete slice.

Since marketing executives turned out to be the most knowledgeable people within the company for comparison purposes their responses have been taken into account. Company D seems to rely little on silent design. The only corporate domain that is untouched by design turns out to be service design in Company D.

6.4.2 Findings related to design coordination in company D

Author: "How is design coordination achieved in your company?"

Company D - Marketing Manager (Comp. D, MM)
"As a matter of fact, it is totally coordinated by marketing. I am speaking about packaging design."

Author: Are there any other design application areas in your company?

Comp. D, MM:
"There must be some concerning production, but we do not know these…"

Author: "Do you ever participate to the new product development?"

Comp. D, MM:
"Yes we do ..we look at the market, if we identify a market that is growing, we say let's supply this, let's launch the same product…. Sometimes the demand comes from the sales department…Nevertheless the product development, product management process is totally in the hands of marketing…"

" …Of course, we had to chose the correct agency for ourselves. It is in (the hands of) marketing, product management is the 50 %, but you also have to have a creative agency. Infact, at the moment the global trend is toward choosing agencies that focus

on packaging design. Packaging design is different. Advertising agency is something else. Besides now we have a third category which is digital agencies…we worked the packaging design with our creative agency. They did not want to do that at the beginning. They said "we are not the experts of packaging design". Due to budget constraints, we insisted on trying…and at the end this concept was developed."

Author: "Who are the internal stakeholders in this process?"

Comp. D, MM:

"First of all, you have to cooperate with the sales. Also the logistics. We are lucky because our boss does not interfere into those issues very much. Some owners like to play with packaging, some deal with production and technology; others are very much interested in sales and marketing. Our boss is closer to sales and manufacturing. He trusts us. But we have to take approval. Of course, the boss has his group of friends. They ask each other: "How is this design? Is this good?" They also approve. We also ask the family members. It was such a process. If the wives also give approval, then that means there is no problem…"

Author: "You mentioned off-line and on-line channels. Who is in charge of making the two channels work in harmony?"

Comp. D, MM:

"This is why marketing departments exist in companies. Let's say you positioned the brand… it is important what message you will transfer to the consumers… then we changed our website in line with the new concept. You have to reflect the same line to the other side. We give briefs to all the design agencies. We emphasized the key visuals. If needed, we also organize meetings so that they can meet each other."

Author: "The agency came with three options. Who decided on the final concept?"

Comp. D, MM:

"We organize a meeting where everyone says his opinion. If everyone likes the concept the boss does not like it, then the boss retaliates. But in this case everyone had a similar opinion, the decision was made easily… on the other hand, while we were changing the logo (it was a radical change) it was a tough job. We got serious reaction from the sales. We insisted on that the logo was our area of expertise. We pushed it hard, frankly speaking. We persuaded the boss, then we did not deal with the other side at all."

Author: "You said that you design packages. But you also design services as I see."

Comp. D, MM:

"Certainly, it is not only packaging… we did the TV commercial, founded a facebook club, we use social media, twitter. We design content for all of these. We redesigned the website. This is 360 degrees communication."

Author: "Do they also consult marketing in issues related to environment design?"

Comp. D, MM:

"For example, during factory tours we saw that people are taking photographs in front of our high tech machines. Then we said, "let us put our logos in front of this machine"… anyway, the PR, distributor shop signs, POP materials, customer gifts are all designed by marketing. In the B2B part of the business we organize customer meetings. The stage, the hotel room, the gifts, the activites during the evening. We design everything."

Author: "Where does the design process start and where does it end?"

Company D - R&D Manager (Comp. D, RDM)

"We wrote it, but I do not remember at all. We have the design process, new product development process. We even have such a process. The process remains somewhere in between. Marketing said "we initiate it". Sales said "no it is us". We said "we start the process" etc. That is a bit mixed up."

Company D - Brand Manager (Comp. D, BM)

"It starts with the demand coming for new products."

Comp. D, RDM: "The starting point depends on the type of the request."

Author: "Who is the owner of the process?"

Comp. D, RDM: "The owner varies."

Comp. D, BM:

(She reads it from the screen)

"New product idea approval according to strategy: all units. The recording of the idea: Marketing. Organizing demand evaluation meetings: Marketing. Is demand OK? Product Development Team. Whoever is part of that team."

Author: "Are you also part of this team?"

Comp. D, RDM: "Probably, I do not remember."

Comp. D, BM: "We also have product communication process. Corporate communication process. Marketing planning process etc."

In Company D, the responses obtained from the R&D manager concerning the new product development process signal the ambiguities and gray areas regarding the distribution of roles.

In Company D, marketing is given high responsibility in terms of design execution management. However when asked about design coordination, the marketing manager only thinks of packaging as design. When the details of new product development are asked, the flow of conversation comes to creative agencies and then she recalls communication related design issues. But still she does not use the word design; instead she explains the activities in the framework of 360 degree brand communication.

Company D tries to adopt brand management but does not relate it to design at all. On the other hand, every design domain except environment design is coordinated by marketing. In fact, marketing says that they are active also in interior design by means of putting product logos in production areas. Although the marketing manager of Company D has high authority in terms of design coordination, her design evaluation capabilities seem to be limited. From the conversation, we learn that the creative agency was reluctant to do the packaging design stating that it was another area of expertise. However, the marketing manager stated that she persuaded the creative agency to do the packaging design anyway, due to cost constraints.

Another striking issue concerning design evaluation was revealed when she stated that Company D had planned to use a certain type of crown for their new logo. However, before the launch, some other company used it in its promotion campaign. Company D did not have the design registration. Therefore Company D had to change the crown on the logo. They had a new crown illustrated and then had it registered. This anecdote would have proven how much Company D is sensitive to use original artwork, had the same company not borrowed the concept of the well known TV commercial of another brand, for its B2B product line. So to some up,

borrowing a concept is OK, but using the same detail in an illustration is unacceptable according to the marketing executives of Company D.

On the other hand, when managers were also asked to self-asses the design coordination practices observed in their company in the last three years by means of using question 5 in Design Management Europe Self Assessment Tool (Er et *al*., 2009), the average score of the responses obtained from this question indicated very high levels of design coordination (average score is between Level 3 and Level 4). The details are provided in Table 6.14.

Table 6.14 : Self assessment scores related to design coordination and responses related to innovation triggers in company D.

Company	Position Interviewed	Self-Assesment Score Design Coordination	What Triggers Innovation?
D	Marketing Manager	Level 4	Technology
D	R&D Manager	Level 2	Design
D	Brand Manager	Level 4	NA

Concerning design coordination, interviewees were also asked to choose which methods were used to coordinate design activities within their companies (Appendix E; question 13). In Company D, periodic meetings turned out to be the major means of coordination.

6.4.3 Findings related to triggers of innovation in company D

As previously stated, innovation is driven either by technology or design. For design driven innovation, top management attitude toward design and strategic deployment of design become crucial. Since the design management process should start at the stage of defining the corporate strategies (Er, 2005), design awareness of non-designer executives plays an important role in the successful deployment of design.

During the interviews the managers were asked the following question:

"*What triggers innovation in the industry you operate in?"*

The major reason for asking this question was to start the conversation with a question that the non-designer executives were more likely to be familiar with. The purpose of generalizing the question for the industry, instead of asking it company specific, was to avoid a potential inclination toward technology answers. Managers

are more willing to present their company as high tech compared to their rivals, therefore the generalization was intended for avoiding the bias to some extent.

Results are demonstrated in Table 6.15. Findings suggest that the R&D Manager thinks that design triggers innovation whereas marketing managers are more inclined toward technology. Results suggest that R&D managers being more knowledgeable about the industry they operate in, are aware that they do not operate in high tech industries. Also marketing managers may have responded in favour of technology for showing-off / face saving reasons which is a professional deformation contemplated in many of them.

The fact that marketing managers do not appreciate design as a trigger of innovation also suggests relatively low importance attributed to design.

6.4.4 Findings related to sensory integration in company D

Author: "How important is it that your company's products and services appeal to the five senses?"

Company D - Marketing Manager (Comp. D, MM):

"That is the most important thing… from time to time we talk between ourselves, for instance, what if we add some aroma in the fodder? The cows will eat with an increased appetite since it will be more delicious…or for instance our fodder is totally vegetal, therefore there is no bad odour. It is a differentiating factor for our products."

"Then of course we have our new jingle. We have adopted an old popular song for our products. The song is known by many farmers. And we used the same vocal, who is a very well known singer among the target group."

Company D - R&D Manager (Comp. D, RDM):

"Visuality is the most important thing in fodder business. Both the form of the fodder and the form of the packaging."

As seen above, the marketing manager elaborates in detail on the attributes related to taste, smell and sound. Taste and tactile properties are also important according to the R&D manager. Since Company D operates in food industry, the importance attributes may be industry specific.

6.4.5 Findings related to conceptual integration in company D

Author: "How is design related to your company's strategy?"

Company D - Marketing Manager (Comp. C, RDM):
"We do not have a design motto…. Instead there is innovation… (we achieve innovation) with relationship management….We have 70 veterinary doctors, a technical team, agricultural engineers, seminars organized by them, we have a professor consultant, our relationship with the distributors… we find solutions to farmers problems… differentiation with services."

Author: "Essentially you are designing product service systems?"

Comp. D, RDM: "Yes. Otherwise what we sell is commodity."

Compnay D does not have a design executive at board level. Company D mentions innovation in its strategy statements, design is intact.

6.4.6 Findings related to kotler sensitivity scores versus soylu sensitivity scores in company D

As stated before, during Phase II, on-line surveys have been conducted. The respondents were highest ranking marketing officers of the companies. In the survey questionnaire (Appendix E), Kotler's Design Densitivity Audit has been used (survey questions nr. 5 to 9). The results obtained from the Kotler Design Sensitivity Audit Part A are demonstrated in Figure 6.8.

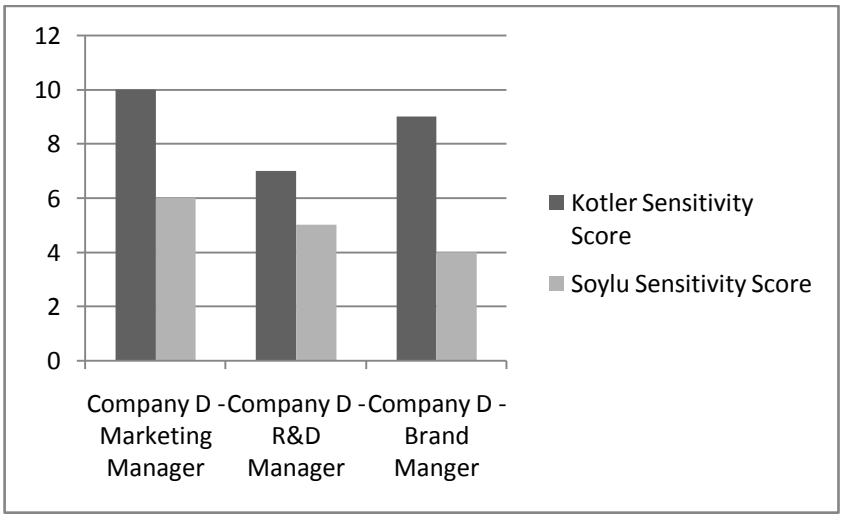


Figure 6.8 : Kotler design sensitivity scores versus Soylu design sensitivity scores in Company D.

According to Kotler (Kotler and Rath, 1984) companies scoring more than 7 are in good shape in terms of design. In this respect, Company D chosen for the case studies for Phase III, was in good shape. During the case studies, Kotler Design Sensitivity Audit Part A was applied to the other two executives of the same companies. (Kotler Design Sensitivity Audit comprises of two parts but if in-house design staff is not available, Part B of the audit becomes irrelevant. Therefore in order to establish a consistency between those companies having an in-house designer versus others totally dependent on external design services, only Part A of the audit was used.)

Before starting the case studies, it was postulated that companies having a high design sensitivity score, would demonstrate a holistic approach to design. However, during the case studies it was observed that high design sensitivity measured by Kotler's Design Sensitivity Audit Tool, did not necessarily lead to a holistic approach to design.

H1: High design sensitivity (measured by Kotler's Design Sensitivity Audit) leads to a holistic approach to design. (Not supported)

On the other hand, using the conceptual model suggested by the author (Design Germination Model, Chapter 2) and the Functional Integration Matrix in Table 6.1, Soylu Design Sensitivity Scores have been calculated. The calculated Soylu Scores are also demonstrated in Figure 6.8.

When Kotler Design Sensitivity Scores are compared to Soylu Design Sensitivity Scores; Soylu Scores turn out to be lower than Kotler Scores for all the managers in Company D. In other words, it could be that Soylu Scores are closer to demonstrate the real design sensitivity situation of the companies. Further investigation, preferably with large samples, is needed to determine whether a relationship exists between Soylu Design Sensitivity Scores and a holistic approach to design.

Soylu scores have been obtained using the structure suggested by Kotler. However, instead of asking about the level of design thinking that goes into each corporate domain affected by design, Soylu asks the availability of designer input in the sub-categories of each domain. The reason for the change in the wording of the question is because the phase "design thinking" may be too complex for non-designer managers because it is open to interpretation.

Also Kotler (1984), in addition to the questions for the major four design domains, asks a fifth question to determine the level of design thinking in the overall marketing. Soylu on the other hand, does not have an overall question for the marketing department. Instead the scores for each sub-category (physical manifestation of design) obtained are evaluated on a logical basis, and one aggregate score is attained for each domain. The sum of the aggregate scores are multiplied by 1.25 in order to get a normalized score that is comparable to Kotler's.

6.4.7 Findings related to design awareness of non-designer executives in company D

All the managers interviewed in Company D turned out to be non-designers (Table 6.15). The second column on Table 6.16 demonstrates the design awareness scores obtained using Design Management Europe – Self Assessment Tool; whereas the third column in Table 6.16 demonstrates design awareness scores measured by the number of design domains mentioned on a first recall basis.

Table 6.15 : Undergraduate/graduate degrees of the interviewees.

Company	Position Interviewed	Education
D	Marketing Manager	Management
D	R&D Manager	Engineering (PhD)
D	Brand Manager	Engineering

Table 6.16 : Design awareness scores measured by Design Management Europe – self assessment tool versus Soylu free recall method.

Comp	Position Interviewed	**Design Awareness Score Obtained using** **Design Managemet Europe (DME) – Self Assesment Tool –**	**Design Awareness Score based on Physical Manifestations of Design Mentioned** (obtained on a free recall basis) "Q: *Which design activities are carried out in the company you work for?*"
D	Marketing Manager	Level 2	1
D	R&D Manager	Level 2	2
D	Brand Manager	Level 2	1

As it is seen on Table 6.16, all DME Sensitivity Score averages are 2. At a first glance this suggests that the managers interviewed have medium level of design

awareness. However, when interviewed in depth during the case studies, it was seen that the same managers have limited knowledge on what design in business entails. The knowledge they posses heavily depends on the function and industry they work.

Therefore the author suggests that the number of domains implied by the physical manifestations of designs mentioned on a free recall basis, could be more indicative to demonstrate the real design awareness of non designer executives.

6.4.8 Findings related to the relationship between marketing and design management in company D

Similar to the findings obtained in Phase I and Phase II; Phase III findings also suggest marketing to be the most active function in design related decision making for Company D.

On the other hand, the marketing manager of Company D stated that 60 % of her total time was devoted to design related decision making. This suggests that marketing allocates a substantial amount of its time in coordinating design related activities. On the other hand, although all of the companies have an ISO 9001-2000 documentation; the design process development is and the owners of design related decision making are not are not determined precisely (Appendix A).Summary of **Company D Findings**

This section provides a summary of the findings of Company D. At the beginning of the research it was postulated by the researcher that high scores of design awareness and design sensitivity coupled with a thorough design coordination would lead companies to manage design holistically. A holistic approach to design, on the other hand is achieved by functional, sensory and conceptual integration. In Company B design awareness (measured by DME questionnaire) and design sensitivity (measured by Kotler audit) turned out to be high. However, a holistic approach to design has not been observed. On the other hand, awareness and sensitivity scores measured by the methods suggested by the author turned out to be lower.

In order to determine the availability of a holistic approach to design; functional, sensory and conceptual integration was analyzed based on the theory suggested by Svengren (2011, p. 299).

In Company D, functional integration partially exists and it mainly focuses on communication and identity design.

In Company D, sensory integration partially exists. This is mainly due to the industry specific concerns.

In Company D, conceptual integration does not exist. Design is not part of the strategy. There is no design chief at board level or reporting to the board. Design related issues are managed by the Marketing Manager. Design management is confined with brand management. Table 6.17 demonstrates consolidated findings for Company D.

6.5 Cross-Case Sythesis

This section examines the similarities and differences between the four cases conducted.

6.5.1 Functional integration of design

Marketing executives turned out to be the most knowledgeable people within the company therefore, for comparison purposes, their responses have been taken into account. In this respect, according to the answers obtained from the Marketing Manager of Company A, silent design is observed the most in environment design. On the other hand, Company B seems to rely much more on silent design: Environment, communication and product service systems design activities all have very limited designer input according to the Company B's Marketing Manager. Answers obtained from the Marketing Manager of Company C, are parallel to those of Company A. The only difference is observed in identity design related issues. Since Companies A and C operate in the same industries, this finding suggests that there might be an industry specific pattern in functional integration of design. (This is also partially true when a comparison between companies B and D is made. B and D both operate in the same industry.) On the other hand, Company D seems to rely the least on silent design. (When all the company results obtained from the marketing managers are compared, Company D has the largest shaded are Figure 6.7). The only corporate domain that is untouched by design turns out to be service design in Company D.

For all the companies analyzed, overall results indicate that silent design is observed in environment design domains most frequently. Indeed concerning environment design, one striking decision making process has been observed by the author. When the manufacturing premises of Company A and Company C were visited striking anecdotal evidence has been observed and collected on the issue (For details please refer to Section 6.1.1 and Section 6.3.1 respectively.)

Table 6.17 : Company D findings

Design Awareness (Levels 1-4)	**Design Sensitivity (Scores 1-10)**	**Design Coordination (Levels 1-4)**	**Functional Integration**	**Sensory Integration**	**Conceptual Integration**
Level 2 (DME Score) Level 1 (Soylu Score) (mode)	9 (Kotler Score) 5 (Soylu Score) (average)	Level 4 (DME Score) (mode)	Partially exists. Functional integration focuses on communication and identity design.	Partially exists. This is mainly due to the industry specific concerns.	Does not exist. Design is not part of the strategy. There is no design chief at board level or reporting to the board. Design related issues are managed by the Marketing Manager. Design management is confined with brand management.

6.5.2 Design coordination

In all the companies, meetings turned out to be the major means of coordination. Company C and D differ from the others two, in the sense that they organize periodic meetings. However, in Company C, only issues concerning product development are discussed during those daily meetings; communication, identity and environment design related issues are not included in the meeting agenda.

6.5.3 Triggers of innovation

All R&D managers think that design triggers innovation (only one R&D manager responded as both.) On the other hand, marketing managers are more inclined toward technology. Results suggest that R&D managers being more knowledgeable about the industry they operate in, are aware that they do not operate in high tech industries. Also marketing managers may have responded in favour of technology for showing-off / face saving reasons which is a professional deformation contemplated in many of them. The fact that marketing managers do not appreciate design as a trigger of innovation also suggests relatively low importance attributed to design by them.

6.5.4 Sensory integration

Designing for the five senses is an issue almost totally neglected by Company A. If a demand comes from the market, they try to meet it. Being reactive instead of proactive in this aspect may lead the company to miss some market opportunities as seen in the examples related to pizza and on-line sales companies. In terms of sensory integration, among the companies interviewed, Company B is far ahead of others. The awareness demonstrated by all the three managers concerning appealing to the five senses was striking. Not only the product but also the promotional activities were elaborated in this aspect. The fact that it operates in the food industry, and its being the only well known consumer brand may be two of the reasons. Similar to Company A, designing for the five senses is neglected by Company C. If a demand comes from the market, they try to meet it. Being reactive instead of proactive in this aspect may lead the company to miss some market opportunities as seen in the examples related to lemon squeezer and banana scented packaging for chewing gums. The marketing manager of Company D elaborates in detail on the

attributes related to taste, smell and sound. Taste and tactile properties are also important according to the R&D manager. Since Company D operates in food industry, the importance attributes may be industry specific.

6.5.5 Conceptual integration

Findings suggest that both of the B2B companies (Company A and Company C) which have design studios for product designing purposes, mention design on the top of the list. The B2C companies on the other hand, mention innovation in their strategy statements.

Company B had a design chief reporting to the board of the company at the headquarters. In company C, the R&D manager who was an educated designer, did not report to the board but he was consulted by high level executives related to design issues from time to time. Companies A and D did not have a top level design responsible.

6.5.6 Design sensitivity

Design sensitivity has been measured by two ways. Kotler Design Sensitivity and Soylu Design Sensitivity. According to average Kotler scores, all the four companies studied are highly design sensitive. On the other hand, Soylu Design Sensitivity scores turn out to be lower than those of Kotlers' (Figure 6.9).

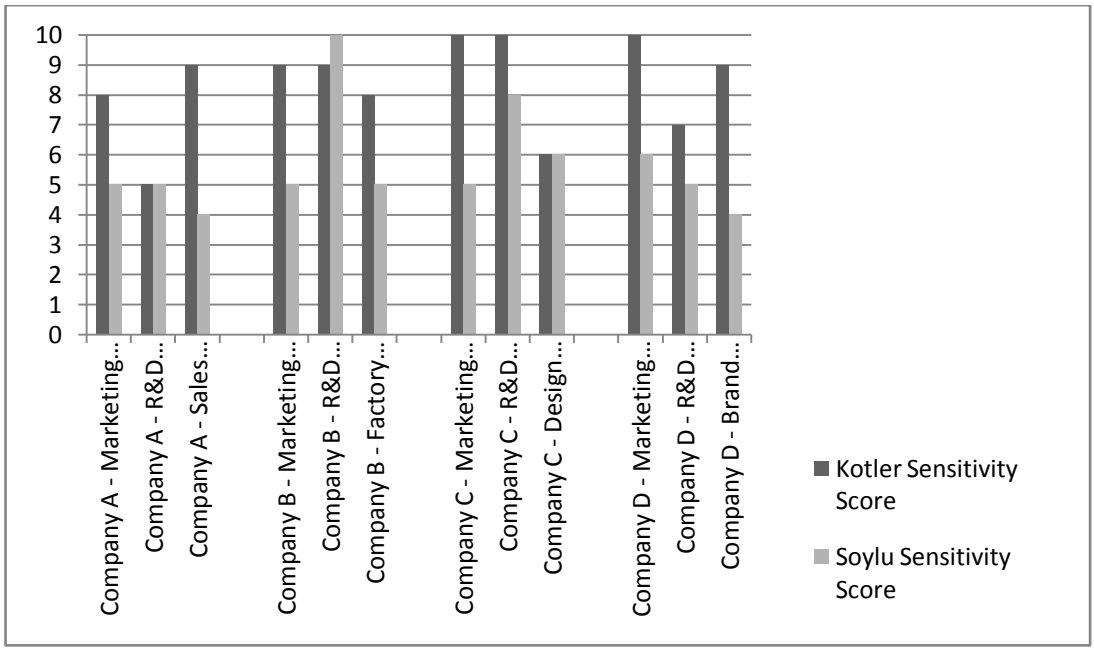


Figure 6.9 : Kotler design sensitivity scores vs. Soylu design sensitivity scores.

Based on average Kotler scores, Company B and Company D are the most design sensitive companies. Since both companies operate in the same industry, this finding could hint an industry specific pattern.

6.5.7 Design awareness of non-designers

Initially, design awareness of non-designers is measured using the DME Self Assesmet Tool. Findings suggest that except for Company D, all DME Sensitivity Score averages are above 2 (Max. 4). At a first glance, this suggests that the managers interviewed have high design awareness. However, when interviewed in depth during the case studies, it was seen that the same managers have limited knowledge on what design in business entails. The knowledge they posses heavily depends on the function and industry they work in. Therefore the author suggests that the number of domains implied by the physical manifestations of designs mentioned on a free recall basis, could be more indicative to demonstrate the real design awareness of non designer executives. Indeed, design awareness score averages obtained using the free recall method were all below 2 (Max. 4).

6.5.8 Marketing and design management

Findings suggest marketing to be the most active function in design related decision making for Companies A, B and D. Only Company C demonstrated a different profile in terms of design related decision making: in Company C, design related decision making was lead by the design department. It should be noted that Company C was the only company having a designer R&D Manager.On the other hand, all the marketing executives (including Company C) stated that at least one quarter of their total time was devoted to design related decision making (The percentages stated by marketing managers of the four companies interviewed were as follows: 25 %, 30 %, 50 %, 60%). This suggests that even if there is a design manager in the company, marketing allocates a substantial amount of its time in coordinating design related activities. It should be noted that these companies are manufacturing companies and two of them do not have even a logo printed on their products, meaning that the role of marketing in design management goes beyond brand related decision making issues. On the other hand, although all of the companies have an ISO 9001-2000 documentation; the design process development is and the owners of design related decision making are not are not determined precisely (Appendix A).

6.6 Chapter's Summary

In this chapter case study findings have been reported. These findings have been obtained from the interviews, company archives, observations carried out during the site visits and secondary sources (websites). Initially each case has been elaborated separately. Finally in order to highlight emerging patterns, a cross-case synthesis has been realized. The emerging patterns in the synthesis have been classified into eight groups:

1. Functional Integration of Design
2. Design Coordination
3. Triggers of Innovation
4. Sensory Integration of Design
5. Conceptual Integration of Design
6. Design Sensitivity
7. Design Awareness of Non-designers
8. Marketing and Design Management

Chapter 7, will elaborate on the conclusions and recommendations based on the findings revealed in this chapter.

7. CONCLUSIONS AND RECOMMENDATIONS

This chapter presents the major conclusions of the study. Since the field study has been carried out in three phases, conclusions derived from each phase have been presented in this chapter as separate sections (Sections 7.1, 7.2, 7.3). The chapter ends with concluding remarks and suggestions for further research (Section 7.4).

7.1. Discussion of Findings Related to the Exploratory Study I

The author claims that non-designer executives are not equipped with tools to manage design in business because they are unaware of what design in business entails. The exploratory study results (18 companies) showed that the respondents (who are either MBAs or engineers and did not receive any formal design education) were not capable of providing a comprehensive list of physical manifestations of design. The same executives were able to mention only some of the physical manifestations of design, depending on their professional experience. On the other hand, if they had received such a formal design education, would they be able to provide a complete picture of design in business remains to be another question mark.

As it has already been stated, design in business is interdisciplinary and even design scholars do not agree on a single systematic list of the basics. However, if the same marketing executives were asked information concerning other managerial disciplines eg. details regarding 'the 4 Ps of Marketing', 'Net Present Value (NPV) of a Project' or 'Balance Sheet', the answers were likely to be more similar. It is true that design embraces differences, however the lack of a holistic point of view on the design management side, degrades its potential performance. The lack of a systematic design in business classification, also suggests the relatively low importance attributed to design activities in business.

In order to shed some light on the ambiguity concerning the borderlines of design in business, this study proposes a new design taxonomy model. The proposed model "Corporate Domains Affected by Design Germination" is derived from existing

literature and checked during the 18 face to face surveys with non designer professionals.

The 18 professionals interviewed belong to companies operating both in manufacturing and services. In terms of size and industries the companies are fragmented (SMEs, local large scale companies and multi-national companies operating in 12different industries).

A content analysis has been carried out to determine the various physical manifestations of design recalled. Although at the beginning of the face to face survey, 28 % of the respondents stated that there was no design activity at all within their company; upon completion of the questionnaire, all of them marked at least one design activity from the list. This fact suggests that these non-designer professionals were not aware before, that the activities listed in the questionnaire are in fact design activities. It has been seen that the physical manifestations of design recalled by the 18 executives cluster in 4 major categories. These categories turn out to be product-service systems design, environment design, communication design and identity design.

Design germination phrase was used to describe the model because seed is used as a metaphor to describe design. Theoretically, any seed may be planted in any soil. However, if the place is suitable for the seed geographically, the plant grows efficiently. The farmer has the knowledge on where to plant it; however the hobbyist gardener usually lacks the know-how and finds it out after several trials. Similarly a design manager may be well equipped concerning the identification of potential design areas within a company; however a non-designer business executive is notalways likely to figure out all corporate areas where design implementation may turn out to be beneficial.

Although, the classification of design is a very basic step and it is by no means adequate for the proper deployment of design in business; the author of this study believes that this preliminary step to reach a systematic and unanimously accepted classification of design will not only contribute to design's penetration in business but it will also provide the environment for a holistic design approach to nourish more easily. If product, communication and environment designers all know whatthe

big picture in business is like and how their profession fits into the big picture, designing the business is likely to be achieved in greater harmony.

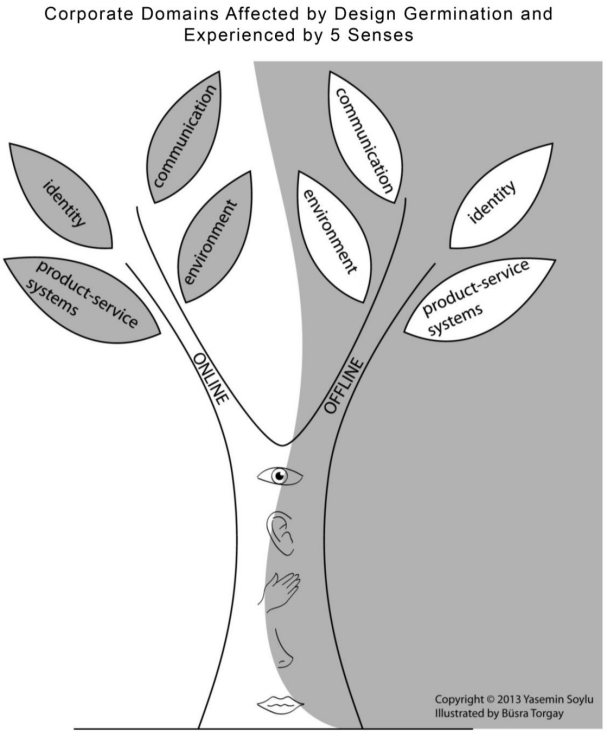


Figure 7.1 : Corporate design germination model (Soylu and Er, 2014).

The deployment of the proposed model may facilitate transforming design dialects into design accents which in turn will hopefully contribute to a more holistic approach of design. A more holistic approach to design eventually is likely to render companies to be more unique, reliable and sustainable.

7.2 Discussion of Findings Related to the Exploratory Study II

In order to determine the validity of the proposed model an on-line internet survey has been conducted using the VETI system. Companies listed in 2011 ISO 500 and ISO Second 500 Lists have been used as the sample population. The responses have been collected between 10 the January-1st April 2013. In total, 34 managers accepted to participate to the survey. 23 valid questionnaires have been obtained. The responses have been analyzed both qualitatively (content analysis) and quantitatively (descriptive statistics). Due to the small number of valid responses further statistical analysis turned out to be meaningless. (The list of companies is provided in Appendix B).

ISO Company Lists group companies into 11 manufacturing industries. Among the 23 valid questionnaires, companies from 8 different manufacturing industries have been represented. Appendix B shows concise information on company profiles. The following conclusions have been derived from the on-line survey carried out:

1. Physical manifestations of design suggested in Phase I by 18 executives, were also repeated in Phase II by 23 additional marketing managers. Therefore it was concluded that using this sample (ISO 500 + 500 List of manufacturing companies) no additional corporate domains affected by design were likely to be obtained. In other words, the design classification model suggested by the author (Corporate Design Germination Model) has been tested and not rejected one more time.
2. Kotler's Design Sensitivity (Kotler and Rath, 1984) audit has been applied during the on-line survey. Findings reveal that none of the companies are performing badly because all scored higher than 4. (According to Kotler, if scores are lower than 4 then the company is missing a major opportunity by not making more use of design thinking.) Therefore, the selection of companies for case study research that was conducted in Phase III was done among best practice companies.
3. Marketing turned out to be the most active department in design related decision making.
4. 15 out of 23 managers interviewed turned out to dedicate at least 25% of their time to design related decision making. Non of the marketing managers had a formal design education. This suggests that marketing managers should be trained in design.

7.3. Discussion of Findings Related to the Case Studies

This dissertation has investigated the level of design awareness of top managers; the level of design sensitivity and the existence of a holistic approach to design in a group of large scale manufacturing companies in Turkey, between 2011- 2014. This study has shown that:

1.A holistic approach to design involves functional, sensory and strategic integration of design coupled with a thorough design coordination. This does not exist in the companies studied.

According to Svengren (2011, p. 299), the integration of design as a strategic resource is based upon a functional, visual and conceptual integration. Building upon Svengren's model, the author of this study proposes to update the conceptual model to depict a holistic approach to design as follows:

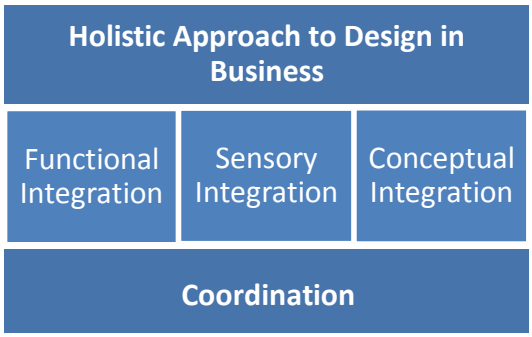


Figure 7.2 : Holistic approach to design.

Functional integration means that all design related activities and their outcomes, ie. physical manifestations of design, are achieved using either in-house or external designer input. This is also defined as *ouvert* design by the existing literature. The results of case studies show that functional integration of design is partially achieved by the companies studied. The companies studied are manufacturing companies; therefore ouvert design is mostly centered on new product development activities. Also there is evidence that some ouvert design exists around identity and communication design domains. However, there is no systematic approach to handle all corporate domains of design holistically. The level of coordination is limited. According to the findings, this is mainly due to low design awareness company executives demonstrate. As a result of limited design awareness, the outputs of different design activities transmit different messages to different stakeholders.

Sensory integration of design means that physical manifestations of design should appeal to the five senses. Going through the marketing and design management literature between 1995-2014, it has been noticed that particularly after the turn of the new millennium sensory integration of design has been elaborated by the marketing management/brand design literature to a great extent. Sensory integration enhances both explicit and implicit communication of the company. Thus it seems necessary to update the model by means of replacing the visual integration in the original model of Svengren (2011) with sensory integration.

The results of the case studies reveal that managers think that appealing to the five senses is important but when it comes to execution, depending on their customers' requests, companies *sometimes* try to adapt their product design and communication design outcomes to appeal to the five senses. Since these efforts are arbitrary, they are not likely to surpass customer expectations and give competitive advantage to the company.

During the case study interviews, it was observed that there are opportunities companies missed because of not appealing to the five senses. Also it has been observed that, companies do not combine their efforts in several design domains to make the most out of appealing to the five senses. For instance, if they offer an improved design in terms of smell or taste for one customer, they neglect to communicate it to other customers. Therefore sensory integration of design has been determined as a major area of improvement where companies can generate new business opportunities.

On the other hand , both management education and design education need to emphasize the issue by means of offering courses where on-line and off-line marketing and designing for five senses is experienced. Therefore this finding has important implications not only in terms of re-designing the business models; but also for re-designing management and design education curricula.

Strategic integration of design involves design to be handled at the top level. This requires a highly design aware top executive (or even better a designer board member) and the existence of corporate design strategy. None of the companies investigated had such an executive. Only one company mentioned to have such a creative manager at the headquarters abroad. Nevertheless, this particular multi-national company (MNC) does not seem to exert tight control over its subsidiaries and consequently, the design leader input does not reach the subsidiaries in all aspects of design.On the other hand, in their strategy statements three of the companies do not mention design at all. Had the companies analyzed in the case studies implemented a design strategy, it could have been easier to coordinate their design activities to render a purposive change. One company, in its strategy statement treats the word "design" merely as a signal of the new product development service offered to the customer. This particular company that

mentioned design in its strategy statement turned out to develop new international markets for its products by means of this additional service provided free of charge.

Consequently, although each of the companies studied has its own means of demonstrating its design sensitivity, such as founding highly populated design studios, participating to design contests and winning design awards and establishing long term relationships with creative agencies; none of the companies demonstrated a profound holistic approach to design.

2. Design in business is not limited to brand management and/or fast moving consumer goods (FMCG).

Marketing management literature -while dealing with design in business- mostly refers to brand management practices. Besides, brand design is particularly elaborated in the FMCG sector. So far however, there has been little discussion about design management in business to business (B2B) industries. This study has clearly demonstrated that design in business is not confined to brand management and B2C companies; design is equally important for B2B companies. Two of the companies who had an internal design studio within their premises actually operated in the B2B sector. The major reason why these companies invest in design so heavily is because they offer new product development service as a differentiator to their customers. These companies were also design award winners both at local and international platforms. On the other hand, in some cases, the same companies were prohibited by their customers to print their logo on the products.

3. In the companies studied, the lack of a holistic approach to design is seen even in large scale, highly institutionalized companies; operating both in B2B and B2C industries.

All the four companies analyzed during the case studies were among the largest 500 manufacturing companies of Turkey. The youngest company was founded in 1987, meaning that all companies are over 25 years old. All the companies have an annual turnover more than 100 Million USD and are managed by professionals. Two of the companies are multinational corporations. The other two are local large scale companies. All have the ISO 9001-2000 quality certificate, thus all the companies have high process awareness. However, when it comes to design, the process definition is limited to new product development. Although emphasizing process

definition of design is considered a primitive approach according to the latest design management literature, a comprehensive design process analysis where all related physical manifestations of design are included can serve as a beneficial starting point for companies lacking a design leader. (During the interviews, one of the managers mentioned that they were re-writing the design process and asked the author whether an exhaustive checklist existed for writing a new design process.)

4. The lack of a holistic approach to design may lead the companies studied to miss potential market opportunities.

During the case studies four anecdotes told by the managers on various products and promotions (pizza packaging, lemon squeezer, chewing gum, radio jingle) hinted for market opportunities that could be further exploited by means of adopting proactive approach rather than a reactive approach toward sensory integration of design. Thus by means of looking at corporate domains of design at a wider perspective, companies can re-design their business to reach different customer segments in a more effective manner.

5. Companies having high levels of design sensitivity (measured by Kotler Design Sensitivity Audit) may fail to demonstrate a holistic approach to design.

Before conducting the case studies, in order to choose the companies to be analyzed a screening was done by means of using Kotler's Design Sensitivity Audit (Kotler and Rath, 1984). All companies interviewed turned out to have a Kotler Sensitivity Audit score greater than 7. (According to Kotler, companies scoring greater than 7 are in good shape in terms of design management.) During the case studies however, it turned out that the same companies did not have a holistic approach to design. Therefore the hypothesis that high design sensitivity leads to a holistic approach to design was not supported in the companies studied.

Another potential explanation could be that the existing Kotler's design sensitivity audit tool is not adequate to measure company design sensitivity because existing questions are open to interpretation, highest scoring choices are obvious and managers tend to choose the highest scoring choices for face saving reasons. Therefore, -for companies scoring high in design sensitivity but not achieving a holistic approach to design- it could be that the questions of the design sensitivity audit suggested by Kotler (1984) are too complex to be understood by non-designer

managers. (Kotler uses the term “design thinking” in his audit questions. This term may be too complex to grasp even for designers.) The absence of Kotler’s Sensitivity Audit in empirical research conducted in existing literature so far, may be explained by this complexity of the audit questions.

The author of this study suggests an alternative way to measure design sensitivity of the company. Instead of asking *if design thinking goes into various domains affected by design*, more straightforwardly she suggests to ask the companies *if an in-house or external designer input is available in the design of 18 different physical manifestations of design*. Afterwards she groups the findings into four major corporate domains affected by design. The findings reveal that managers are not reluctant to choose less favorable answers this time, however there is substantial amount of information asymmetry between the managers of the same company.

Information asymmetry contemplated in various managers of the same company signals that managers are not knowledgeable about design related issues at all times and/or design communication/coordination is not done adequately. The author concludes that this is a sign of the little importance attributed to design. The conclusion is parallel to the findings contemplated in the existing literature.

6. Managers having high scores of design awareness (measured by DME Self Assessment Tool) do not necessarily have a holistic perspective on design.

During the case studies in order to measure design awareness, Design Management Europe (DME) Self Assessment Tool has been applied to the interviewees. According to the results the average awareness scores for all companies were 2 and higher. (The tool adopts a four scale design ladder approach, 4 being the highest ranking score.) In other words, all the managers turned out to be highly design sensitive. During the case studies however, it turned out that the same companies did not have a holistic approach to design. Therefore the hypothesis that high design awareness leads to a holistic approach to design was not supported in the companies studied.

7. Existing design awareness measurement tools may not be adequate to measure design awareness of top management because questions are structured in such a way that choosing lower score rendering options is almost impossible for top managers due to face saving concerns.

Another potential explanation could be that the existing design awareness assessment tool is not adequate to measure company design sensitivity because existing questions are open to interpretation, highest scoring choices are obvious and managers tend to choose the highest scoring choices for face saving reasons.

The author of this study suggests an alternative way to measure design awareness of the company. She uses the free recall method. She simply asks the managers (before revealing any multiple choice questions) *which design activities are carried out in the company they work for.* The author suggests that the initial reaction managers demonstrate and the number of corporate domains affected by design they are able to recall, are more indicative on the level of design awareness.

Findings suggest that the only manager with a higher free recall rate of corporate domains affected by design demonstrated a more holistic perspective on design during the discussion about open-ended questions. All the other managers, mentioned product as the only corporate design domain that existed within their company. Initially the author thought that the holistic perspective could be attributed to the seniority of that particular marketing manager (16 years in the same company). However when a more senior (26 years in the same company) design manager of another company was interviewed, it was seen that design awareness measures on a free recall basis rather than seniority could be more indicative for a holistic perspective on design.

Assessing design sensitivity and design awareness by means of simple and clearly understood questions which require little interpretation, turns out to render more indicative answers.

The author suggests that managers having a higher free recall score related to the corporate domains affected by design demonstrate a higher design awareness and tend to have a more holistic perspective on design.

8. Parallel to the existing literature and also to the expectations of the research, marketing seems to be the most related department to design both in B2C and B2B companies.

During Phase I, while interviewing 18 company representatives, marketing turned out to be the most relevant function in charge of design related decision making. During Phase II, the answers obtained from 23 valid surveys completed by marketing

executives revealed that excluding environment design, decision making related to all the other corporate domains (product service systems design, identity design, communication design) was led by the marketing managers. During Phase III, only one company demonstrated a different profile in terms of design related decision making: in that particular company design decision making was lead by the design department. In the remaining 3 companies design related decision making was again mostly assumed by marketing. Besides, all the marketing executives stated that at least one quarter of their total time was devoted to design related decision making (The percentages stated by marketing managers of the four companies interviewed were as follows: 25, 30, 50, 60).

All of these findings have major implications for management education curriculum. If even in companies where a design teams exist, marketing assumes 30 % of its time to design related decision making, then marketing managers should be trained in design management as well. Having an internal design team may not be necessary in all circumstances; however as it has been observed in the case study analysis, design commissioning is relevant for all companies. Therefore at least design buyers (ie. marketing managers) should have a broader perspective of design in business so that all company resources can be utilized more effectively.

9. In the cases studied, B2B companies having a high design sensitivity score tend to emphasize design because design is seen as a means of innovation and differentiating tool against competition.

Both of the B2B companies in the case study research have an in-house design department. These departments are called product development departments and they design the new products (boxes). Even the name of the department suggests that design is mainly seen as a means of adding new products to the current portfolio. Since the design service offered to the customers by these departments is free of charge, the service is a differentiating tool from low profile local competition or international competition.

The major difference between the two companies is that one of the design departments is lead by a designer while the other is led by an engineer. This in turn affects how the design department is positioned by the other functions of the

company. In the former company, the head of the design department is consulted concerning communication design related issues to some extent.

10. According to the managers interviewed, innovation is triggered both by technology and design.

Although the industries they operate in are not high tech industries (food & packaging) when asked the major triggering factor of innovation; managers have difficulty in choosing one over the other. On the other hand, all the companies analyzed more frequently start new product development as a response to customer requirements. This suggests innovation is a product of market orientation rather than basic research. This is parallel to the findings of existing literature dealing with product innovation in industrial markets, however given the low-tech situation of the industries analyzed; the emphasis put by managers on technology is rather striking.

7.4 Concluding Remarks and Further Research

The present study looked at the design awareness of non-designer executives in manufacturing industry in Turkey. In order to be able to look at design awareness of non-designer executives, the author derived a contemporary, comprehensive and multidisciplinary conceptual model for design classification from existing design management literature. The model is believed to be the main contribution to literature of this thesis.

This study also attempted to examine design sensitivity in manufacturing companies in Turkey using Kotler Design Sensitivity Audit Tool. This is the first study which attempted to examine design sensitivity in large scale manufacturing companies in Turkey in a systematic way.

Based on Svengren's (1995) model, the author proposed a new model to analyze design integration and the availability of a holistic approach to design. In order to determine whether the proposed model actually works, she conducted case studies in four large scale manufacturing companies in Turkey and found that the proposed companies having high design sensitivity scores may not necessarily have a holistic approach to design. This finding could point to the fact that the firms analysed were in fact not design sensitive. Therefore, the author questioned whether Kotler Design Sensitivity Scores could be misleading in determining the actual design sensitivity in

companies. Thus the author proposed a new methodto measure design sensitivity. Upon application of the method, Soylu Design Sensitivity Scores turned out to be lower than Kotler Design Sensitivity Scores (Wilcoxin alpha < 0,04). Since the proposed method has been tested on 23 companies, further research is needed to test its validity. The small sample size is the main limitation of the study.

This research revealed that in-house design is used as a service offered to customers free of charge rather than a tool for brand building in some manufacturing companies. To reinforce this statement, further investigation is needed in several industries.

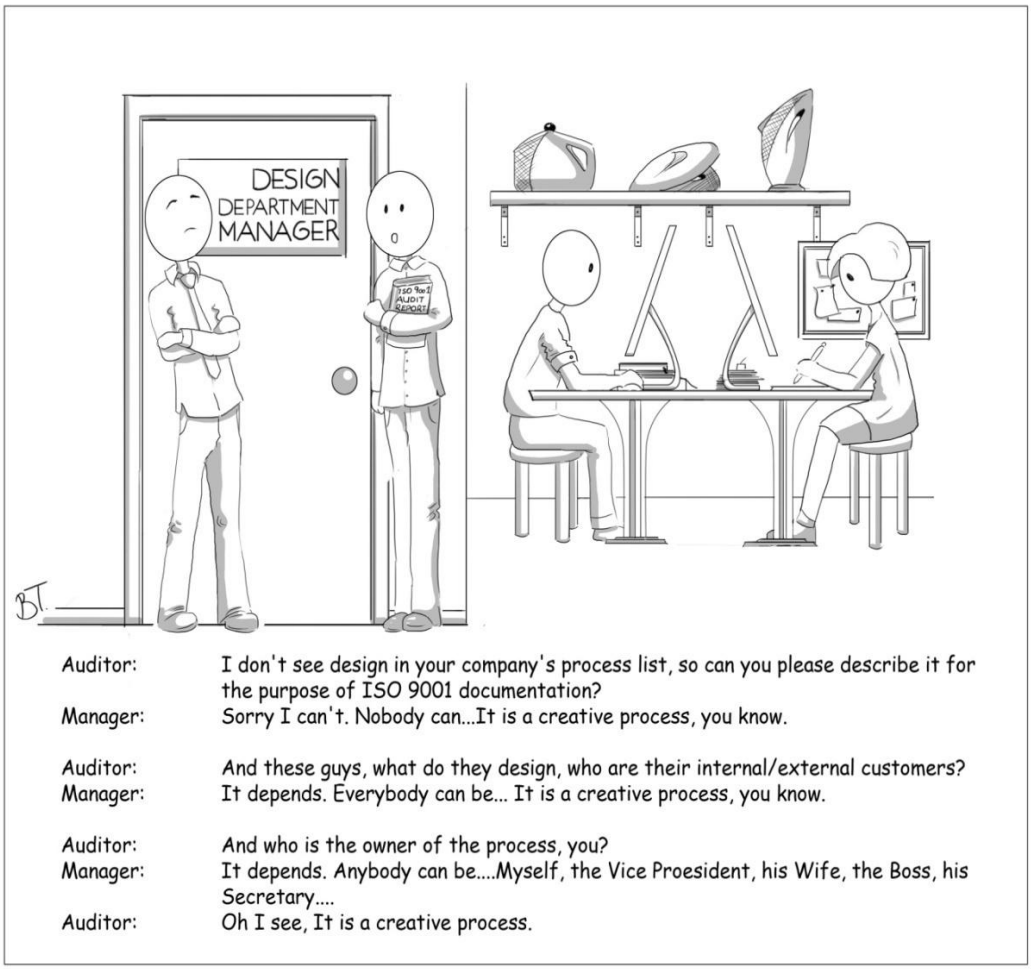
This research has an important implication for design education since it suggests that designers should be educated to appeal to all the five senses with the products/services they design.

This research has implications for designers because it reveals all the corporate domains affected by design where new business opportunites rest.

This research has a major implication for business education, particularly for programs where marketing managers are educated. Since marketing managers participate in design related decision making most frequently, design awareness of marketing managers is crucial for the effective deployment of design resources. “Participation without awareness produces ignorance and ugliness” (Sommer, 1972, p. vii). In cases where design resources are not effectively deployed, major market opportunities are lost. Therefore this study shows that management programs should emphasize more what design in business entails in order to achieve constant innovation. This conclusion parallels with previous research findings in Turkey (Korkut and Hasdoğan, 1998, p.129).

Beyond the scope of this research, a further study would be beneficial looking at the design awareness and design sensitivity in service and finance sectors. In the context of such studies, results related to design awareness and sensitivity could be compared.

Epilogue



Auditor: I don't see design in your company's process list, so can you please describe it for the purpose of ISO 9001 documentation?

Manager: Sorry I can't. Nobody can...It is a creative process, you know.

Auditor: And these guys, what do they design, who are their internal/external customers?

Manager: It depends. Everybody can be... It is a creative process, you know.

Auditor: And who is the owner of the process, you?

Manager: It depends. Anybody can be....Myself, the Vice Proesident, his Wife, the Boss, his Secretary....

Auditor: Oh I see, It is a creative process.

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APPENDICES

APPENDIX A: Phase III- Case Study Interview Notes

Company : Mondi Tire Kutsan
Date : 19.02.2014
Time : 12:40 -13:25
Place : Mondi – Ümraniye Sales Office - İSTANBUL
Interviewee : Marketing Manager
Participants : Marketing Specialist

Company : Mondi Tire Kutsan
Date : 10.03.2014
Time : 10:00 -10:40
Place : Mondi – Mondi Tire Factory- İZMİR
Interviewee : Research and Development Manager
Participants : Industrial Designer

Company : Mondi Tire Kutsan
Date : 10.03.2014
Time : 15:05 -15.20
Place : Mondi – Mondi Tire Factory- İZMİR
Interviewee : Sales Manager

Company : Perfetti Van Melle
Date : 24.02.2014
Time : 11:00 – 11:45
Place : Perfettti Van Melle Headquarters–Esenyurt-İSTANBUL
Görüşülen Kişi : Marketing Director

Company : Perfetti Van Melle
Date : 24.02.2014
Time : 12:45 – 13:30
Place : Perfettti Van Melle Factory–Esenyurt-İSTANBUL
Interviewee : Production Director

Company : Perfetti Van Melle
Date : 07.03.2014
Time : 10:00 – 10:45
Place : Perfettti Van Melle Headquarters - Esenyurt-İSTANBUL
Interviewee : Process and Technology Director

Company : Camiş Ambalaj
Date : 05.03.2014
Time : 10:45 -12:05
Place : Camiş Ambalaj- Tuzla Factory- İSTANBUL.
Interviewee : Research and Development Manager

Company : Camiş Ambalaj
Date : 05.03.2014
Time : 12:20 -12:35
Place : Camiş Ambalaj- Tuzla Factory - İSTANBUL.
Interviewee : Marketing Manager

Company : Camiş Ambalaj
Date : 05.03.2014
Time : 10:00 -13:30
Place : Camiş Ambalaj- Tuzla Factory - İSTANBUL.
Interviewee : Product Design Responsible

Company : Matlı
Date : 08.04.2014
Time : 10:00 – 11:40
Place :Matlı Yem Sanayi–Headquarters–Nilüfer-BURSA
Interviewee : Marketing Director
Participants : Brand Manager

Company : Matlı
Date : 08.04.2014
Time : 12:00 – 12:35
Place :Matlı Yem Sanayi–Headquarters–Nilüfer-BURSA
Interviewee : Research and Development Manager
Participants: : Brand Manager

Company : Matlı
Date : 08.04.2014
Time : 10:00 – 12:35
Place : Matlı Yem Sanayi–Headquarters–Nilüfer-BURSA
Interviewee : Brand Manager

APPENDIX B:Phase II – On-line Survey List of Companies

Table B.1 : Phase II – On-line survey list of companies

Company Name	Industry	ISO Rank	Turnover (TL)	Export (%)	Foreign Cap. (%)	Position Surveyed
Gap Güneydoğu Tekstil San. ve Tic. A.Ş.	Textile/Footwear	288	326.233.195	59,04	0,00	Marketing Manager
Aygaz A.Ş.	Chemicals	10	5.045.289.236	10,08	0,00	Marketing Manager
Goodyear Lastikleri T.A.Ş.	Chemicals	81	1.242.582.441	56,71	74,60	Marketing Director
Gemlik Gübre Sanayii A.Ş.	Chemicals	232	450.725.157	32,65	0,00	Marketing, Sales and Logistics Man.
Matlı Yem San. ve Tic. A.Ş.	Food	276	343.605.719	0,54	0,00	Marketing Director
Camiş Ambalaj Sanayi A.Ş.	Paper	385	199.364.157	2,30	0,00	Sales and Marketing Manager
Yakupoğlu Tekstil ve Deri San. Tic. A.Ş.	Textile/Footwear	465	171.556.075	15,20	0,00	Corp. Com. and Brand Mang
Çilek Mobilya San. ve Paz. Tic. A.Ş.	Furniture	959	98.466.439	32,69	0,00	Marketing Manager
Perfetti Van Melle Gıda San. ve Tic. A.Ş.	Food	159	465.567.833	64,98	100,00	Marketing Director
Demirer Kablo Tesisleri San. ve Tic. A.Ş.	Machinery/Automotive	246	318.622.984	96,23	12,93	Marketing Manager
BSH Ev Aletleri San. ve Tic. A.Ş.	Machinery/Automotive	17	3.460.398.784	38,43	99,28	Marketing Manager
Mondi Tire Kutsan Kağıt ve Ambalaj Sanayi A.Ş.	Paper	182	412.877.146	NA	63,40	Marketing Manager
Akın Tekstil A.Ş.	Textile/Footwear	504	163.921.644	61,82	0,00	Sales Director
Intersource Tekstil ve Konf. San. ve Tic. A.Ş.	Textile/Footwear	774	100.437.994	77,88	0,00	Sales Manager
Matesa Tekstil San. ve Tic. A.Ş.	Textile/Footwear	284	278.377.471	37,95	0,00	Sales and Marketing Manager
TUSAŞ-Türk Havacılık ve Uzay Sanayii A.Ş.	Machinery/Automotive	47	1.309.141.346	62,47	0,00	Strategic Management Mang.
Unilever San. ve Tic. T.A.Ş.	Food	18	2.981.426.160	4,24	99,98	Brand Development Manager
Bosch Termoteknik San. ve Tic. A.Ş.	Machinery/Automotive	125	568.993.475	77,09	100,00	Marketing Manager
Bossa Tic. ve San. İşletmeleri T.A.Ş.	Machinery/Automotive	240	343.740.291	52,57	0,00	Sales Manager
Arslan Alüminyum San. ve Tic. Ltd. Şti.	Steel	410	193.014.383	17,50	0,00	Sales and Marketing Manager
Coats Türkiye İplik Sanayii A.Ş.	Textile/Footwear	784	103.159.187	38,22	91,78	Marketing Manager
Nuh Çimento Sanayi A.Ş.	Cement	166	473.967.257	22,91	0,00	Assistant General Manager
Schneider Elektrik San. ve Tic. A.Ş.	Machinery/Automotive	205	592.609.157	NA	100,00	Product Manager

APPENDIX C: Letter of Introduction

30th Jan 2014

Dear Sir/ Madame,

We are getting into contact with you for the purpose of an on-going research that is being carried out at Istanbul Technical University, Department of Industrial Design. The research involves design sensitivity in ISO 500 companies. During the first phase of the research that has been carried out in 2013, Company A has been determined as one of the highest scoring companies operating in the X industry.

At the moment, the second phase of the research has just started. The second phase of the research aims to analyze in detail those highest scoring companies with respect to their design approaches. Three managers from each company are to be interviewed for this purpose.

The interviews consist of a short multiple choice test and 3 open ended discussion questions. The interviews are expected to take 30-45 minutes.

The individual results obtained from the interviews will be kept strictly confidential and they will not be shared with public for any purpose.

Your contribution to the study is extremely important, therefore could you please advise if you could spare half an hour of your time for the interview within the next two weeks?

Thank you for your time and consideration.

Yours Sincerely,

Yasemin Soylu.
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İstanbul Technical University
Department of Industrial Design
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0533 348 76 08

APPENDIX D: Survey Questionnaire (Phase I)

Section 1: Personal Information

Name and Surname……
E-mail…….
Date of Birth (year)…….

1-In which of the following fields have you completed your education?

	Design	Management/Economics	Engineering	Other
Undergraduate				
Graduate (if applicable)				
PhD (if applicable)				

2- For how long have you been working for your current company?

3- What is your title?

4- What is the name of the department you work for? (if applicable)

Section 2: Company Information

1- What is the name of the company you work for?

2- When was the company established?

3- How many employees work for the company?

4- What is the annual turnover?

a) More than 70 Mio. USD
b) Between 69-30 Mio. USD
c) Between 29-10 Mio. USD
d) Less than 10 Mio. USD.
e) No idea.

5- What is the export ratio?..... %.

Section 3: Design Practices

1) Which design activities are carried out in the industry your company operates in?

2) Which design activities are carried out in the company you work for?

3) Is there any employee with "designer title" in the company you work for?

   O Yes
   O No
   O I have no idea.

4) Is there any employee who has an undergraduate education in design in the company you work for?

   O Yes
   O No
   O I have no idea.

5) Does your company utilize external design services?

   O Yes
   O No
   O I have no idea.

Section 4: Survey Matrix

When the corporate domains listed in the table below are designed in your company, who is in charge of making the final decision? (Please check the appropriate box with X.)

	The Boss or his family	General manager /CEO	Marketing Manager	Sales/Exports Manager	Finance/Accounting Manager	IT Manager	R&D Manager	HR Manager	Logistics Manager	Design Manager	Production Manager	Communications Manager	Headquarters	I have no idea.
Product														
Service														
Packaging														
Buildings														
Interiors														
Retail points														
Production Line														
Warehouses														
Website														
Logo and signs														
Staff uniforms														
Company cars														
Stationary														
Publications														
Advertising														
Promotional material														
Exhibition / Trade Show design														
Interaction design														

APPENDIX E: Design Sensitivity Questionnaire (Phase II)

1. Which design activities are carried out in the company you work for?
Please indicate.

2. Is there any employee with "designer title" in the company you work for?
O Yes
O No
O I have no idea.

3. Is there any employee who has an undergraduate education in design in the company you work for?
O Yes
O No
O I have no idea.

4. Does your company utilize external design services ?
O Yes
O No
O I have no idea.

5. What role does the company assign to design in the marketing decision process?
O Design is almost completely neglected as a marketing tool.
O Design is viewed and used as a minor tactical tool.
O Design is used as a major strategic tool in the marketing mix.

6. To what extent design thinking is utilized in product development work?
O Little or no design thinking goes into product development work.
O Occasionally good design thinking goes into product development work.
O Consistently good design thinking goes into product development work.

7. To what extent design thinking is utilized in environmental design work?
O Little or no design thinking goes into environmental design work.
O Occasionally good design thinking goes into environmental design work.
O Consistently good design thinking goes into environmental design work.

8. To what extent design thinking is utilized in information design work?
O Little or no design thinking goes into information design work.
O Occasionally good design thinking goes into information design work.
O Consistently good design thinking goes into information design work.

9. To what extent design thinking is utilized in corporate identity design work?
O Little or no design thinking goes into corporate identity design work.
O Occasionally good design thinking goes into corporate identity design work.
O Consistently good design thinking goes into corporate identity design work.

10. When the corporate domains listed in the table below are designed in your company, does an in-house designer or an external designer input exist?

	Never	Sometimes	Always	We don't have such a corporate domain.	I have no idea.
Product					
Service					
Packaging					
Buildings					
Interiors					
Retail points					
Production Line					
Warehouses					
Website					
Logo and signs					
Staff uniforms					
Company cars					
Stationary					
Publications					
Advertising					
Promotional material					
Exhibition / Trade Show design					
Interaction design					

11. When the corporate domains listed in the table below are designed in your company, who is in charge of making the final decision? (Please check the appropriate box with X.)

	The Boss or his famiily	General manager /CEO	Marketing Manager	Sales/Exports Manager	Finance/Accounting Manager	IT Manager	R&D Manager	HR Manager	Logistics Manager	Design Manager	Production Manager	Communications Manager	Headquarters	I Have no idea.
Product														
Service														
Packaging														
Buildings														
Interiors														
Retail points														
Production Line														
Warehouses														
Website														
Logo and signs														
Staff uniforms														
Company cars														
Stationary														
Publications														
Advertising														
Promotional material														
Exhibition / Trade Show design														
Interaction design														

12. Does interdepartmental coordination exist while the corporate domains listed in question 11 are designed?
O Yes, coordination exists by all means.
O Partial coordination exists.
O No, there is no coordination.
O I have no idea.

13. How is interdepartmental coordination achieved while the corporate domains listed in question 11 are designed?
O There is no coordination.
O Coordination is achieved by informal meetings.
O Coordination is achieved by periodic formal meetings.
O Coordinaton is achieved by official announcements.
O Diğer.

14. What % of your time is dedicated to the design activities mentioned in question 11?
(Please indicate as a % of your total work time.)
% ……..

15. After having responded to this questionnaire has any change occurred in your design awareness related to corporate domains affected by design?
O No change has occurred.
O Partial change has occurred.
O Significant change has occurred.

16. In which of the following areas have you completed your undergraduate education?

	Design	Management/Economics	Engineering	Other
Undergraduate				
Graduate				
PhD				

17. Please indicate the name of the university and department you have graduated from. (If you have a post graduate degree please also indicate the name of the school.)

18. What is your title in the company?

……

19. Please indicate the name of your company.

……

20. Please indicate your date of birth.

……

APPENDIX F: Design Awareness Questionnaire (Phase III)

Question 1

Over the last 3 years, to what extent would you say that design has contributed to the following within your company? Please check appropriate boxes with (X).

	To a limited extent	To some extent	To a great extent
Improved company/brand image			
Improved communication – external and internal			
Improved customer experience			
Improved product ease of use			
Improved employee motivation			
Enhanced corporate culture			
Enhanced efficiency / productivity			
Increased employment			
Improved sustainability (reduced environmental impact)			
Enhanced competitiveness			
Development of new or improved products / services			
Aided development of new markets			
Enhanced exports			
Increased turnover (greater sales)			
Increased market share			
Increased profits			

Question 2

To what extent do you personally believe the following statements to be true? Please rate all the following statements.

	Not at all	To a limited extent	To some extent	To a great extent
Design is an innovating activity leading to implementation of innovations or focused to this.				
Designers can apply new components, material or production methods in existing products and translate technological concepts to the market.				
Designers can help to get an innovation valued in the market.				
Innovation through design can help a company to avoid competing on price only.				
By integrating design in the operations the innovation potential of the company can be utilized better .				

Question 3

To what extent are people in the company aware of the benefits of managing design effectively? Please choose the option that best describes the current situation.

a) **People are not aware;** little or no attention is given to the use or management of design.
b) **Some are aware of the benefits;** directly involved people.
c) **Most are aware** because design management is formally performed and the design process is integrated in other business processes.
d) **All are aware that it is fundamentally important to our success;** the management of design is embedded in our company; design is part of our DNA.
e) Other/don't know.

Question 4

How is design coordination achieved in your company?

……
……

……
……..

Within the frame of all what you have said up to now, please choose the option that best describes the level of design coordination over the last 3 years in your company.

a) No need to coordinate design activities.
b) Limited coordination within boundaries of departments or functions
c) Coordination of total design process in the company, including design outputs.
d) Continuous coordination at a high level to achieve design management excellence.

Question 5

How important is that your company's products and services appeal to the 5 senses?

……
……..
……
……

Question 6

How is design related to your company's strategy?

……
…….
……
…….

APPENDIX G: Kotler Design Audits

How a Corporation's Design Sensitivity and Design Management Effectiveness Can Be Measured

Companies need to review periodically the role that design plays in their marketing program. At any point in time, company management will have a certain degree of design sensitivity. A design sensitivity audit (Exhibit 1) consists of five questions that will indicate the role design plays in the company's marketing decisionmaking. A design management audit (Exhibit 2) asks five more questions that rank how well management uses design. Each question is scored 0, 1, or 2. A corporation's design sensitivity will range from 0 to 10, and its design management will also range from 0 to 10. Companies with a combined design sensitivity and design management effectiveness rating of anywhere from 14 to 20 are in fairly good shape. Those scoring less than 8 should examine whether they are missing a major opportunity by not making more use of design thinking in their marketing strategy.

EXHIBIT 1
Design Sensitivity Audit

1. What role does the company assign to design in the marketing decision process?
   (0) Design is almost completely neglected as a marketing tool.
   (1) Design is viewed and used as a minor tactical tool.
   (2) Design is used as a major strategic tool in the marketing mix.
2. To what extent is design thinking utilized in product development work?
   (0) Little or no design thinking goes into product development work.
   (1) Occasionally good design thinking goes into product development work.
   (2) Consistently good design thinking goes into product development work.
3. To what extent is design thinking utilized in environmental design work?
   (0) Little or no design thinking goes into environmental design work.
   (1) Occasionally good design thinking goes into environmental design work.
   (2) Consistently good design thinking goes into environmental design work.
4. To what extent is design thinking utilized in information design work?
   (0) Little or no design thinking goes into information design work.
   (1) Occasionally good design thinking goes into information design work.
   (2) Consistently good design thinking goes into information design work.
5. To what extent is design thinking utilized in corporate identity design work?
   (0) Little or no design thinking goes into corporate identity design work.
   (1) Occasionally good design thinking goes into corporate identity design work.
   (2) Consistently good design thinking goes into corporate design work.

EXHIBIT 2
Design Management Effectiveness Audit

1. What orientation does the design staff follow?
   (0) The design staff aims for high aesthetic ideals without any surveying of the needs and wants of the marketplace.
   (1) The design staff designs what marketing or consumers ask for with little or no modification.
   (2) The design staff aims for design solutions that start with an awareness of consumer needs and preferences and adds a creative touch.
2. Does the design staff have an adequate budget to carry out design analysis, planning, and implementation?
   (0) The budget is insufficient even for production materials.
   (1) The budget is adequate but typically cut back during hard times.
   (2) The design staff is well budgeted, especially on new product development projects.
3. Do managers encourage creative experimentation and design?
   (0) Creative experimentation and design are discouraged.
   (1) Designers are occasionally allowed creative freedom, but more typically they have to design within tight specifications.
   (2) Designers have creative freedom within the limits of the project parameters.
4. Do designers have a close working relationship with people in marketing, sales, engineering, and research?
   (0) No.
   (1) Somewhat.
   (2) Yes.
5. Are designers held accountable for their work through post-evaluation measurement and feedback?
   (0) No.
   (1) Designers are accountable for cost overruns in the production process.
   (2) Design work is evaluated and full feedback is given to the designers.

APPENDIX H: Field Procedures

Presentation of the Credentials:

1. Interview request mails will be provided in the Appendix.
2. Interviews will be recorded and decoded in the Appendix.
3. Survey results will be provided in the findings chapter.
4. Company visit photographs will be available in the case study chapter.

Access to the Case Study Sites

A permission will be obtained before visiting the company.

Protection of Human Subjects

The letter of introduction addresses the issue of confidentiality.

Sources of Data

1-) Interview notes (obtained from 3 managers involved in design decision making from each company).
2-) Survey results (obtained from 3 managers involved in design decision making from each company).
3-) Company website.
4-) Existing literature (case study on same company).
5-) Sample photos related to products, communications, environments and identity.
6-) Photographs taken during the company visit.

APPENDIX I: Interview Request Mail

29 Ocak 2014

Sayın …….,

İstanbul Teknik Üniversitesi Endüstri Ürünleri Tasarımı Bölümünde yürütülen bilimsel bir çalışma kapsamında sizinle iletişime geçiyoruz.

Çalışmamız ISO 500 listesinde yer alan şirketlerde tasarım hassasiyetinin ölçümü ile ilgilidir. 2013 yılında gerçekleşen çalışmanın ilk evresinde, Mondi Tire Kutsan ambalaj sektöründe anketlerde en yüksek skoru kaydeden firmalardan biri olmuştur. Öncelikle çalışmanın ilk evresine verdiğiniz destekten dolayı şahsınıza ve firmanıza çok teşekkür ederiz.

Çalışmanın ikinci evresi Şubat 2014 itibariyle başlayacaktır. Bu aşamada, ilk evrede en yüksek skorları alan firmalar tasarım yaklaşımları açısından daha detaylı ele alınacaktır. Bu sebeple sözkonusu firmaların yöneticileriyle yüzyüze görüşmeler yapılması öngörülmektedir.

Görüşmelerde kısa bir çoktan seçmeli anketin ardından 3 tane açık uçlu soru sorulacaktır. Görüşmenin yaklaşık bir saat sürmesi öngörülmektedir.

Sözkonusu çalışmanın ikinci evresine katılımınız büyük önem taşımaktadır. Bu sebeple önümüdeki hafta içersinde uygun olduğunuz bir gün

(mümkünse 4 Şubat Salı hariç) sizinle görüşmek arzusundayım.

Uygunluğunuz konusunda sizden geri dönüş bekliyorum.

Zaman ayıracağınız için şimdiden çok teşekkür ederim.

Saygılarımla,

Yasemin Soylu.
Doktora Öğrencisi
Endüstri Ürünleri Tasarımı Bölümü
İstanbul Teknik Üniversitesi
0533 348 76 08
yaseminkoray@gmail.com

APPENDIX J: Background Statement

Design Awareness in Turkish Manufacturing Industry

Today companies strive to innovate constantly to distinguish themselves from competition. Innovation is driven either by technology or design. For design driven innovation, top management attitude toward design and strategic deployment of design become crucial. On the other hand, design awareness is a prerequisite for using design as a strategic tool. Due to the lack of design-awareness, sometimes design activity is carried out by non-designers and in some cases, it goes even unnoticed that a design decision is being made. This situation is called *silent design*. Recent studies outside of Turkey reveal that there is still a substantial amount of silent design going on in the corporate world. Silent design is an indicator of the lack of perceived importance given to design. However, existing literature suggests that no such study has been achieved in Turkey so far.

This first study on design awareness in Turkey is organized in 3 Phases:

Initially this research analyzes what design in business entails. After elaborating on various descriptions and definitions of design and particularly design in business in existing literature; a contemporary scope for design in business is determined. Physical manifestations of design are classified taking into account both off-line and on-line applications. A new conceptual model, called "Corporate Domains Affected by Design Germination" is developed. Using the model, a design audit tool has been developed. The conceptual model is developed and fine tuned, by means of testing it in 18 different companies in 2009 (Phase 1).

Secondly, using the conceptual model an audit tool has been derived in Phase 2. The audit tool has been applied in a survey that has been carried out in ISO 500 companies, in 2013. The aim was to reveal design sensitivity by means of looking at the existence and the amount of silent design within the corporate structure in a contemporary, concrete and objective manner. (Phase 2)

Thirdly, those companies having a design sensitivity score higher than the average will be further analyzed to determine if and under which circumstances a sensory and conceptual integration of design exists. For this purpose a series of embedded multiple case studies are planned. (Phase 3)

The overall aim of the study is to reveal under which circumstances a holistic approach to design exists.

APPENDIX K: Araştırmanın Özeti

(Bu araştırma özeti firmalardan randevu talep edilirken konu hakkında detaylı bilgi vermek amacıyla firmalara mail ortamında gönderilmiştir.)

Araştırmanın Konusu: Türkiye'de İmalat Sanayinde Tasarım Farkındalığı

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Araştırmanın Kapsamı

Günümüzde firmalar rekabette ayırt edici bir üstünlük kazanmak adına sürekli yenilik (inovasyon) yapmaktadır. İnovasyon teknoloji ya da tasarım sayesinde gerçekleşmektedir. Tasarım tahrikli inovasyonun söz konusu olduğu durumlarda, üst yönetimin tasarıma ve tasarımın stratejik kullanımına dair yaklaşımı büyük önem arz eder. Öte yandan, tasarım farkındalığı tasarımı stratejik olarak kullanmak için bir önkoşul niteliğini taşır. Tasarım farkındalığının olmadığı durumlarda bazen tasarım etkinliği tasarımcı olmayan kişiler tarafından yürütülür, hatta bazı durumlarda söz konusu etkinliğin tasarım kararları içerdiği dahi fark edilmez. Bu durum literatürde "sessiz tasarım" (silent design) olarak adlandırılır. Türkiye dışında yapılan çalışmalarda imalat ve servis sektörlerinde kaydadeğer ölçüde sessiz tasarım saptanmıştır. Sessiz tasarım, firma içinde tasarıma verilen önemin az olduğunun da bir göstergesidir.

Türkiye'de imalat sanayinde büyük ölçekli işletmelerde sessiz tasarımı irdeleyen bu ilk çalışma üç fazdan meydana gelmektedir.

İlk fazda tasarımın iş dünyasında hangi alanlara dokunduğu irdelenmektedir. Mevcut literatürdeki kurumsal tasarım alanlarının sınıflandırılması detaylı bir biçimde incelenmiştir. İnceleme sonucunda hem off-line hem de on-line kurumsal tasarım alanlarının neler olabileceğine dair "Tasarımın Filizlendiği Kurumsal Alanlar" başlıklı kavramsal bir model geliştirilmiştir. Modelin ince ayarları 2009 yılında 18 firma üzerinde gerçekleştirilen anket ve görüşmeler neticesinde yapılmıştır (Faz 1).

Kavramsal model baz alınarak bir de tasarım denetim aracı türetilmiştir. Geliştirilen tasarım denetim aracı, 2013 yılında İstanbul Sanayi Odası tarafından yayınlanan ilk 500 ve ikinci 500 firmalarına yapılan anketlerde uygulanmıştır. Amaç tasarım hassasiyetini güncel, somut ve öznel biçimde ölçümlemektir (Faz 2).

Üçüncü fazda, tasarım hassasiyeti ortalamanın üzerinde çıkan firmalarda tasarıma bütünleşik bir yaklaşım olup olmadığı irdelemektir. Bu sebeple 3 Şubat-31 Mart 2014 tarihleri arasında bir dizi vaka çalışması yapılması öngörülmektedir.

Araştırmanın Amacı: Tüm çalışmanın esas amacı hangi şartlarda bütünleşik tasarım yaklaşımının var olduğunu açığa çıkartmaktadır.

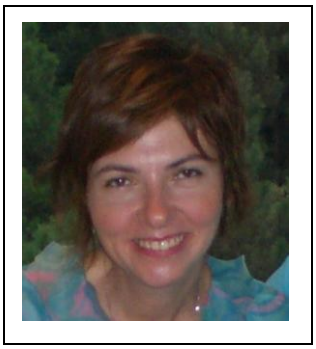
Gizlilik Şartları: Şirketinize ilişkin çalışma sonuçları gizli bilgi olarak kabul edilmektedir. Örnekleme kapsamında, şirketinize ilişkin öğrenme çıktıları şirketinize ait kimlik bilgileri belirtilmeden anonim olarak sunulacaktır. Bireysel görüşme kayıtları ve metinleri gizli bilgi olarak kabul edilmekte olup araştırmacı tarafından ifşa edilmeyecektir. Ayrıca, görüşmeciler, görüşme sorularının bir ya da birden fazlasını yanıtlamama hakkına sahiptirler.

Görüşmeler sırasında ses kaydı yapılacaktır. Görüşme sonuçlarının değerlendirilmesinden önce kayıtların deşifrajı yapılacak ve metinler görüşülen kişilere gönderilecektir. Görüşmeye katılanların istedikleri takdirde metinler üzerinde gerekli revizyonları gerçekleştirmesi mümkün olacaktır.

Sonuçların Yayınlanması: Çalışmada, şirketinizden doğrudan ve/veya dolaylı olarak edinilen bilgilerin şirket adının verilerek kullanılması sadece şirketinizin ilgili yayına atıfta bulunan yazılı izni ile mümkün olacaktır. Bu durum tüm bilimsel kongre, konferans bildirileri ve bilimsel dergi makaleleri için geçerlidir. Analiz sonucunda sentezlenen bilgiler, araştırmacının (doktora tezi hariç) hiçbir koşul altında katılımcı şirketlerin ve/veya bireylerin kimlikleri ifşa edilmeyecektir. Tüm yayınlar bilgilerin anonimleştirilmesi suretiyle gerçekleştirilecektir.

Daha fazla bilgi talep etmeniz durumunda araştırmacı ile yukarıda belirtilmiş olan bağlantı adreslerinden iletişime geçebilirsiniz.

CURRICULUM VITAE



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EDUCATION:

- **Undergraduate :**1996, Istanbul Technical University, Mechanical Faculty, Textile Eng.
- **Graduate :**1998, Koç University, Graduate School of Business, MBA.

PROFESSIONAL EXPERIENCE AND REWARDS:

- She worked in marketing and new product development at international and multi-national companies for more than ten years.
- In 2012, she participated to the ISTKA-İTÜ project "Design For SMEs" as the academic reporting consultant.
- In 2013, she acted as the founding director of Design Foundation Istanbul.
- Her main concentration is design management, new product development and experiential marketing.

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