

LIVING IN A MOTION

User-Centered Concepting in Public Spaces
of the Cruise Ship Concept

ABSTRACT

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Abstract

This Master of Arts Thesis work, concentrating on a cruise ship concept, is completed as a part of the FIMECC innovations & Network research program and the Cruise Ship Experience Center project. Shipyard STX Europe and ship-owner Royal Caribbean International has given an industrial expert view to this research work. This research is one part of an entity of two other Theses projects, that all focus on the STX Europe's novel cruise ship concept -xp Tray. This work concentrates on the rearranged cruise ship architecture from consumer's point of view along with the user centred concepting. The other two researches focus on this concept from the technical and the economical point of view. The aim of the research is to improve the utilization of the public spaces and to develop the passenger experience within the public spaces of the cruise ship concept.

This Thesis work is composed of three parts, which are; theory, consumer research and concepting. Because the Thesis work is an industrial design project description, based on the user centered concepting; therefore the theory part is the smallest of the three parts and the emphasis is on the consumer research, on its analyses and concepting. The research data consists of the focused interviews analyzed with the material oriented means and of the personal observation. The consumer research was realized in August and September in 2009 with eight focused interviews on the cruise and for comparison to the cruise vacation, in two land based resorts.

It could be found from the interviewees that the essential contents of the pleasant environment include: water, vegetation, variable environment, people, music and lighting. For the positive spatial experiences interviewees selected: freedom of choice and distinctive nature. The interviewee's data also shows, that the multi-use spaces were thought to be unlimited and to have movable elements.

The concept idea development was based on the essential contents of the consumer research and these were reflected to the theories of the environmental psychology and to the visual inspirations gathered from the observation. The spaces, that the concepting was concentrated on, were determined by the results of the economical Thesis work. The viability of the solutions within the concepts was analyzed with the technical Thesis work. The concept was also evaluated with the possible, future consumers.

The outcome is a multi-use, verdant and transparent layout concept for the public spaces in xp Tray -concept. The central park, within the layout, is the functional center of the activity and it connects the public spaces of the concept together. The park is described in more detailed features in a case study. Other case studies are; multi-use service modules that are broadly convertible and the multi-use pool area that is one of the most popular spaces of the cruise ships.

<i>Materials</i> Literary report	
<i>Keywords</i> Cruise ship, user centered concepting, space experience, multi-use space, concept design, consumer research, focused interview and environmental psychology.	
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Tiivistelmä

Tämä risteilyalukseen keskittyvä taiteen maisterin opinnäytetyö on tehty osana FIMECC innovations & Network -tutkimusohjelmaa ja Cruise Ship Experience Center -tutkimushanketta. STX Europe -telakka ja Royal Caribbean International -varustamo toimivat opinnäytetyössä asiantuntijoina laivateollisuuden puolelta. Tämä opinnäytetyö on osa kolmen lopputyön kokonaisuutta, joista jokainen keskittyy samaan STX Europen kehittämään xp Tray-risteilijäkonseptiin. Tässä tutkielmassa käsitellään uudentyypistä risteilijä arkkitehtuuria matkustajan ja käyttäjäkeskeisen konseptoinnin näkökulmasta. Kaksi muuta opinnäytettä tutkivat konseptia teknillisestä ja taloudellisesta näkökulmasta. Tämän tutkielman tavoitteena on kehittää konseptin yleisten tilojen hyötykäyttöä ja matkustajakokemusta.

Tutkielma koostuu kolmesta pääosasta: teoria, käyttäjätutkimus ja konseptointi. Koska työ on käyttäjäkeskeisen konseptoinnin ympärille rakentunut teollisen muotoilun projektikuvaus, teoriaosuus on alueista pienin ja työn pääpaino on itse konseptoinnissa ja käyttäjätiedon hankinnassa sekä analysoinnissa. Tutkimusaineisto koostuu sisällönanalyysin keinoin analysoiduista teemahaastattelusta ja henkilökohtaisesta havainnoinnista. Käyttäjätutkimus toteutettiin kahdeksana teemahaastatteluna risteilyllä sekä kahdessa vertailukohtana toimivassa lomakohteessa elo-syyskuussa vuonna 2009.

Keskeinen tutkimustulos haastattelujen pohjalta oli, että miellyttävä ympäristö sisältää: vettä, kasvillisuutta, vaihtelevuutta, ihmisiä, musiikkia ja valoa. Positiivisen tilakokemuksen arvioitiin syntyvän valinnan vapaudesta ja ympäristön erikoislaatuudesta. Tutkimustuloksien mukaan haastateltavat kokevat monikäyttöisen tilan rajoittamattomaksi ja liikuteltavia elementtejä sisältäväksi.

Konsepti-ideoiden kehittäminen perustui käyttäjätutkimuksen tuloksiin, joita verrattiin ympäristöpsykologian teorioihin ja havainnoinnin pohjalta saatuihin visuaalisiin vaikutteisiin. Tilat, joihin konseptoinnissa keskityttiin, määrittyivät kauppatieteiden pro gradu -tutkielman tuloksista. Konseptin toteuttamismahdollisuus arvioitiin yhdessä teknillisten tieteiden diplomityön kanssa. Konsepti arvioitettiin myös mahdollisilla käyttäjillä.

Lopputuloksena on xp Tray -konseptiin pohjautuva monikäyttöinen, vihreä ja avoin tilajärjestely, jossa keskuspuisto toimii tilajärjestelyn toiminnallisena keskipisteenä, joka yhdistää konseptin yleiset tilat toisiinsa. Keskuspuisto on käsitelty tarkemmin malliesimerkinä. Muita malliesimerkkejä ovat monikäyttöinen allasosasto, joka on yksi risteilijän suosituimmista tiloista sekä monikäyttöiset palvelutilat jotka ovat laajasti muunneltavissa.

Aineisto

Kirjallinen raportti

Asiasanat

Risteilyalus, käyttäjäkeskeinen konseptointi, tilakokemus, monikäyttötila, konseptimuotoilu, käyttäjätutkimus, teemahaastattelu ja ympäristöpsykologia.

Säilytyspaikka

Aalto-yliopiston kirjasto, Arabia ja Otaniemi

Salassapitoaika päättyy

PREFACE

I have done this thesis while working as a research assistant in Helsinki University of Technology within The Department of Applied Mechanics. My Master of Arts thesis was completed as a cluster of three theses as a part of the FIMECC innovations & Network research program in the “Cruise Ship Experience Center” task. Objective of the three theses were STX Europe’s novel cruise ship concept xp Tray. This thesis considers concepts from industrial design point of view and is performed for University of Art and Design Helsinki; the other two theses are performed for Helsinki University of Technology and Helsinki School of Economics.

The assignment offered me a great opportunity to familiarize myself with the world famous Finnish marine industry, which creates master pieces of cruise vessels that requires countless investments of different field of expertise. The journey during this thesis has taught me how to utilize information gathered from consumers for design purposes. I was lucky to realize the existence of extensive consumer research in Copenhagen, Naantali Spa and in the cruise between Stockholm-Visby-Oslo–Copenhagen. Working in a group where qualifying professionals are wrestling with the same topic has showed me what, at its best, can be done in the upcoming Aalto University when students from different fields are inspiring and supporting each other’s work.

My greatest gratitude goes to my friend Outi Nurmela who tipped me off about the designer position in this project. From Helsinki University of Technology of The Department of Applied Mechanics I’d like to thank representatives: Pentti Kujala and Jani Romanoff for offering me the interesting project and supportive attitude towards artistic working. From STX Europe I would like to thank preventatives: Sauli Eloranta, Jani Similä and Kari Sillanpää and all the others involved for great interest and support towards the project. From giving my thesis its skeleton I would like to thank all my interviewees who sacrificed their time and guided my observation into places that otherwise couldn’t be founded. About encouragement and feedback I would like to especially thank my colleagues Pekka Lampinen and Martin Bergström and all the other workmates that I had a chance to work with in TKK. From patient guidance I’d like to thank my tutor Raimo Nikkanen from TaiK. In addition I’d like to thank my friend Matt Maulder for giving me translator aid and proofreading the text.

In Helsinki 30.12.2009

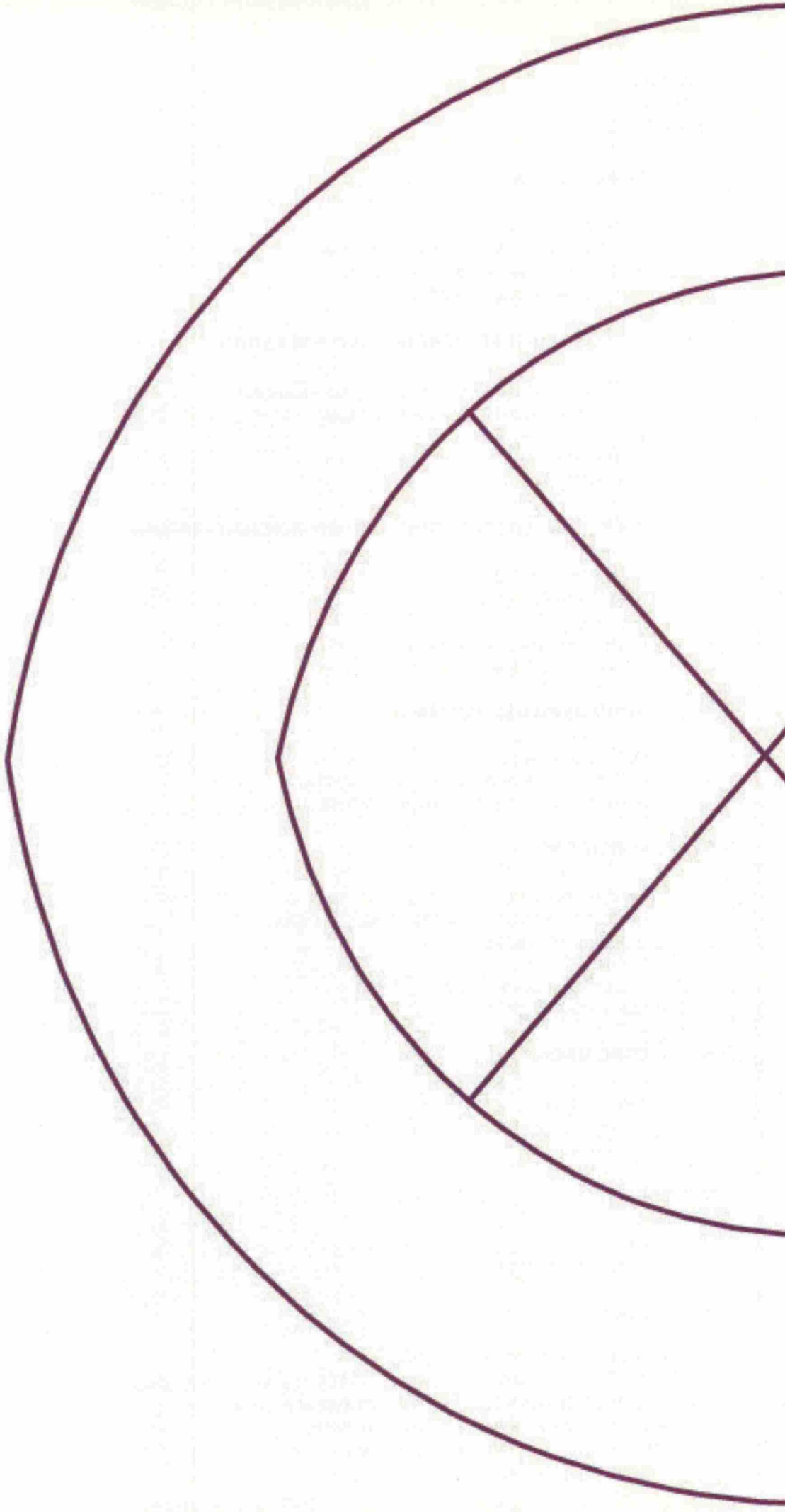
Markus Ahola



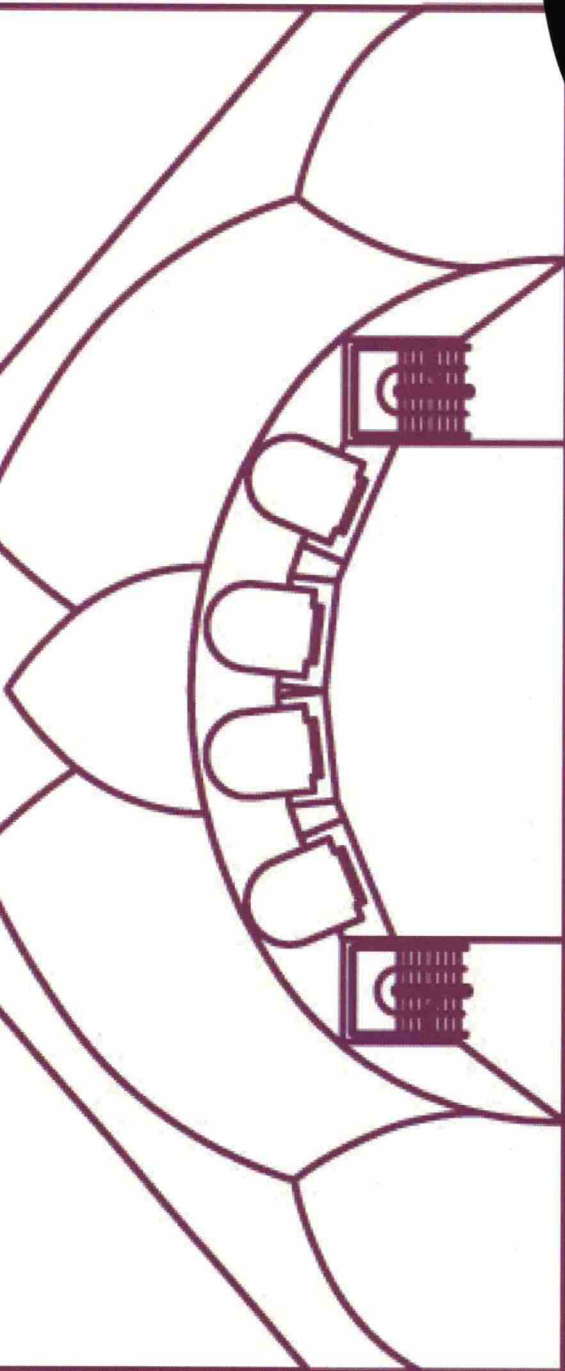
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1. INTRODUCTION



01



EL PIPE

The topic for this thesis comes from FIMECC's innovations & network research program in the Cruise Ship Experience Center –task where it is developing shipyard STX Europe's novel cruise ship concept –xp Tray (experience tray). This research is a part of the cooperation cluster between universities and cruise industry. Students from the University of Art and Design Helsinki, Helsinki School of Economics and Technical University of Helsinki are each doing their master's theses from the same baseline topic but each from their educational point of views. Shipyard STX Europe and ship owner Royal Caribbean International are playing professional adviser role in this cooperation. This thesis is executed for University of Art and Design Helsinki and its aim is to explore possibilities to utilize cruise ships public spaces and develop holistic passenger experiences from industrial design and customer point of views.

1.1 OBJECTIVE OF THE RESEARCH

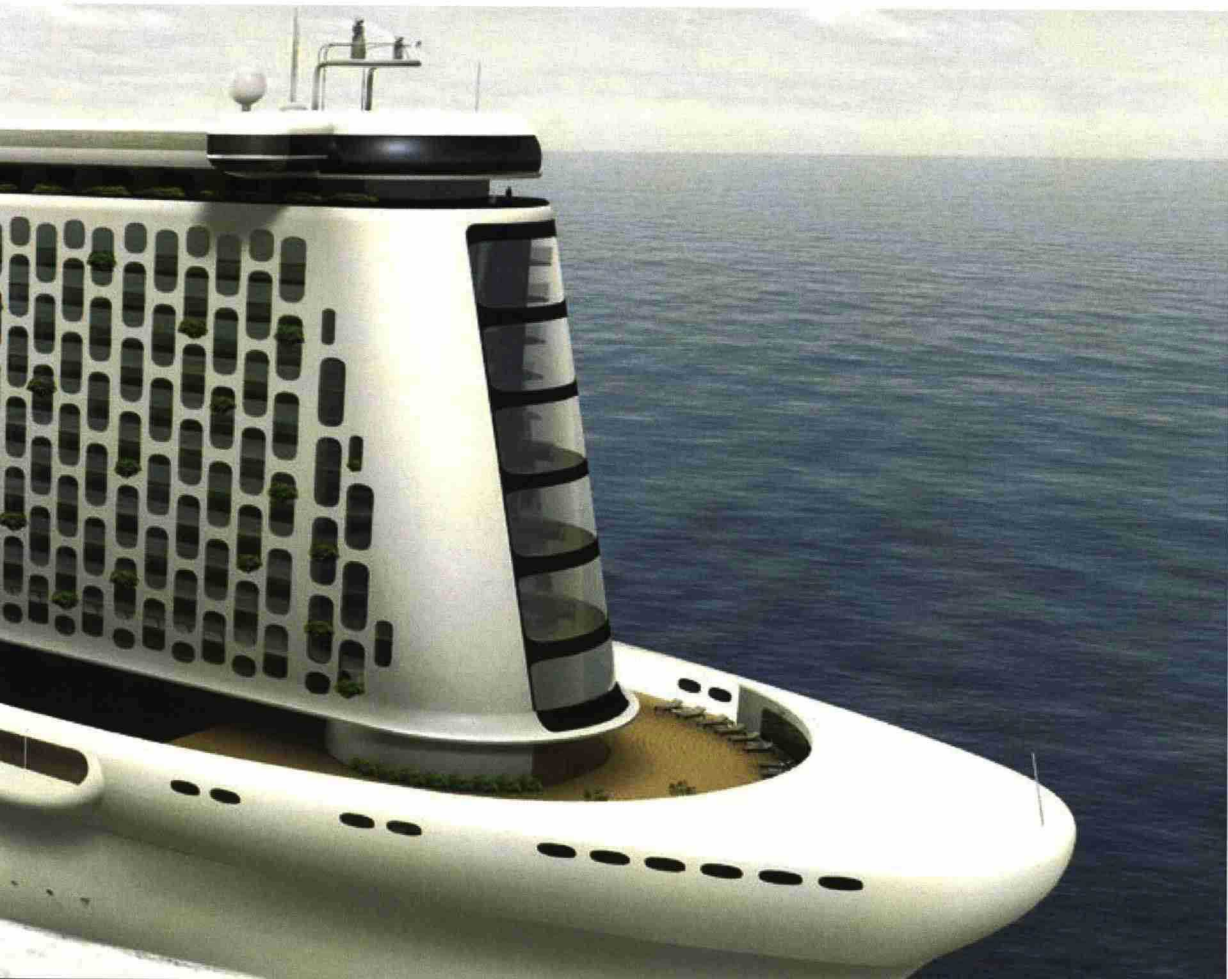
Motivation for the research comes from the statistics where windowed cabins are more profitable than ones without, and from today's dominating phenomenon "economy of scale" where the growth of the ships scale is improving profitability. From the passengers point of view this means that, as a resort destination, cruise ships has diversified according to activity and service supply increase. Besides the increased size of the ships, the number of windowed cabins has grown considering cabins without windows (Keinonen & Jääskö 2003, 16). The expanded size of cruise ships is mainly a result from the increased number of passengers, which increases amenity, variety, number of personnel and size of the service spaces (Ward 2009, 38). Increased size of a cruise ship expands consumption and reduces cruising routes, because the canals, bridges and harbors (Ward 2009, 7-10).

The baseline for the research was to research layout and functionality of reorganized public spaces within the novel cruise ship concept. In new xp Tray -concept all the cabins are windowed and located into superstructure above of the hull that contains the public spaces and galleys. This construction and general arrangement creates the possibilities to develop a novel concept to in a more compact direction and therefore opens possibilities for more cruising routes and helps controlling environmental efficiency. Basically, how public spaces could be rationalized to increase its utilization, make ships more compact, and to decrease necessary people flow, without the sacrificing of the wide service supply. The focus of the research is to develop the public spaces of the novel cruise ship concept from consumer's point of view for more holistic passenger experiences.



In this research outcomes are reached with user centered concepting. In user centered concepting the philosophy designer tries to foresee how consumers are likely to use the interface while the consumer's needs and desires are emphasized in every phase during design process (Beyer & Holtzblatt 1998, 3-5). Research is positioned between industrial design and architecture. Regardless it is mainly industrial design because the interface between consumer and product (cruise ship) are investigated and consumer's needs are identified. Functionality of ship's public spaces is developed to create pleasant holistic experiences and applications for ships space utilization problems are presented. Also being as aesthetically attractive and as functional as possible the space can achieve the aim of improving the quality of cruise vocation by creating pleasant and relaxing experiences. From the architectural point of view individual spaces of the cruise ships can be thought of as a system that is integrated to the surrounding context (cruise ship). The spaces have to fit and be part of the same functional and visual environment experience (Aura 1997, 152-154).

My previous knowledge about cruise ships and cruises is mainly based on cruises done in Baltic Sea and my experience of sailing or being at the sea has come from rowing and a few motor boat trips. I have a great enthusiasm towards transportation design, and architecture and interior design which has been inspiring to me as well as consumer experiences with certain products and their functionality. Previously I have worked in projects related to interior design and in school projects related to boats, accommodation and truck cabin interiors. Personal motivation to this research comes from the desire to research interface between product, consumer, and use environment.



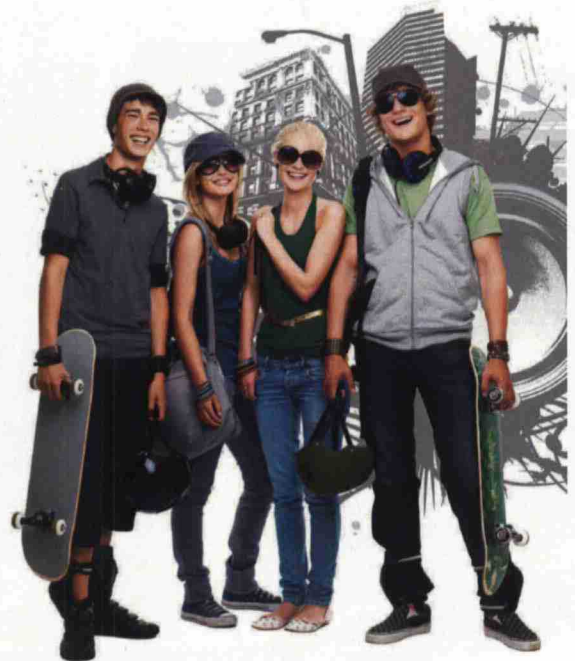
1.2 RESEARCH BACKGROUND AND QUESTIONS

There are many reasons for downsizing cruise ships. Firstly, according to utilization rate measurements done during observation cruises, many spaces are left for the majority of the day unused (see attachment 1). Secondly, there is a growing demand for smaller cruise ships in the cruise business. According to Ward (2009, 39) ships are becoming increasingly environmentally friendly in the near future. Better sustainability guides cruise vessel evolution to more compact direction (Grammerstorf, 2009). Evolution for more compact ships means that spaces of the ship need to be rationalized, which leads to multitasking in spaces (Kopeck 2006, 125-127).

Markets in the cruising business are changing, which means traditional cruising experiences and sailing at the sea is growing (Ward 2009, 8). In the markets there is growing demand for so-called adventure cruises that can take passengers to new cruising routes that requires smaller ships. Smaller ships can visit smaller ports, travel through canals and therefore reach new cruising routes. New routes include eco-sensitive areas such as Alaska and the South Pacific where good sustainability is a necessity (Ward, 2009, 39). Ward (2009, 23) gives justification to developing the ships service supply more overlying; purpose of the cruise ships is in the pressure for change; large resort ships travel by night and are in port during the day, but provide little connection to nature and the sea, the ship being the destination, the idea is to keep people inside the ship, spending money. According to Ward also the connection between surrounding sea and destination should be considered.

In addition smaller ships can offer more exclusive service and visit the less crowded ports (Ward 2009, 39). According to Grammerstorf (2009) over 80% of small and mid-sized vessels need to be replaced or fully reconstructed in the near future, because the new safety regulations. This research is concentrating on a concept that is classified to Large resort Ships because the passenger capacity (Ward 2009, 174) and above mentioned reasoning gives justifiable basis to utilize cruise ship's public spaces and therefore develop ship's overall size more compact direction.

Besides transitions in spatial architecture, changes in customer generations and consumption habits are producing pressure towards changes to cruise ship's experience supply. The traditional cruising formula has been for decades answering the consumer tastes, but it's getting absolutely old and doesn't answer today's consumer tastes (Ward 2009, 23, see picture 1.2b). Thus today's cruise ships have been designed to attract wide consumer groups by adding new spaces, new services and to suite aesthetically.



(Picture 1.2a) Y-generation.

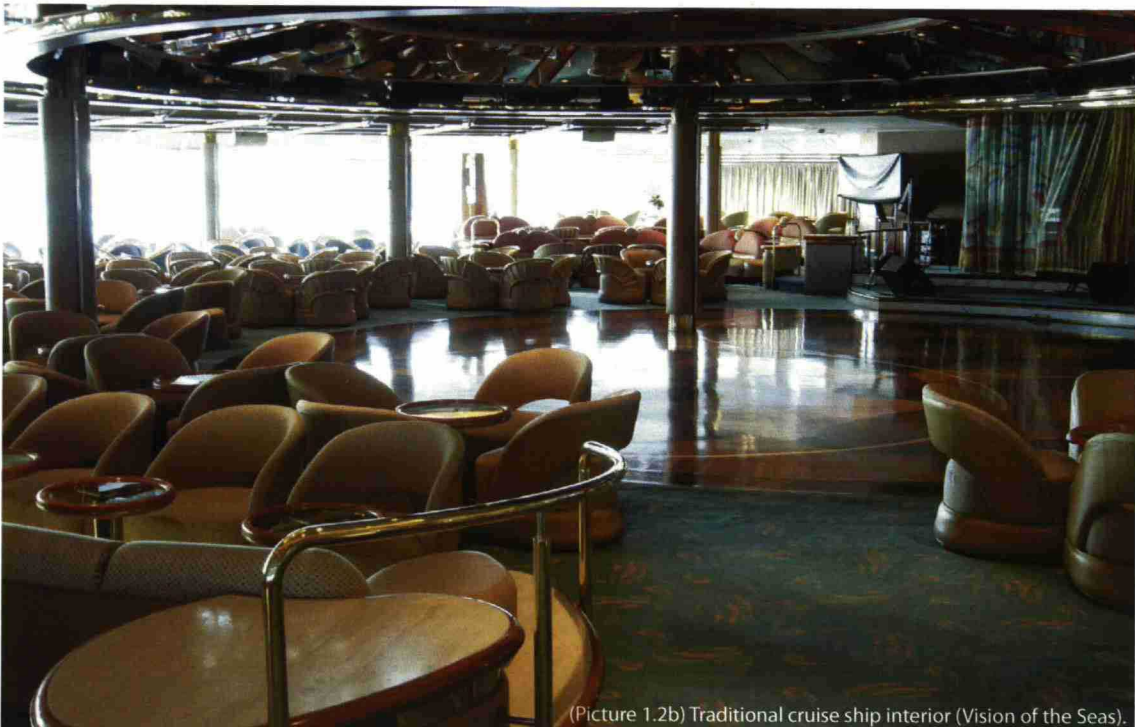
The main marketing region is North America which makes them complex. Many guests experience a sense of place when elements in the design are common to the cultural or historical heritage. Likewise, guests tend to dislike designs that are excessively complex (Kopec 2006, 257-270, see picture 1.2b).

Cruise business trends:

- Going global
- Stronger brands
- More ports in a week or a more attractive ship
- More choices
- More luxury
- Accessible premium
- Environment concern
- Aging population

(Source: Andersson 2008)

These trends are creating future scenarios for the new generation cruise ships: more compact luxury cruisers, multi branded cruise ships and ships as a destination. In this research the focus is on spatial architecture where the emphasis is greater variety, customization and today's customers' needs and desires towards a more attractive and compact cruise ship. According to (Routa 2008) changing consumer trends means (compare pictures 1.2a and 1.2b) that for the cruise ship business that more demanding x- and y-generations are valuing easiness and individuality which reflect the hectic life cycle's need for increased needs of pampering.



(Picture 1.2b) Traditional cruise ship interior (Vision of the Seas).

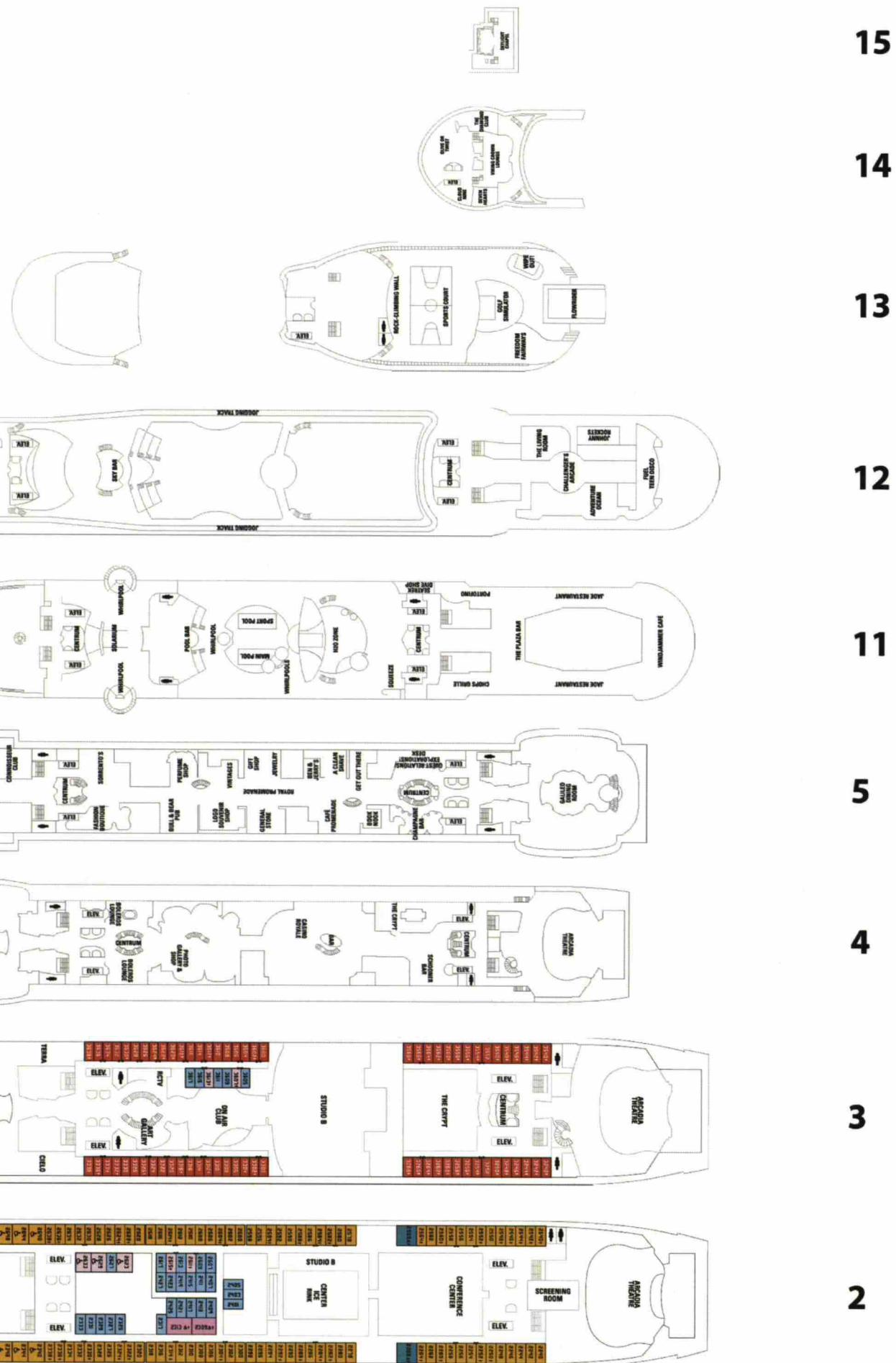
When considering the changes in consumer needs and growing demand for smaller cruise ships, bear in mind that this design research searches for solutions and patterns from the consumer point of view with methods and theories used in industrial design and architecture and its tendency is to clarify and answer to following questions:

- How cruise ship's public space requirements could be utilized more efficiently?
- How cruise ship's public space and service supply could be developed to increase holistic passenger experience?

The assumption for the research is that public spaces in cruise ships needs to be utilized to achieve space savings, and that public spaces and amenity supplies are not answering today's consumer expectations in visual, functional or experimental sense. Amenity supply and space requirements in this research are proportioned to Royal Caribbean Freedom class ships (see picture 1.2c).

Answers are searched with methods and theories represented in following chapter 1.3. Primary aim of the research is to answer following defining questions.

- What public spaces and their elements in cruise ships could be utilized for multiple activities?
- What elements are creating pleasant experiences for consumers?
- What kind of environment is creating relaxing and inspiring ambience?
- How cruise ship's public spaces could respond to today's consumer's individual needs?
- How consumers are experiencing transformability and the efficiency of space?
- How unnecessary people flow could be minimized?



(Picture 1.2c) Freedom class cruise ship GA and its services (decks 6-10 are for cabins and therefore doesn't exist in picture.).

1.3 RESEARCH METHODS AND DEFINITIONS

The research is realized by utilizing the user centred concepting method. The user centred concepting process can be divided into five phases (Salovaara and Mannonen 2005):

- Definition of design goals
- Consumer research
- Generating product concept ideas
- Evaluating concepts with consumers
- Refinement of concept

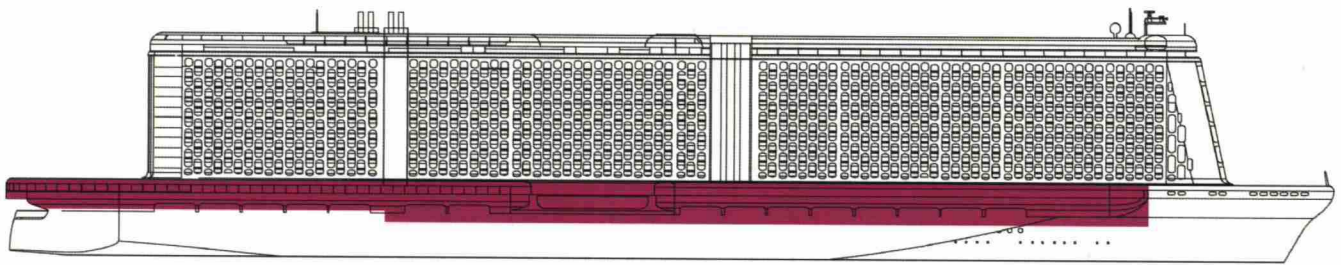
Design goals are defined with design problems distributed by project partners and particularized with literature preview. The main research data is gathered with focused interviewing and its analyses which support observation. Defining of the consumer research was done with observed places that were recommended by tutors: Copenhagen, cruise in Royal Caribbean International operated ship and The Naantali Spa. Interviewed persons were related to observed places.

Concept operating model ideas are generated based on consumer research analyses, recommendations from the economical thesis (Lampinen 2009) and data gathered from theories. Visual inspirations are gathered by observing. Literature preview is directed additionally to industrial design from suitable theories founded from architecture. Concept ideas are evaluated with possible consumers during design process and the final concept is refined based on consumer response and discussion with the technical thesis (Bergström 2010). The final concept clarifies one overall solution for the xp Tray –concept’s general arrangement and operating model. Supporting details of the system are represented in more detail with case studies.

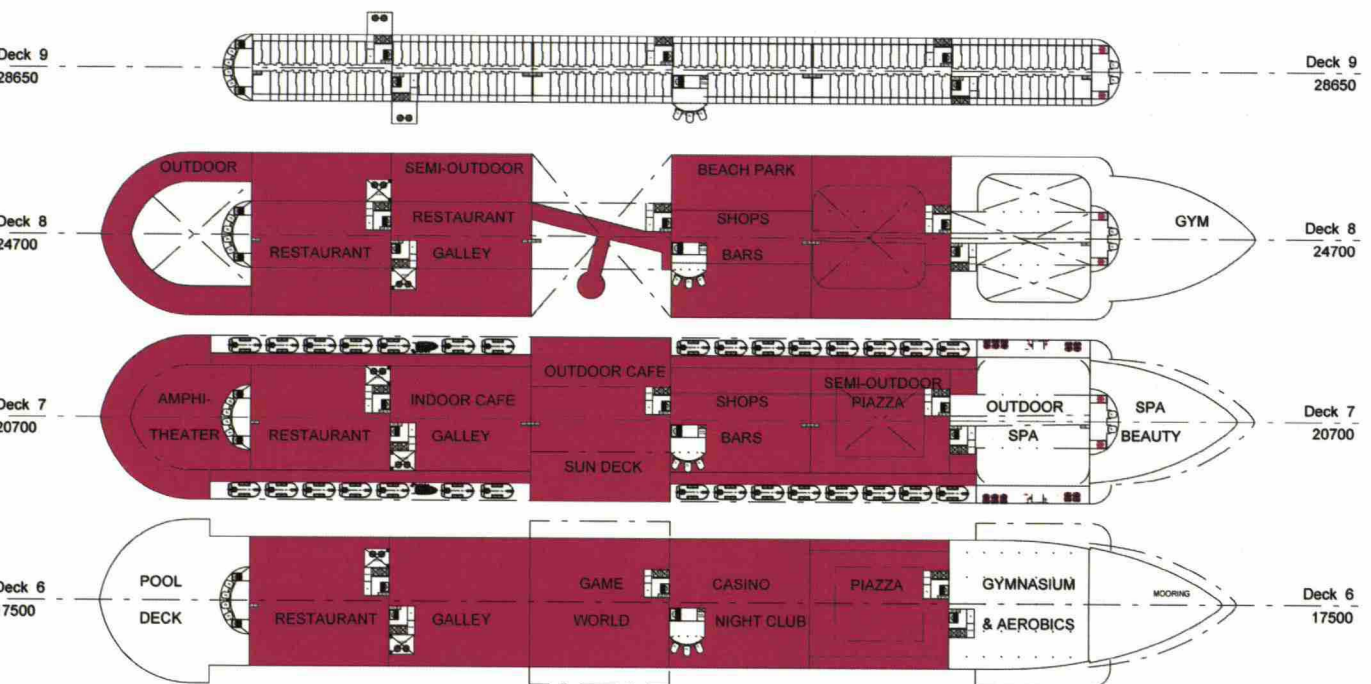
Original brief for the research was given by project partners: Find functional and attractive design and lay-out for the xp Tray ship concept. The focus of the research should be on holistic passenger experience and the whole operating model should be considered.

The original brief was relatively broad so it was refined to concern the following:

- Focus is on xp Tray’s public spaces (layout and supportive design of the case studies, see pictures 1.3a and 1.3b)
- Comparing existing cruise experience with other land based resorts: Copenhagen and Naantali Spa
- Improving of space utilization and service supply from passenger point of view
- Example layout and case studies created and visualized



(Picture 1.3a) Focused areas on xp Tray concept (side projection).
 (Picture 1.3b) Defined areas on xp Tray concept (general arrangement).



1.4 STRUCTURE OF THE RESEARCH

This thesis consists of four divisions that are; literature preview; consumer research; design work and writing; and layout. This research is based on user centered concepting where arguments and inspiration for the design work are researched from the consumers. Weight is on consumer research and concept designs that observing and theories support. As an outcome this thesis introduces how discoveries from consumer research and theory are shaping the final concept (see figure 1).

Chapter 2 introduces background information about this thesis. The chapter introduces; the xp Tray –concept briefly; the partners; defines what is a cruise ship and cruising; and how the thesis is communicating with the two other theses done from the same basis.

Chapter 3 determines framework and context of the research. What are the theories where research is filtered through and are shaping the final concept?

Chapter 4 explains how consumer research is realized and introduces results from the focused interview analyses. Chapter 4 also explains how observation was done and how it supports design process.

Chapter 5 introduces the design process and different phases of the design work. How design solves the design problem and answers consumers needs and desires. This chapter also contains the introduced the final concept and its full operating model.

Chapter 6 collects all the crucial research conclusions, in the other words, answers the research questions. Additionally in chapter 6 gives an estimation of the realization of the thesis and possible postgraduate topics.



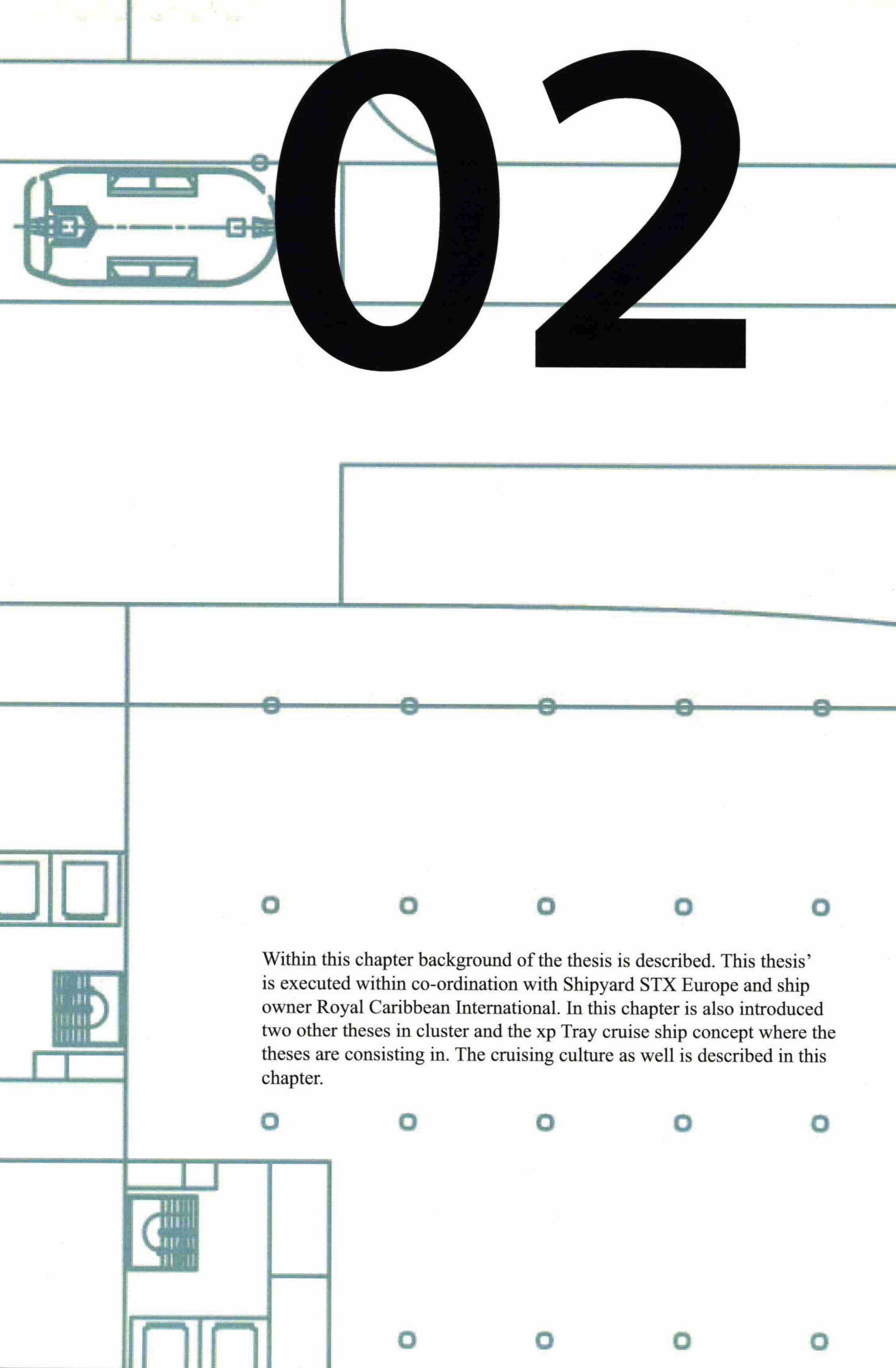
(Figure 1) Structure of the research.



The background features a light blue and white color scheme with a grid of thin blue lines. In the upper portion, there are three stylized flying cars or pods arranged horizontally. In the lower portion, a large, semi-circular dome-like structure is depicted with concentric blue lines, suggesting a futuristic architectural element or a large-scale study area.

2. CRUISING CULTURE: STARTING POINT FOR A STUDY

02



Within this chapter background of the thesis is described. This thesis' is executed within co-ordination with Shipyard STX Europe and ship owner Royal Caribbean International. In this chapter is also introduced two other theses in cluster and the xp Tray cruise ship concept where the theses are consisting in. The cruising culture as well is described in this chapter.

2.1 STX EUROPE AND ROYAL CARIBBEAN INTERNATIONAL

STX Europe is an international shipbuilding group, which aims to be the leading builder of cruise and offshore vessels. STX Europe AS is comprised of 15 shipyards in Finland, France, Norway, Romania, Brazil and Vietnam, and is also a part owner of three yards in Germany and Ukraine. STX Europe has approx. 16 000 employees. Formerly known as Aker Yards, the group changed its name to STX Europe in 2008. (STX Europe 2009) STX Europe is giving industrial coordination for the research.

Royal Caribbean Cruises Ltd (RCCL) was established in 1969 is one of the leading shipping companies in the world. The company owns and runs Royal Caribbean International and Celebrity Cruises -cruise shipping companies and Royal Celebrity Tours Company. Royal Caribbean International owns nowadays 28 cruise ships, which are sailing to 160 destinations all most everywhere in the world. (Royal Caribbean 2009) Royal Caribbean International will give an operational view to the thesis.



(Picture 2.1a) Cruise Ships made by Aker Yards for Royal Caribbean International (Freedom of the Seas 2006).
(Picture 2.1b) STX cruise ships made for Royal Caribbean International(Oasis of the Seas 2009).

The interface between ship yard and shipping company in cruise ship design can be defined as follows; the ship yard makes early concepts of the possible new ship that is proposed to the shipping company who decides on further development and cooperation. The shipping company plays the constructor role in cooperation and the shipyard the manufacturer role (Keinonen & Jääskö 2003, 13-14.)

2.2 THREE OF A KIND -THESIS CONJUNCTION

This thesis is one of the three theses, all focusing on the same novel ship concept from different point of views. These theses are executed as a part of the FIMECC innovations & network research program in the Cruise Ship Experience Center -task. This master thesis is performed for University of Art and Design Helsinki, under industrial coordination with STX Europe. Royal Caribbean International will give an operational view to the thesis. The other two theses are; a technical thesis performed for Helsinki University of Technology and economical thesis performed for Helsinki School of Economics.

The thesis executed by the Helsinki School of Economics is researching the maintenance of the ship. The thesis is researching overall operating model of the cruise ship and possible economical benefits gained with spatial combination and utilization. The interface with the economical thesis mainly considers service space combinations (see attachment 5) and development recommendations for the cruise ship's public space services.

The technical thesis analyzes the strength of the novel cruise ship structure (see pictures 2.4b and 2.4c). The interface with technical thesis is on construction issues of the concept. In cooperation the following are defined; architectural solutions that are satisfying structural strength; functional and visual sensibility. The main issues are consideration of pillar lines and bulkheads that are cutting ship's public spaces vertically and horizontally, thus setting challenges for layout functionality and aesthetics.

Basically the economical thesis considers the xp Tray –concept from the ship owner's point of view, the technical thesis from shipbuilder's point of view, and the design thesis from passenger's point of view.

(Picture 2.2) Working space in Otaniemi.

2.3 CULTURE OF CRUISING

A cruise ship or cruise vessel is a passenger ship used for leisure-time voyages, where the voyage ship's amenities and ship itself are part of the experience. Cruise ships operate mostly on round trips, where passengers are returned to the departure harbor. Traditionally cruise ships offer luxurious services and ambience for the passengers (Ward, 2009, 12).

Cruise ships sizes are measured in gross tonnages, thus the ships overall internal mass. Nowadays ships' average gross tonnage is 42.957 GRT, thus meaning average length of 188 meters and 25 meter wide beam. Average passenger amount is 1.122 passengers (Grammerstorf 2009). In the most luxurious ships it's not uncommon that there are more staff members than passengers. Nowadays cruise ships can be distributed to two classes serving two different target groups: small and large cruise vessels. Small vessels serve passengers who prefer most luxurious service, the feeling of being at sea and closer contact with cultures in smaller ports. Large ships offer large variety of entertainment, sports and wellbeing amenities and additionally space. From the ship owner's perspective large ships are more profitability and small ships offer wide variety in itineraries (Grammerstorf 2009.)

Ship sizes can be categorized in many ways; the most common way is to sort them by their gross tonnage or passenger amount:

- Large Resort Ship (1,600-6,000+ passengers, 50,000-220,000 tons)
- Mid-Size Ship (600-1,600 passengers, 25,000-50,000 tons)
- Small Ship (200-600 passengers, 5,000-25,000 tons)
- Boutique Ship (50-200 passengers, 1,000-5,000 tons)

Cruise ships can be categorized also by lifestyle:

- Standard: the least expensive, offering the basic amenities.
- Premium: more expensive than standard, having generally better food, service and amenities, more attention to detail and differentiation of suites.
- Luxury: most expensive, providing more personal comfort, space and highly trained staff.

(Source: Ward 2009, 174)

Cruise ships' deck plans are called General arrangements (GA). Main areas of the cruise ship are cabins, pools and spas, dining venues, fitness areas, meeting rooms, galleys and lounges for events and parties (Gulaskey 2009).



North

Cruising is traveling with boat from place to place for pleasure. Typically cruises are trips of several days or more, but also longer trips are offered. Cruising is a major part of tourism industry, with millions of passengers every year, mainly in North America, but several hundred cruise ships are operating all over the world (Ward 2009, 2.)

The first ships for cruising purposes were built beginning of the 19th century; they were mainly used for crossing the Atlantic. Competition for passengers made shipyards add luxuries to the ships. In the 1960's airplanes overrode ships for the ocean crossing purpose and ship-owners started to offer several day luxury holidays at sea. Cruising voyages gained popularity in the 1970's when ordinary people found cruising as a vacation option and since then the size of cruise ships has risen dramatically to become the largest passenger ships ever built (Ward 2009, 36-39.)

The main region for cruising is North America (over 70% of the market), where the Caribbean islands are the most popular of destinations. Next is continental Europe that has become one the fastest growing markets in the cruising business (Cruise shipping Miami 2009).

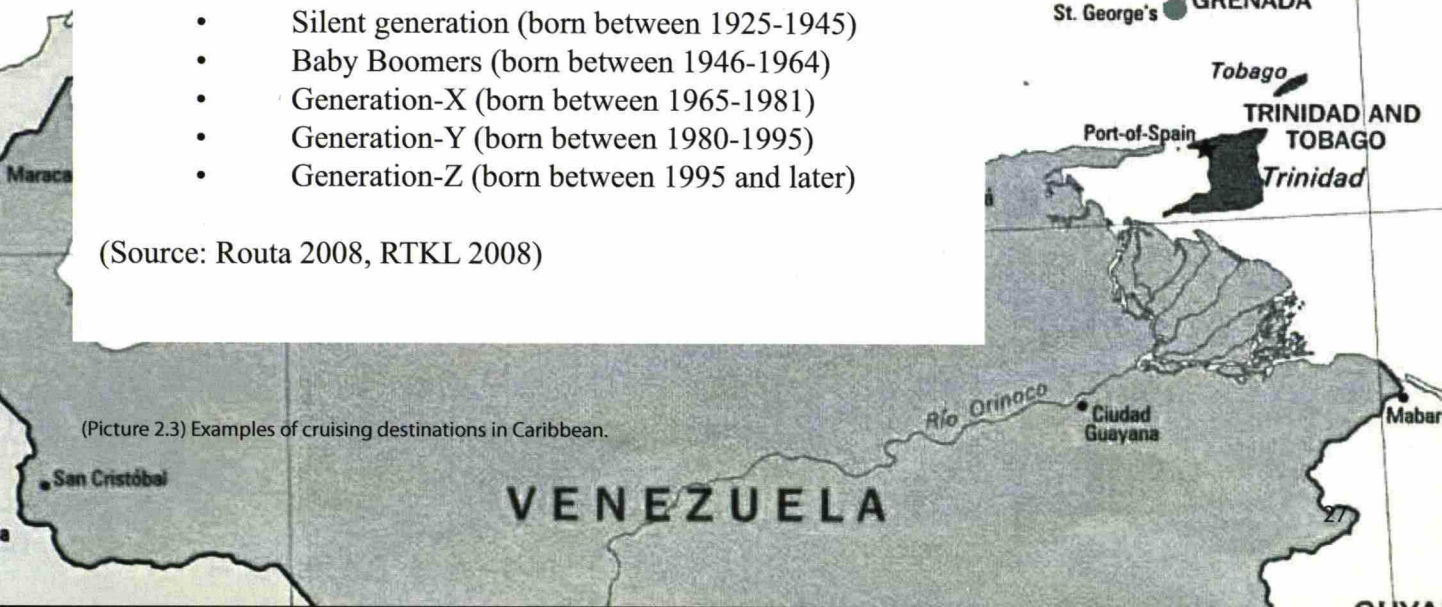
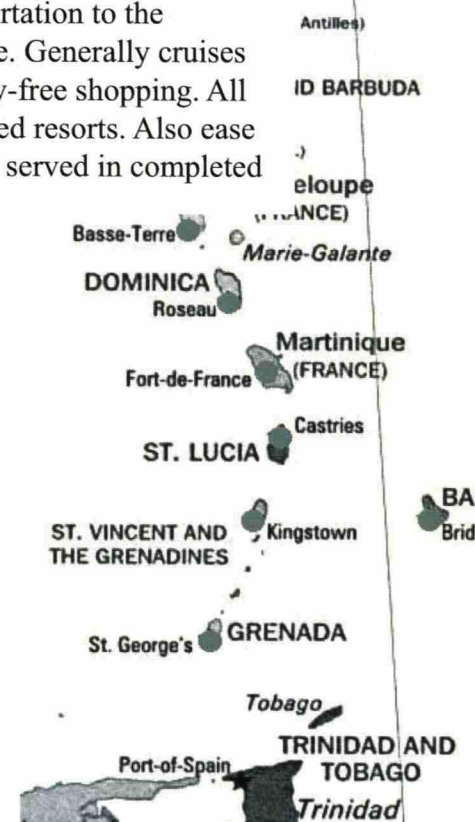
Comparing to other resorts cruising is differing mainly with transportation to the multiple resorts and all amenities are offered in the same large space. Generally cruises operate with the all-inclusive principle and the possibility to do duty-free shopping. All the services are usually rated to be similar or better than in land based resorts. Also ease of abandonment is descriptive for the cruises, because everything is served in completed

According to Gulaskey (2009) typically cruise ships' programs consist of exercise, breakfast, sunbathing or visiting destinations, having lunch, watching shows or having treatments, dinner and gambling or partying at lounges or night clubs.

Cruise customers can be categorized into five categories where main target groups are; Baby Boomers, Generation-X, Generation-Y and Generation-Z. X- and Y-generations are the most evolving, because they are the fastest growing passenger group and also willing to spend more money while traveling.

- Silent generation (born between 1925-1945)
- Baby Boomers (born between 1946-1964)
- Generation-X (born between 1965-1981)
- Generation-Y (born between 1980-1995)
- Generation-Z (born between 1995 and later)

(Source: Routa 2008, RTKL 2008)

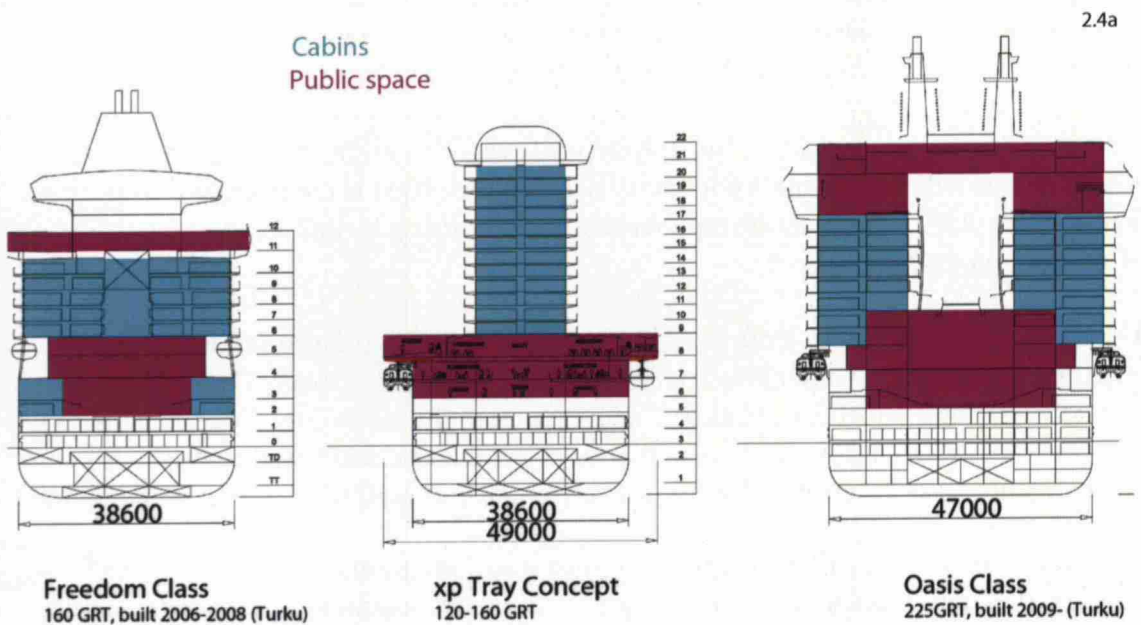


(Picture 2.3) Examples of cruising destinations in Caribbean.

2.4 XP TRAY -CRUISE SHIP CONCEPT

In traditional cruise ship layout public spaces are divided into two areas so that most of the public spaces are found inside the hull of the ship. Outdoor venues, and services related to it, are on top of the ship. Most cabins are located in superstructure between these two areas (see picture 2.4a).

In the xp Tray concept, layout is rearranged so that all cabins are located in the superstructure and all public spaces inside ship's hull on decks 6 and 7, and on experience tray on deck 8. Experience tray is cantilevered area on top of the hull, below the superstructure (see picture 2.4a).



Together with multipurpose spaces, the new layout provides fresh possibilities for new arrangements and adds feeling of space to the public areas. Extended experience tray on top of the hull extends to public spaces outside, thus enabling sunny public areas and better visibility out towards the ocean. Xp Tray's arrangement provides high outside to cabin space ratio and separates cabins from high-activity areas. The layout also gives the possibility to build the superstructure more narrow and efficient (Similä 2009).

The new construction makes it possible to build a narrower hull, reducing pressure of the water for better fuel consumption. A narrow hull also broadens the variety of cruise routes and destination harbors (Ward 2009, 23). Centralizing all public spaces in overlapping decks rationalizes people flow and improves operation of the galleys.

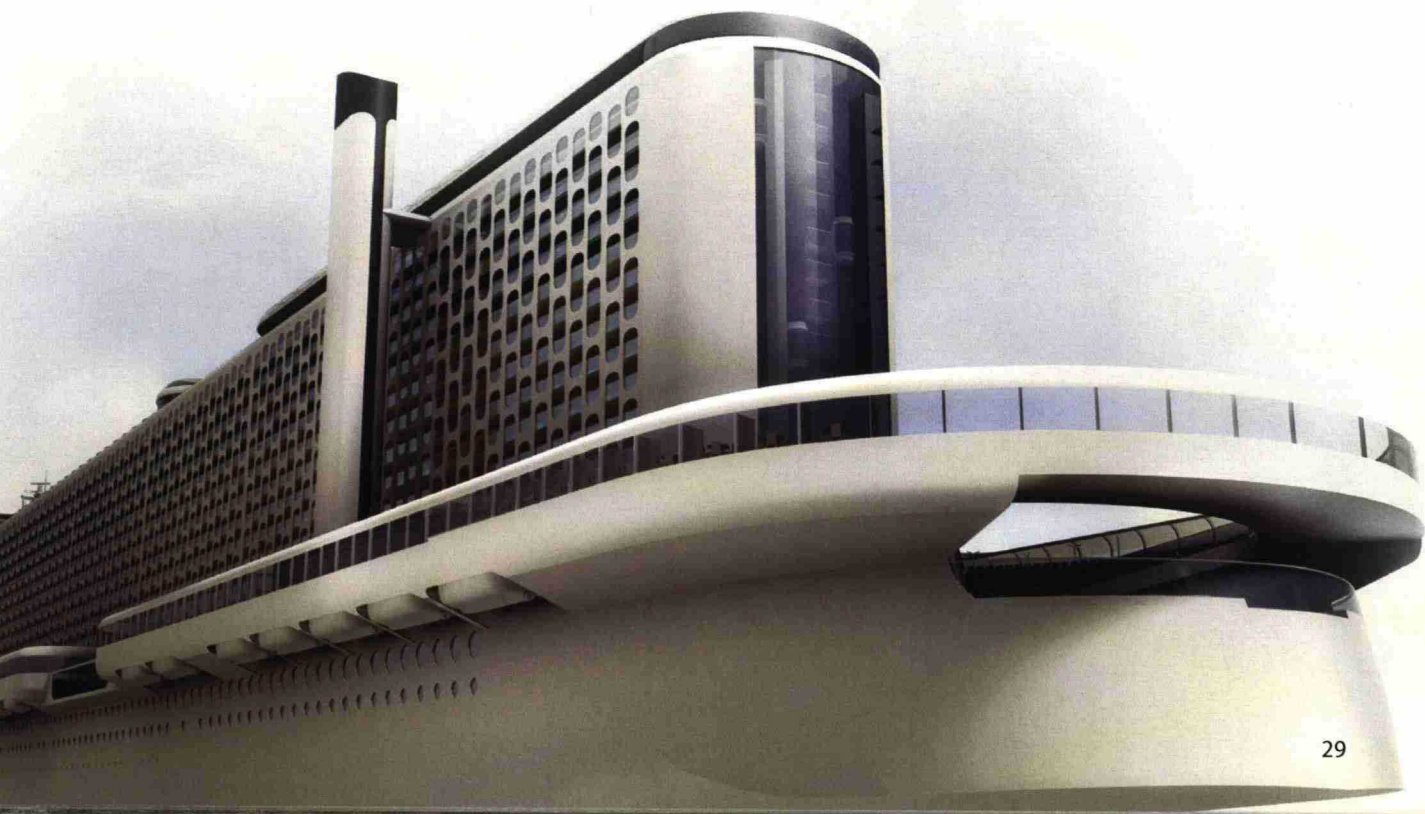
According to Similä (2009) xp Tray is designed for mass markets and offers affordable luxury for everybody (see chapter 2.3). This means wide selection in facilities, activities, amenities, cabin styles and quality. The Xp tray's concept aim is to offer wider selection of services and alternatives and inspiring public spaces more efficiently than contemporary rival cruise ships.


2.5 WHY BOTHER?

Why introduce a new approach to the literature of cruise ship interior architecture and design and user centered concepting? Firstly the research is based on the novel ship concept -xp Tray, where the traditional cruise ship architecture is newly thought (see pictures 1 and 2.4a and 2.4b) and gives a fresh starting point to develop traditional cruise ship design in whole new directions. Secondly consumer-oriented background research serves as an uncommonly used approach to cruise ship design. The study is based on consumer research done with average consumers who do not have much experience with cruising. Basically what is researched are what elements and objects that create a pleasant environment which is mirrored through principals for rich and fluent spatial experience founded from architectural theories. Together with multi-use and modular spatial thinking, the research makes a delicious approach to frequently traditional cruise ship design (Ward 2009, 23).

(Picture 2.4a) How xp Tray concept differs from traditional cruise ships.
(Picture 2.4b) xp Tray overall view.

2.4b





3. USER CENTERED CONCEPTING AND ENVIRONMENT EXPERIENCE

03

The aim of this thesis is to develop cruise ships' public spaces in a more effective direction. The focus on space utilization is for a more holistic passenger experience. The thesis concentrates on STX Europe's novel ship concept xp Tray (see pictures 1 and 2.4b-d).

In cruise ships many spaces are used only at certain times of the day and stay unused for long periods during the day (see attachment 1). This is caused because new attractions have been designed into new spaces, instead of locating attractions to be part of the already existing space or combining services (Ward 2009, 7-9). This is one reason that has increased the size of the cruise vessels into the current trend which causes problems in maintaining all the spaces effectively and affects passengers' perception of spaces in ship.

Increasing utilization of spaces with multi-use or transformability creates novel spaces that should be considered from the customers' point of view -what is pleasant is functionally and visually. Diversity architecture of the ship concept and fresh space thinking gives a great change to increase ship's functionality and attractiveness.

In this chapter framework of the research and positioning of the thesis is introduced.

3.1 INDUSTRIAL DESIGN

Industrial design is the designing of industrially manufactured products, thus the aim is to improve quality of environment and utilization value. Specific professional ability is an aesthetic quality of the products (Kettunen 2001, 11).

This thesis investigates cruise ship design from the consumer's point of view, adopting methods from user centered concepting. User centered design is design where users are involved in the design process, thus it persuades insights directly from the typical consumers, using situations and environments for the product. Insights are gathered usually with interviews and observation. With user centered design it is possible to reach more than just improvements in usability, it can also appeal to people's emotions. That is called emphatic design, which researches objects' influences on things that are related to people's emotions, affections and social environment (Kettunen 2001, 35-36.) Within this research, gathered insight with consumer research and concepts are evaluated with possible average passengers (interviewed consumers). Based on consumer research is the developed concept for the xp Tray –cruise ship concepts' public spaces.

Kettunen defines concept design: it is a process in which a solution is outlined for the design problem and main points: operating model, materials, technical solutions, shape and colors. However the details of the concept are still unsolved. The concept is an approximate description of product technologies, operating model and shape. Kettunen collects together three elements needed in the concept development:

- Shape is defined as the physical shape of the product or transactions that is creating the service
- Products are only valuable when they are generating profit for the consumer
- Technology that allows shape development that creates profit

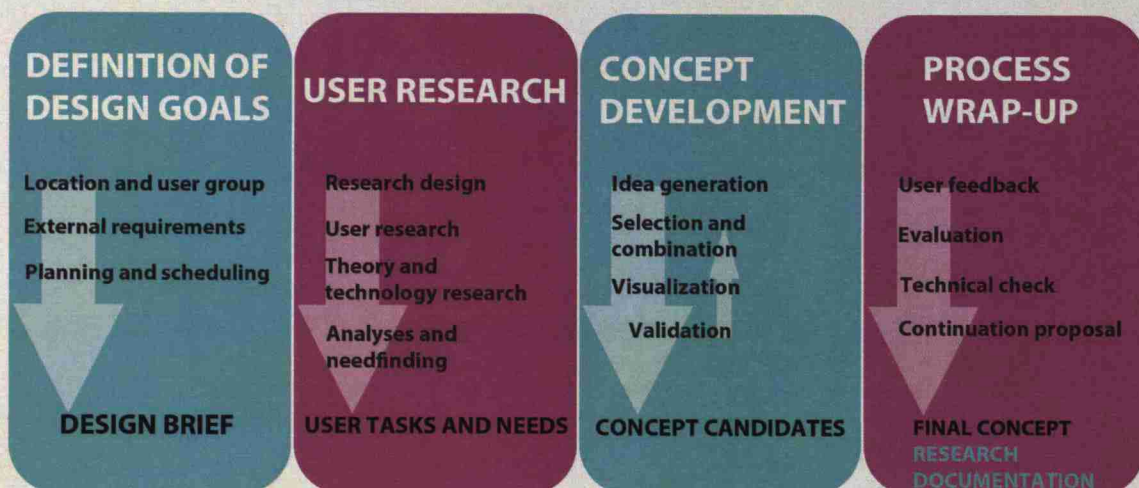
Concept design process can begin from any of the three elements, which defines the role of the other two elements (Kettunen 2001, 59.) In this research newly thought layout and construction represents the shape that enables to equip all the cabins with windows and create wider outside public areas and better visibility to surroundings. Multi-use of the public spaces can be thought of as technology that generates the possibility to create spacious public spaces without sacrificing wide selection of service supply. The realization of cruise ships in a more compact form creates benefits, for example, better energy efficiency and broadening cruise route possibilities.

The concept design process can be divided into; product search, concept design and product design. Concept design has two phases: first is the generation of as many concepts as possible and secondly the best one is selected or combination of the best concept ideas. Concept design can be more accurately divided into four phases: knowledge, idea, selection and testing. Data gathering starts from finding out the consumer's needs and ends in product feature definition and design goal positioning (Kettunen 2001, 60.) In this thesis the focus is on concept design that is realized utilizing the user centered concepting method which means the concept is not only based on data gathered from consumers but consumers are involved directly into design process.

3.2 USER CENTERED CONCEPTING

The user centred concept design aims at creating concepts of new products. Its success is dependent on the design team's ability to use present- day information to come up with concepts concerning future products (Salovaara and Mannonen 2005). According to (Beyer & Holtzblatt 1998, 3-5) user centred design philosophy and process is based on consumer's needs and desires that are emphasized in every phase of the design process. User centred concepting is a multi-stage problem solving process that not only requires designers to analyze and foresee how consumers are likely to use interface, but also test the validity of their assumptions with regards to consumer's behaviour in real world tests with actual consumer's. Consumer centred design is different from other design philosophies because it tries to optimize the consumer interface based on how people can, want, or need to work, rather than forcing the consumers to change how they work to accommodate the designers approach. According to (Salovaara and Mannonen 2005) user centred concepting encourages designers to think reflectively about the nature of information on which design decisions are based.

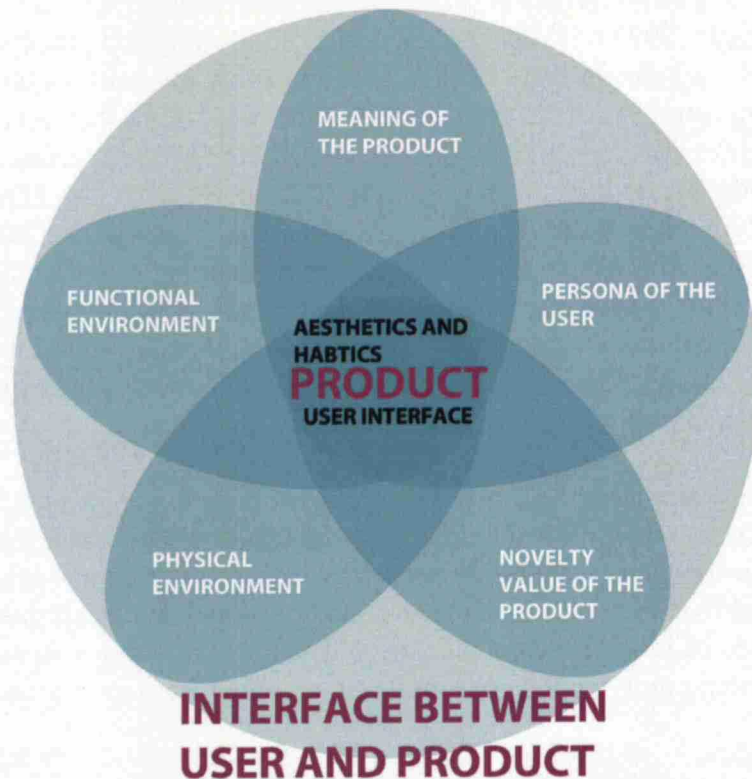
This thesis is processing user centred design from a concepting angle (see figure 2), because consumer research of pleasant environmental experiences produces guidelines for spatial arrangement and case studies for xp Tray concept. The outcome is based on the ferry concept that forecasts the future of the cruise ships and this thesis gives a consumer point of view to its interior layout and design development. Salovaara and Mannonen (2005) are describing user centred concept development process in following figure:



(Figure 2) User-centered concept development process (Salovaara and Mannonen 2005).

Within this thesis consumer research design goals were defined briefly by project authors, which is defined with consumer research and literature review. Consumer research was done with focused interview which is introduced in chapter 4, and carried out in suitable places also for observation that was supporting the interview and its analyses and established visual inspirations. Concept ideas were generated with common methods to industrial design that are: background research, ideation and sketching (Kettunen 2001, 60). More detailed ideas were generated based on analysis of consumer research, impact of personal observation and recommendations from economical thesis (Lampinen 2009). Evaluating the concept was done with representatives of STX Europe and Royal Caribbean International by meeting every month during project. Also interviewed persons were evaluating concept, and constructional evaluating was done with technical thesis (Bergström 2010).

The following figure describes consumer experience factors in product concepting. Consumer knowledge includes several points of views to understand holistic consumer experience. Point of view can be ergonomic, usability, aesthetic or social (Keinonen & Jääskö 2003, 83-89). In this research weight is on the aesthetic viewpoint.



(Figure 3) user experience factors in product concepting (Keinonen & Jääskö 2003, 89).

3.3 ARCHITECTURE

Cruise ship design is commonly spoken of as cruise ship architecture, because of similarities to built environmental design. Thus in this research, there is overlapping with architecture in many ways, which is adopted with supporting theories used in architecture.

Architects plan, design and review the construction of buildings and structures for the use of people by the creative organization of materials and components, and with consideration to mass, space, form, volume, texture, structure, light, shadow, materials and program to achieve an result which is usually functional, practical and often artistic. Architecture designs total built environments, from the macro level of how a building integrates with its surrounding context like town planning, urban design, and landscape architecture to the micro level of architectural or construction details and, sometimes, furniture and hardware. Our culture considers architecture to be a visual experience; the other senses play a role in how we experience both natural and built environments (MEE 2009.)

Because the aim of this research is to create a concept that introduces built environment from the consumer's point of view, understanding of human perception of an environment is justifiable. In this context study of environmental psychology introduces suitable theories for designing comfort and functional environment for different purposes.

The aim of the created space concept that can be thought as a hospitality setting is to create value for cruising attraction. According to Kopec (2006, 257-270) when designing hospitality settings, the totality of the environment -purpose and function, must be considered because the physical environment influences the perception of value. Important components of the hospitality environment include design that is distinct from other resorts

Cruise ships have similar elements to other built resorts, that tend to be better in more easy form (Ward 2009, 12-23). Strengths and the distinctive nature of the cruising need to be established in the market situation where resorts are getting more and more similar and offering similar experiences. The hospitality industry is expected to be one of the fastest-growing markets in the coming years as; cruise ships, hotels and resorts offer an increasing range of travel and vacation enticements. With the increased globalization, the possibilities for experiences continue to grow (Kopec 2006, 269).

3.4 ENVIRONMENTAL PSYCHOLOGY

Environmental psychology is a study of symbiotic relationships between humans and their environments, human's behaviour in space (proxemics) (Aura 1997, 22).

The science shows interest in following areas of research:

- human response to built and natural settings
- impact of technological and natural hazards
- environmental perception and cognition
- design and planning issues

(Source: Kopec 2006, 8)

Kopec divides design into physical and psychological aspects. Physical aspects are focusing on formal aesthetics:

1. Dimension: shape, proportion, scale, novelty, illumination
2. Enclosure: spaciousness, density, mystery
3. Complexity: visual richness, diversity, information rate of environmental stimuli
4. Order: unity and clarity

Psychological aspects are symbolic aesthetics that are moving beyond the physical world to the intangible the world of meanings which can be categorized by following:

1. Naturalness: the level in which natural elements were used in the design
2. Upkeep: the level in which designs can be easily maintained
3. Intensity of use: the intensity or presence of particular design features
4. Style: the overall design selection

Source: (Kopec, 2006, 85)

Understanding the relationship between stimulation and human responses is an important component of good design (Kopec 2006, 3-10). In this thesis environmental psychology theories are adapted because the research concerns of space planning and use, diversity of environment, and passengers holistic experience. Environmental psychology is a science that examines human behaviours in relation to the environment; much of the research has broad practical applicability within the human experience (Kopec 2006, 11).

According to Altman (1975) environmental psychology has a close relationship with design: the scope of practices of environmental psychology has a direct and symbiotic relationship with design fields. But the field itself studies the human-environment relationship at three levels of analysis as follows:

1. fundamental psychological processes of perception, cognition, and personality as they filter and structure each individual's experience of the environment;
2. social management of space related to personal space, territoriality, crowding, and privacy; and
3. the effect of the physical setting on complex but common behaviours in every day life (such as working, learning, and participating in daily activities in the home or community) and our relationship with the natural world.

Kopec (2006) introduces in his book: "Environmental Psychology for Design" direct design guidelines for example: service and retail environments, hospitality environments, and way finding. As well as guidelines for establishing human positive experience, minimizing external stressors, and for rich space experience, these instructions are used.

For example many factors contribute to the design of a successful retail or service facility: image of the retail is made up with physical appearance and ambience. This image has the power to attract and keep consumers. Customers may not take notice of a pleasant environment; a poor atmosphere can easily create a negative impression and also the ease with which people can navigate a space influences their overall perception of that space (Kopec 2006, 275-290).

Environmental psychology introduces a mechanism for way finding that is exploited in layout design to perceive easy navigation in ship spaces. Wayfinding measures that can be built into the design include:

Visual access refers to prospect or visibility (e.g. clear lines of sight that serve to increase visual access to a destination or reference point).

Architectural delineation refers to the separation of one area from another via architectural elements or features (e.g. thresholds, walls, or variations in ceiling height and floor depth).

Signage and numbering systems enable us to match displayed codes with the messages or symbolic meanings that we either bring with us (e.g. what we learn from information canters, "you are here" maps or by asking directions).

Building layout relates to logical spatial progression and organization (e.g. in a department store, we expect to find women's shoes near women's apparel, not home appliances).

Source (Weismann 1981).

3.5 SCOPE OF CRUISE SHIP DESIGN

STX Europe's Product Development & Innovation department in Turku, Finland uses system based ship design system (SeaKey) for concept design, where it first defines the task of the ship and a product plan. After this is described the procedures of the ship and central systems, through which is perceived a general arrangement.

General arrangement covers for example deck area and other needs of capacity (Keinonen & Jääskö 2003, 12). Characteristics for ship design in shipyards is that offered product isn't developed ready before hand, but usually client (ship-owner) controls the conception process. The difference to other business, where ready-made products are introduced to the markets, is that designing and building of the final ships is started after the ship is sold. Manufacturing decision is done by client in place of the manufacturer based on concepting. The aim of the concepting is lead to the manufacturing contract (Keinonen & Jääskö 2003, 13-14.)

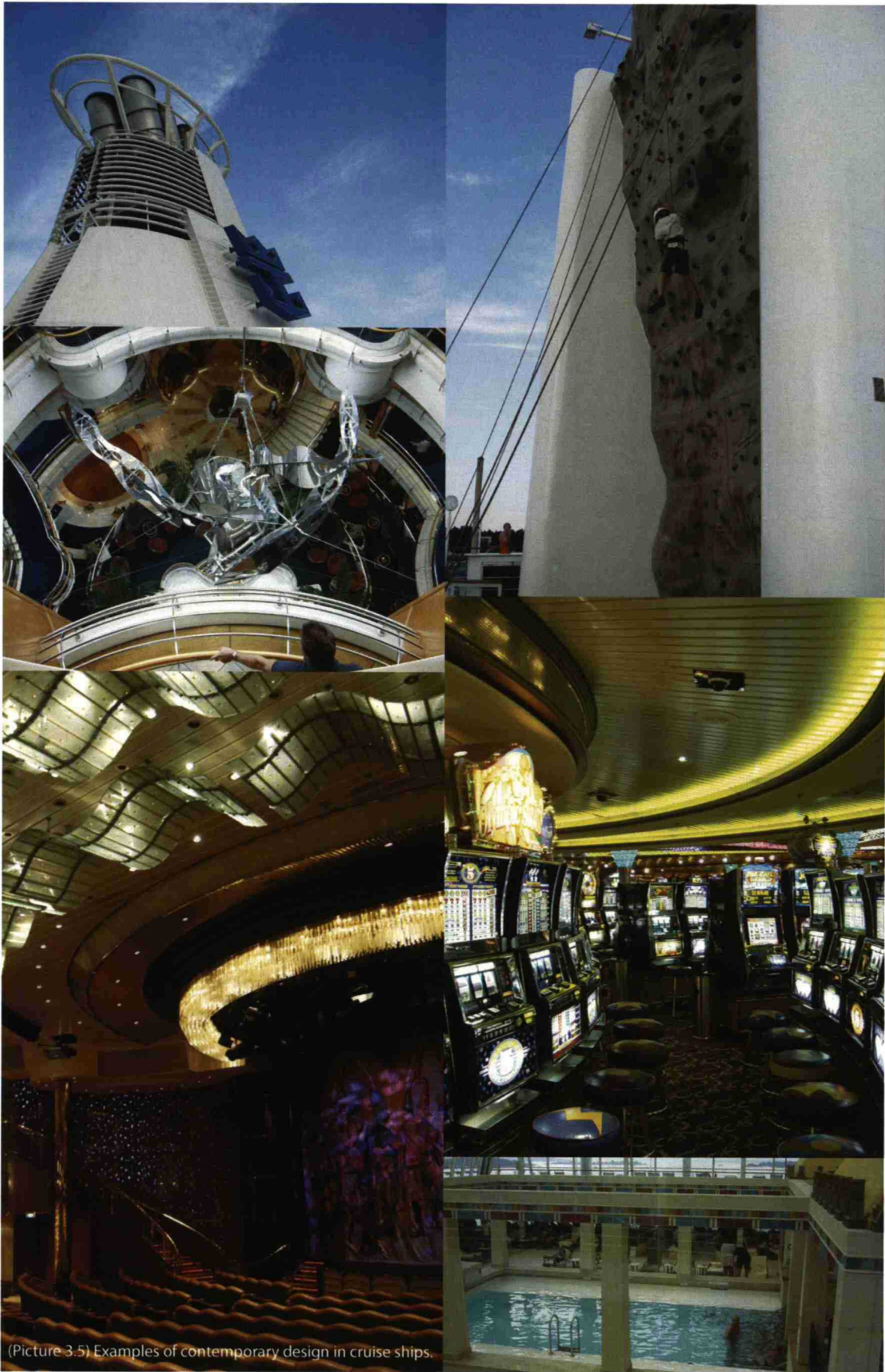
Andersson (2009) is listing change forces of the cruise ship design:

1. Economy of scale
2. Existing and new limits (canals and belts)
3. Rules and regulations
4. New markets
5. Passenger expectations
6. Sustainability
7. Social communities

In this thesis the xp Tray concept from passenger point of view that covers passenger expectations and space-use is utilized and relation to economy of scale, limitations and sustainability is researched. Other forces are creating great subjects for additional research.

Xp Tray –concept is positioned in to the future and its basis is deviating from statistics gained from SeaKey which is usually used as a starting point for a new ship concept together with foreseeing of trends. Wide statistic information in SeaKey consists of different ship information. Under construction based ships' various arguments can be compared into statistics information (Keinonen & Jääskö 2003, 16). Regardless SeaKey's statistic information is based on earlier built ships and information gained recommends "economy of scale" based evolution and doesn't support xp Tray's representative direction in cruise ship design. Therefore the starting point of this thesis is on above mentioned theories and in addition information from System based ship design (SeaKey) is used only in form of recommendations received from economical thesis (Lampinen 2009). From which the statistics of the xp Tray -concept are determined.

Concept design process in this thesis starts from the novel layout of the xp Tray -concept. This thesis is developing the profit of the new concept for the consumer from customer's perspective. The aim is to introduce what kind of benefits can be reached with multi-use layout and consumer inspired design.



(Picture 3.5) Examples of contemporary design in cruise ships.

4. ACTUALISING USER RESEARCH



04

Within this chapter research methods and process of the data analysis are described. This thesis' main data is gathered with focused interviews from which out consumer group's insights about experiences in space are mapped out. Analyzed data from interviews are supported with personal observation in Copenhagen, Naantali Spa and in the cruise from Stockholm to Copenhagen. Together analyzed data, observing and literature review is creating a base for design solutions.

4.1 OBSERVED PLACES

Observed places were recommended by Tutor's, due to the exceptional nature of the novel cruise ship concept, inspirations are reasonable to seek outside of the traditional cruise ship. Also because observed places had a suitable nature compared to cruise ship's service and experience supply. After preference places (Copenhagen and Naantali Spa) were chosen information was collected about the places and suitable targets for observation were estimated and travel plans was established. Travel plans were kept open because interviewees in observed places were asked to choose interview location based on their own favorite places and the assumption was that recommendations for interesting places for observing was gathered from interviewees. Making interviews in places pleasing for the interviewees facilitated the interviewees to explain answers and show real world examples.

Copenhagen

According to (Lonely Planet 2009) Copenhagen is relatively compact area that has cosmopolitan inhabitants and culture. Architecture is a great mix of historical and modern buildings; also many parks and water front locations add great impact to the exciting atmosphere. The city plan is suitable for walking and cycling, as there are many pedestrian streets and cycle paths that are lined with cafeterias, restaurants and shops. Copenhagen is well known of its world famous and unique places like Tivoli and the liberty town Christiania.

Copenhagen's medieval centre probably has everything the casual visitor could want. It has the great museums and the royal palaces, it offers ample shopping and fine dining, and you can get anywhere within its beautiful, atmospheric streets in minutes, by foot (Time Out -Copenhagen 2007, 52, see picture 4.1a). 'As in many cases the real atmosphere comes from the citizens' (interview 4), Danes are multi-cultural nation whose spirit is open-minded and liberal. Denmark is also ranked as the happiest nation in the world (University of Michigan 2008). Above mentioned characteristics give a great environment for observing, getting inspired and interviewing for its habitants.

In Copenhagen observation was done in numerous places between 31.7-4.8.2009. The most interesting places for the research were;

The exceptional nature of the Tivoli offers such an array of activities and experiences for every sense and consumer group. The way how this relatively small area can be divided into distinctive sections offering peaceful walking with great greenery and fine dinner areas, traditional amusement park rides, opportunities for various shopping, and several stages for performances was inspirational. The way in which the lighting changed the atmosphere in park during night was impressive (see picture 4.1b).

The culture of how people were using the city and waterfront as their "living room", spending their time on the streets and enjoying the surrounding people was noted. An additional observation showed the amount of parks in the city center that offers resting place for city dwellers and that water front was utilized for living or services in boats and also offering swimming places in very central location (see picture 4.1c).



4.1a



4.1b



4.1c



4.1d



4.1e



4.1f



4.1g

(Picture 4.1a) Observing in Copenhagen (Strøget).
 (Picture 4.1b) Observing in Copenhagen (Tivoli).
 (Picture 4.1c) Observing in Copenhagen (The Black Diamond).
 (Picture 4.1d) Observing in Naantali Spa.
 (Picture 4.1e) Observing in Naantali Spa (Reception).
 (Picture 4.1f) observing in Cruise (main lobby).
 (Picture 4.1g) observing in Cruise (sundeck).

Ambience of the Copenhagen comes from the broadminded mixture of traditional and modern architecture. This mixing extends into the restaurants and shops where interior designs and services are offering exciting experiences. The amount of bicycles gives an individual touch to the city ambience.

Naantali spa

Naantali Spa Hotel is ranked the best in Finland for its services and facilities. A unique complex with excellent spa services and the luxurious floating Sunborn Princess Yacht Hotel (Naantalinmatkailu 2009). Naantali Spa (see picture 4.1d) was chosen for the land based preference research place, because of its service supply matches well with cruise ship's equivalent. For example Naantali Spa offers conferences, events, treatments and wide range of activities. In addition to Naantali spa hotel there is also an offering of a ship kind of accommodation at the Sunborn Yacht hotel. Naantali Spa is also noticed globally and ranked in top 100 spas in the world list (Naantali Spa 2009).

Observation in the Naantali Spa was done between 20.9-21.9.2009. First impressions of the spa hotel were luxurious that comes from the portentous architecture with wide and long paths outlined with vegetation (see picture 4.1e). Impression continues inside the hotel where there are a lot of marble and tall pillars that divide the reception area and cafeterias (see picture 4e) and the spa section is realized in traditional Roman style.

Otherwise Naantali Spa offers a quite similar setting as a resort in comparison to a cruise ship; it is a relatively small area offering numerous activities in separated spaces. One difference is that Naantali Spa offers unlimited environment, a real beach and Sunborn Princess Yacht Hotel accommodations as an additional experience.

Cruise between; Stockholm-Visby-Oslo-Copenhagen

Cruise was organized by STX Europe and was done with Vision of The Seas, one of the cruise Royal Caribbean International operating cruise ships (see picture 4.1f). The cruise is an essential part of the research, because by cruising it was possible to get an understanding about modern cruise ships, cruising culture and experiences offered on cruises.

The cruise was done between 7.8-11.8.2009. The observed cruise experience was criticized heavily because of the wish to realize enhancement targets. Improvements concerned mainly layout which was divided with walls into sections that makes perceiving space difficult and forces passenger to use maps and programs to locate and find all the activities. Stairways and corridors were found to be unpleasant spaces that are mainly used for transition and decorated with art that is disappearing into the abundant decorating of the environment. Most pleasant places on board were sundecks with programs and live music that was creating atmosphere (see picture 4.1g). Otherwise spaces with windows was considered most pleasant because panorama and feel of space.

4.2 FOCUSED INTERVIEW AND IT'S ACTUALISING

The aim of the focused interview is to find meaningful answers to objects and problem setting or research task of the research. Focused interviewing is a fine tool when the aim is to collect data from less known, recognized subjects, different opinions and their reasoning (Huotari 2003, 28). In advance chosen themes are based on context of the research and afore known information, in this thesis data is collected about how people are experiencing environments, multipurpose space, transformability of space and day and seasonal rhythm in space. The focused interview is preceded with certain crucial themes selected in advance and with particularising questions (Tuomi & Sarajärvi 2002, 77–78). Methods do not require accurate question form and order, typical for structured interview. However the interviewer ensures that all the theme-fields determined in advance are checked through (Eskola & Suoranta 1998, 87).

With this research eight focused interviews were conducted. Focused interviews were realized in three parts during August and September 2009. Typically research is concentrated on quite small amount of cases in qualitative terms, which are pursued to analyse as thorough as possible (Eskola & Suoranta 1998, 18). Because the consumer group on cruises is broad, interviewees were chosen mainly by Copenhagen as their living place or their relationship with Cruise or Naantali Spa. Age distribution and background of the interviewees were attempted to be keep as multi-sided as possible because the broad consumer group of cruises. Specific knowledge about cruise or cruise ships wasn't required, because with the interview it was attempted to collect data about experiences and feelings in space in general.

As interviewees four people working in commercial field were selected, one in transportation, one in food industry, one was an artist and one interviewee was a member of cruise staff. Gender distribution was three females and five males, whom ages were between: 22-63. Interviewee's nationalities were Danish, Swedish and Finnish. Interviewees from Copenhagen were reached though social networks such as Facebook –a social utility internet page that was helpful. Interviewees from cruises were obtained by accident when chatting with other passengers and staff members on board. Interviewees from Naantali spa were reached by direct contact to the Naantali Spa's sales department and asking for suitable interviewees. In the sales department an independent interviewee was denied, because of unwanted disturbing of consumers, this reduced interviewees from Naantali spa to only one. Most of the interviewees were contacted with interview request mail (see attachment 3). Interviewees were told beforehand general information about research and partners, but specific frame of the focused interview they did not receive. Generally each interview took approximately forty minutes and altogether 5 hours 20 minutes of recorded data was collected. The whole recorded material was transcribed to written form for the analyses.

Aim of the focused interview is to understand thoughtfully the researched issue, so as not to make statistical generalizations. According to Tuomi and Sarajärvi (2002) it is important that the interviewee has a good knowledge and experience about interviewed subject. Therefore selection of interviewees should be considered suitable for the purpose. In this research interviewees were chosen randomly, as everyone is an expert of his or her own experiences in surrounding environment. Selection of interviewees was only categorized by observed places.

Themes of the focused interview are based on suitable themes founded from literature about environmental psychology (Kopeck 2006, 81-97; Lynch, 1960). Questions of the focused interview were established with the other thesis authors and colleagues working in offices close to mine in property of Helsinki University of Technology. The interview was piloted with a Finnish and Canadian colleague. The interview was modified and shortened to suite approximately one hour interviewee time based on feedback.

Framework of the focused interview (see attachment 4) consisted of the following question areas:

1. Experiences in Copenhagen/Naantali Spa/Cruise
2. Service experiences and supply in general
3. Ambience in Copenhagen/Naantali Spa/Cruise
4. Ambience in general
5. Atmospheric changes in general
6. Transformability and efficiency of space in general

Before going to the real questions background information about interviewees was collected and couple of warming up questions were asked. In the first theme insights about interviewees most significant experiences concerning observed places and elements that are creating and supporting experiences were collected. The second theme was discussing what services are important for interviewees and what elements create pleasant service experiences. In the next two themes first determined was more visually oriented opinions about the observed places and in public space generally and how a day-rhythm and seasonal changes are affecting to the spaces ambience. The last theme was dealing with more abstract matters and it was especially to get insights how interviewees experience a multi-use space and to get some inspirations how a space could be used for several activities and more efficiently.

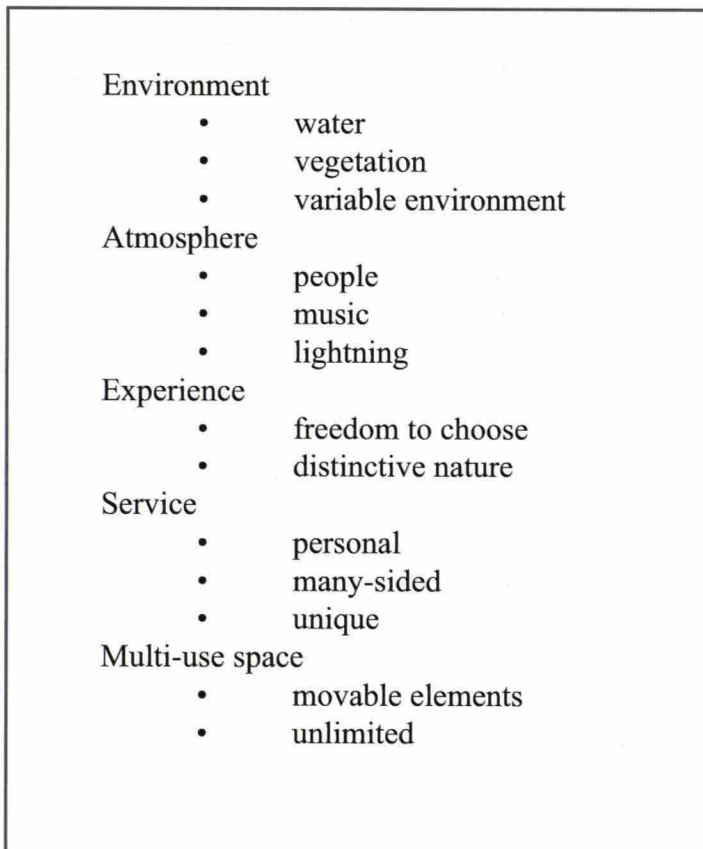
Difficulties for the focused interview can be regarded as problems in perceiving abstract themes and that those interviewees were trying to answer correct answers, although emphasizing own opinions in answers. Also order of the themes was confusing interviewees: when first talking about certain places and then moving on to general opinions. Only a few lingual expression problems were found although none of the interviewees spoke English as their native language, of course this wasn't a problem in half of the interviews which were done in Finnish.

4.3 ANALYSE OF FOCUSED INTERVIEW AND RESULTS

The aim of the content analyze is to organize text from existing research material and to condense it to distinct form. The aim of the analyses is to increase information value of the material: from discursive material reasonable information about researched phenomenon can be created (Tuomi & Sarajärvi 2002, 93, 105-110; Eskola & Suoranta 1998, 138).

For qualitative analyses two principles approach: material-oriented and theory-oriented analyses. In material-oriented analyses it is possible to refrain tightly in material and create interpretations from material without theoretical assumptions. In theoretical-oriented analyses some theory is utilized or a certain point of view is selected based on theory, when material is only supporting theoretical thinking and interpretations. In this thesis data is analyzed with material-oriented matters (Eskola & Suoranta 1998, 146, 153.)

Figure 4 compresses essential contents from the focused interviews analyses. Presented in the chart contents is what interviewees prefer are creating pleasant environment and service experience as well as what is suffered as a multi-use space.



(Figure 4) Essential contents in environment and service experience and elements of the multi-use space.

Recording and transcription of the interviews enabled accurate analyses of the data. Typically in the first stage of the content analysis analyzed data is reduced for example by compressing or by cutting data into smaller easily decipherable parts (Tuomi & Sarajärvi 2002, 111-112). In this research original expressions were categorized by similarity terms expressed. Reduction of the expressions is illustrated in following:

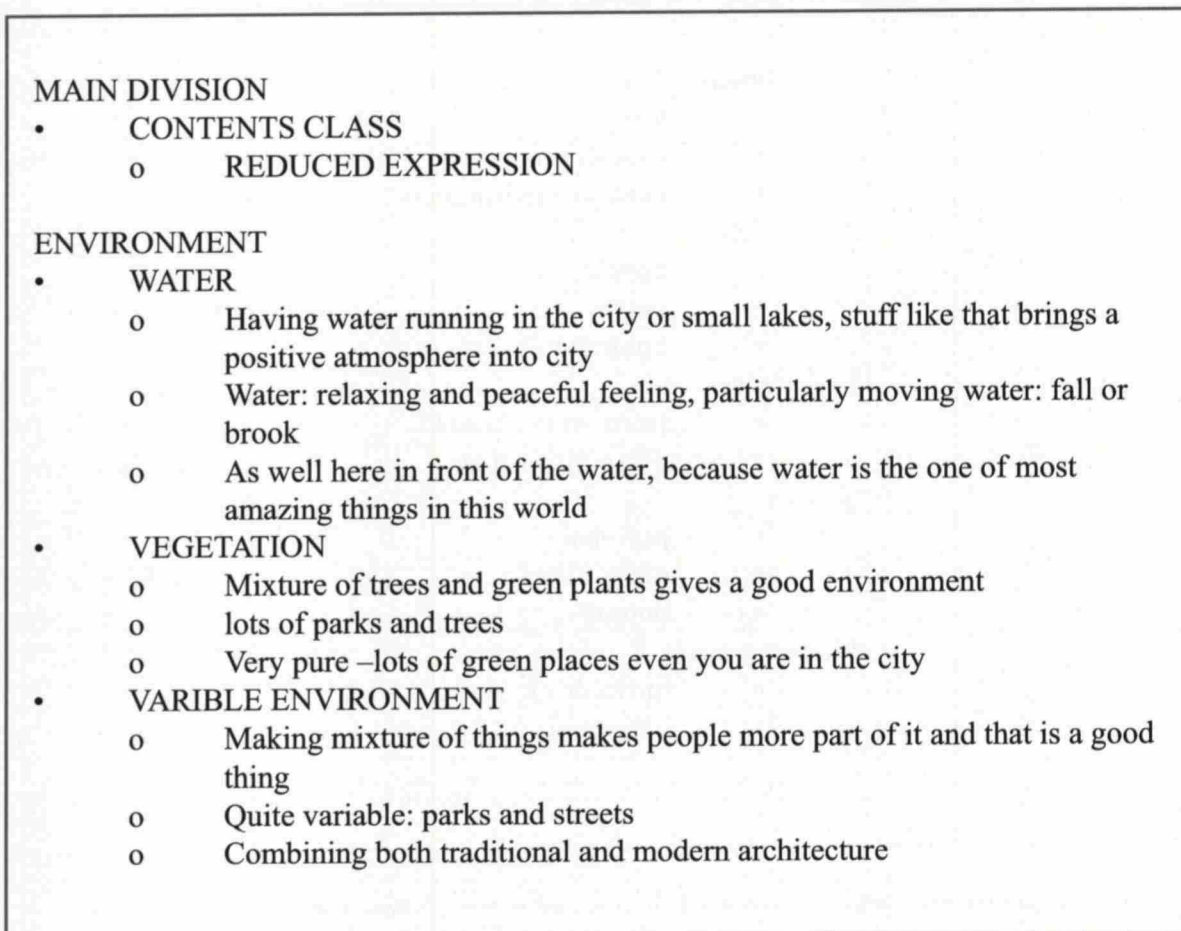
Original expression

I think it's a lot of the people that make the atmosphere. And again the water and old buildings and you are still close to Centre, so it's easy to get down here (Nyhavn). A Lot of small things, but the atmosphere from the people is unique (interview 6).

Reduced expression

People, old buildings and water create atmosphere.

After reducing, in second stage of the content analysis data is categorized by searching similarities and discrepancies, thus were categorized to classes (Tuomi & Sarajärvi 2002, 112-113). For example data can be categorized into classes by following figure:



(Figure 5) Example of categorizing reduced expressions.

In following is described in more detail the contents of the focused interview analyses and compared with theories used in this thesis.

Environment

One of the most valued spaces that came up from consumer research was the park and via park, water and vegetation (see pictures 4.3a and 4.3c). According to (Aura 1997, 100-101) people are retiring instinctively to the nature to recover. Also into environments where are small amount of complexity, movement and strong stimulus recovering which are more intensive. 'A park is a hospice from city's pollution and hustle, it's a place where you can go to relax and get some energy -free space where you can have fun and enjoy' (interview 6). Location of the park was mentioned to be in immediacy of the people, so it's easy to get there. Water was a relaxing factor that stands out clearly. Especially moving water was considered to be really relaxing. Dampen noise of water should incorporate efficient with scenes founded from nature for enhancing relaxing (Kopec 2006, 135).

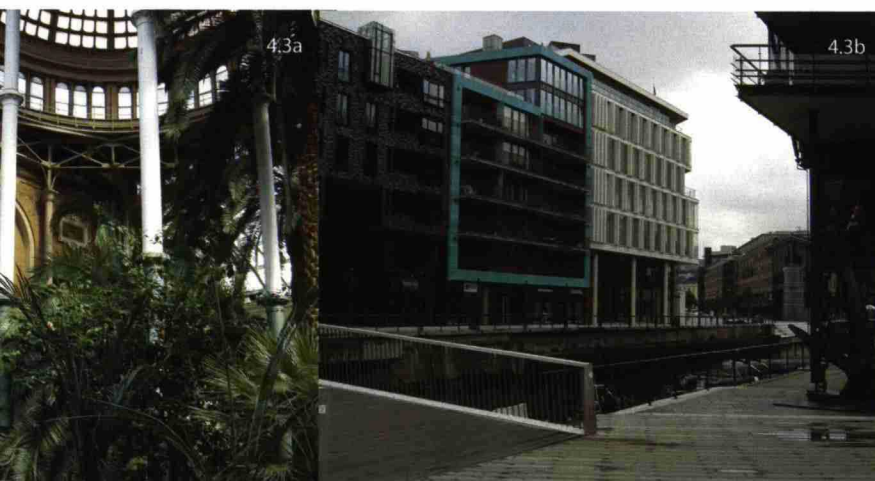
Variable environment was estimated mainly from architectural point of view. Architecture in surrounding the environment was considered to be mixture of functionality and aesthetically pleasant constructions (see picture 4.3b). Many times it was mentioned that trees and water in middle of the city create good environment and the surrounding should be versatile (see pictures 4.3a and 4.3c). Scenes containing natural features, green areas, open spaces with pathways, and water features are universally liked (Fenton 1985, 325-339). Old architecture was considered to be most interesting and inspiring to the environment. The fact that ambience should have landmarks (see chapter 5.2), which could be statues or other significant constructions were also considered.

Observation was confirming the need of the nature. In Copenhagen people were getting out from the city hustle to the parks to have a lunch and spend time in the afternoon. On Sundays parks were crowded with people having picnics, playing or sun bathing. What was remarkable was that parks do not exactly have any activity and people need to come with the activity by themselves and also every park had an even small pond and its close proximity was the most popular place in the park.

(Picture 4.3a) Environment with vegetation (Ny Carlsberg Glyptotek, Copenhagen).

(Picture 4.3b) Variable environment (Oslo).

(Picture 4.3c) People in park (Copenhagen).



Variable environment was notable in Copenhagen where modern architecture is broadmindedly merged to the traditional. Also Naantali Spa has a variable environment which is caused because spa-hotel has been constructed in many different periods. That causes different consecutive spaces such as: main hotel, spa and restaurant area and Sunborn yacht-hotel, that all sections have different atmosphere. Equivalent space rhythm is important for the pleasant space experience (Aura 1997, 32-33).

Atmosphere

According to consumer research people are making the atmosphere and creating the space stood out practically in every interview (see picture 4.3c). Most of the expressions described how people by their own acts are changing the atmosphere in the space and how space without people isn't pleasant. In many cases it was mentioned how it is entertaining and pleasant just watching people flow. Generally people are creating space just by staying in a space, but many times this was defined that people are playing, singing or making some sound to fill the space. The way how people have dressed has a big influence to the atmospheric changes. Also what was mentioned was that people don't have to activate themselves, because surrounding people are activating other people.

Difference in atmosphere between day- and night was estimated to be strong. Night time was identified to be more atmospheric, because there's more music on the streets and lighting increases atmosphere (see picture 4.3e). Overall lightning and music should be welcoming and comfortable and in certain places like night club ambience is mainly based upon lighting and music. Ambience should touch different senses, where music was perceived to be the most powerful, because you can hear it as background music without paying attention and still it affects to you.

Peoples affect to the atmosphere was easily recognized in all observed places; especially the clothing affected the atmosphere strongly (see pictures 4.3c, 4.3d and 4.3h). For example during cruises when people dressed in evening suites for the

(Picture 4.3d) People are creating space (Nyhavn, Copenhagen).

(Picture 4.3e) Lightning increases atmosphere (Tivoli Copenhagen).

(Picture 4.3f) Affect of the clothing.

(Picture 4.3g) Freedom to choose.



captain's dinner the atmosphere changed dramatically (see picture 4.3f). Impact of the lighting was notable in all observed places, especially in Tivoli and changes between day- and night were in line with consumer research. Even lighting, music and clothing influence greatly the atmosphere, these factors are determined from concept because in this thesis one focused is on physical elements that are creating pleasant and functional experiences.

Experience

General experience was assumed to have freedom to choose from many possibilities to experience something (see picture 4.3g). Mainly experiences were described to just be in the city or walk around or hang out with friends and take it from there. According to (Aura 1997, 134) people decode environment in their own way, a good environment should have several parallel activity possibilities.

Also distinctive experiences were mostly connected to the people and how people are creating unique atmospheres around them. It was said that 'there's always something unique happening when there's lots of people around you' (interview 5). Places like Nyhavn (Copenhagen) were assumed to be unique, because the volume of the people and also all the city events, which are attracting masses of people. Elements creating distinctive nature in Copenhagen were the old buildings, water front, all the parks and lakes and in cruise: sailing in the sea, the sights and the ship itself. Design can't, and its task is not, to determine how people should operate.

But it should create elements that are supporting different consumer groups every day and expanding, versatile and modifiability of their living spaces (Aura, Horelli & Korpela 1997, 32-33).

During observation some kinds of experiences were stumbled upon: while just walking or staying in place the surrounding environment was suddenly offered with something interesting to see. Many times well planned day schedules produced a less stimulating experiences as apposed to those which were not planned.

(Picture 4.3h) Nyhavn (Copenhagen).

(Picture 4.3i) Restaurant (Nyhavn).

(Picture 4.3j) Performing art (Oslo).

(Picture 4.3k) Multi-use space (Puma City, California).



Service

Service should be as personal as possible and customer's want to experience luxury and feel that they themselves are more superior because the service level. Service in general was considered to be multi-sided as possible and all age groups and consumer groups should be considered which should be divided constantly around town. Also Information about what is happening was considered to be lacking. 'It should be something what you will see by force in multimedia broadcasts that reach all the senses' (interview 7).

Service needed to be unique visually, by location or in service sense (see picture 4.3i). Restaurants should be located areas where there are mostly restaurants located to make it easy to compare, but an area should also include other services to make it more interesting. There should also be international mix of restaurants and different dishes offered. In cruise ships, restaurants should have a nice view. Ambience of the restaurant should be attractive –restaurants should awaken people's curiosity. This could be indicated with signs, views from the window and tempting senses with music, smells and lighting. Also customers in restaurants were considered to be something that attracts. Providing outdoor furniture, healthy vegetation, water features, outdoor sculptures and lamp posts will not only attract more pedestrians but also increase their perception of safety (Schmandt, M.J 1999, 157-165).

Shops should be located in the same area than restaurants, because mixing services makes an environment interesting, but more close to each other's so it's easier to go from shop to shop. The creation of overwhelming ambience in shops are the display windows was attracting interviewees and made them enter into new shops. Shops were desired to be more unique and sell more variety goods, because there are usually big companies whose supply is similar in every country and suiting average people.

Performing art was experienced to be suitable for open places like market squares and shopping streets and could also be suitable for restaurants (see picture 4.3j). Performing art should always be participatory and never disturb anyone. It was also mentioned that different kinds of performances could have their own places that people can go after some certain kind of activity.

If comparing to the above mentioned ways to have experiences Copenhagen was the only observed place to have freely performing art, Naantali Spa and Cruise were offering performances as a defined show numbers.

Multi-use space

Space in general was considered to be something that has borders. It has to be something which has its beginning and end. Also walls, barriers, vegetation define the certain area that should be coherent from its nature or use. Versatility of the space increases with movable-elements like furniture and makes it more flexible, thus it can be increased to be suitable for different kind of activities (see picture 4.3k). Everything fixed was

experienced to be a barrier for flexibility, but was also mentioned that elements should appear to be fixed. It was also possible to be reevaluated that interviewees feel the need of categorized different areas in multi-use space. Furniture, colours and fabrics were used for the sorting.

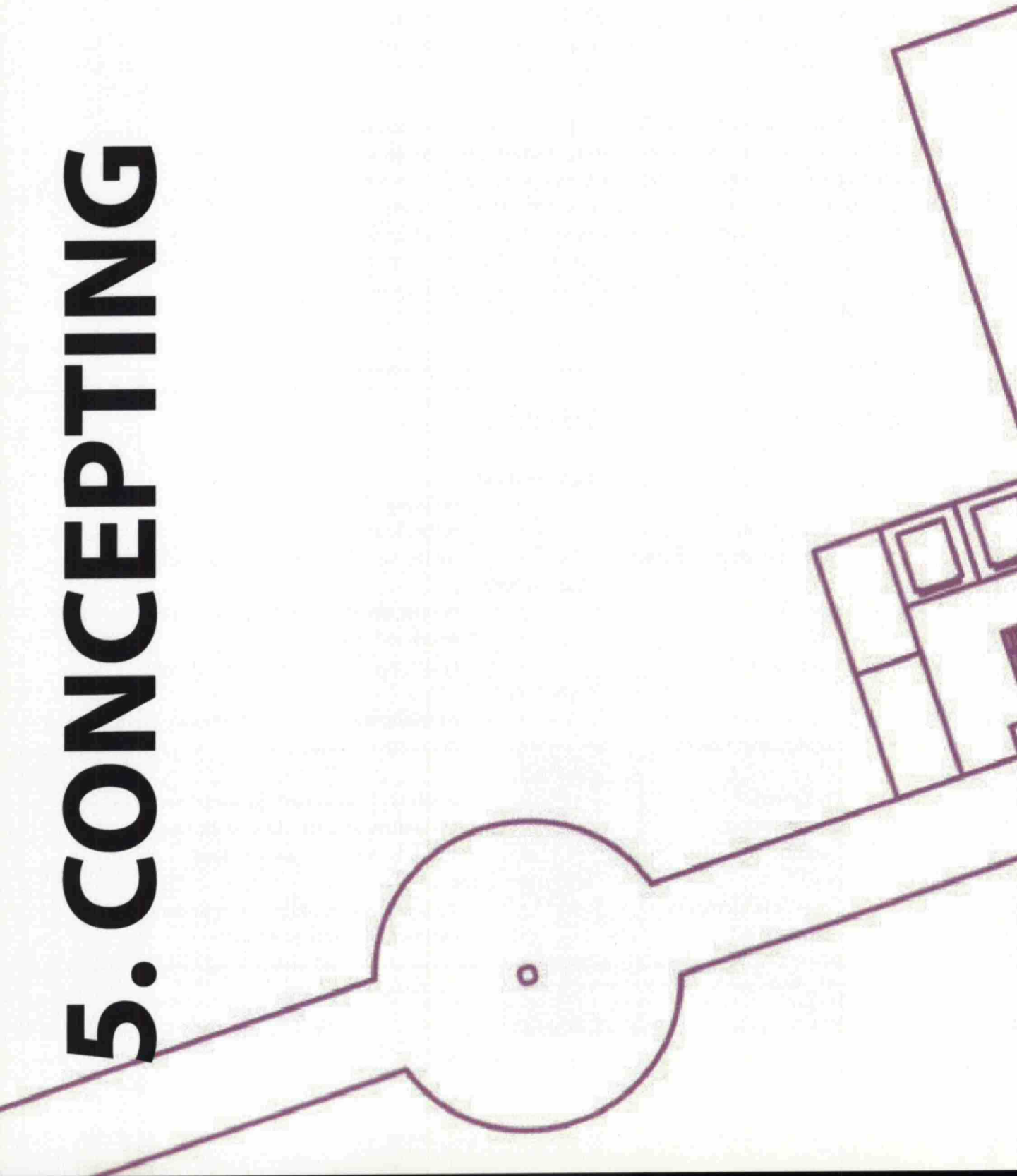
Examples of the multi-use and efficient space were broad open places like market squares, main shopping streets and parks. Overall it was mentioned that efficient and multi-use space is comparing many different activities or services and in many cases performing art was mentioned in the same context. Parks were mentioned as good examples because spaciousness, many possibilities and unlimited activities. Also reutilization of the old places was determined to be efficient use of the space as well as using the space under and above of the building, but high buildings were thought to be poor and ugly space usage.

Figure 6 collects essential contents of above mentioned into comparison chart:

USER RESEARCH	FINDINGS
Environment <ul style="list-style-type: none"> • water • vegetation • variable environment 	Environment <ul style="list-style-type: none"> • relaxing element • reflationary space • mixed service and architecture elements
Atmosphere <ul style="list-style-type: none"> • people • music • lightning 	Atmosphere <ul style="list-style-type: none"> • people involved to the environment • restricted from thesis • space transformation with lightning
Experience <ul style="list-style-type: none"> • freedom to choose • distinctive nature 	Experience <ul style="list-style-type: none"> • overlapping service/performance supply • distinctive nature
Service <ul style="list-style-type: none"> • personal • many-sided • unique 	Service <ul style="list-style-type: none"> • small scale and more personal services • variability and freedom to choose • strongly differencing services
Multi-use space <ul style="list-style-type: none"> • movable elements • unlimited 	Multi-use space <ul style="list-style-type: none"> • standardized modules for redecoration • outlined not limited space

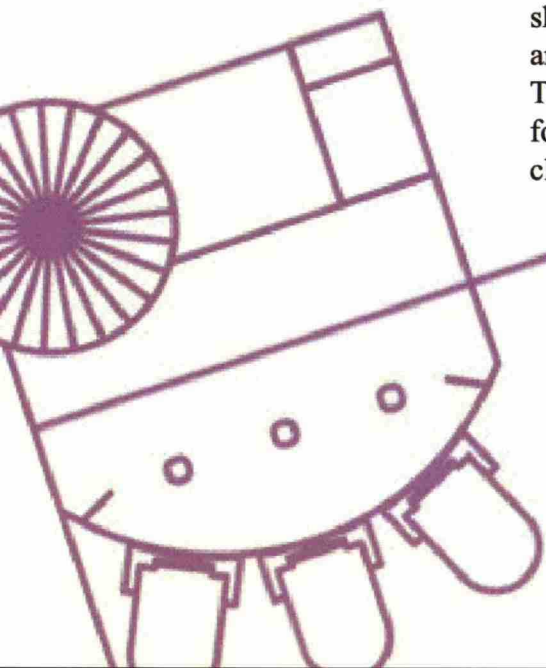
(Figure 6) Comparing of essential contents of consumer research and findings from theories and observing.

5. CONCEPTING



05

In this chapter design process, final layout and case studies are introduced. First design goals are defined with establishing design brief and placing objectives into framework of ideal aesthetic consumer experience. Secondly concept ideas are generated by determining suitable spaces in cruise ships to introduce context of the consumer research and evaluated concept ideas with consumers. Thirdly general arrangement concept is introduced for the xp Tray—concept and case studies that clarify findings from consumer research.



5.1 DEFINITION OF DESIGN GOALS

Through consumer research and theories of environmental psychology and user centred concepting design the problem was positioned into design brief (see figure 7) to clarify the design problem and goals.

Design brief	
Product description:	Designed space is a part of the public spaces of the novel cruise ship concept –xp Tray that consist of main service and activity areas.
Design comprehends:	Consumer research and idealizing of possible solutions that are evaluated with consumers and development to one final concept.
Design goals:	Pay attention to consumers desires and needs for pleasant and functional environment, focusing on holistic space experience. Space must express multi-use solutions for utilizing available space to decrease needed space volume.
Consumer group:	Wide, consisting of nearly everybody.

(Figure 7) Design brief (Kettunen 2001, 65).

In this research concept ideas are generated based on consumer research that is supported with theories from environmental psychology and user centered design. Aesthetic inspiration is mainly gathered by observing the surrounding environment. Because one design goal is to generate holistic passenger experiences it is important to examine design also from aesthetical point of view; how cruise ships create overall an experience with looks and feel. In Gajendar (2008, 8) the theory of the ideal aesthetic consumer experience, experience is examined in three elements:

Integrative. Beauty must be repositioned away from surface effects toward a cumulative sense of how fundamental elements work in concert to achieve something memorable and desirable, thus deserving repeat purchase and positive testimonial.

Aesthetic. Aesthetic implies a complete sense of human value connecting to the consumer on multiple levels: emotional, sensual, and reflective or intellectual.

Experience. It's a cliché that we live in within "experience economy" and that has become the central task for designers to address human experience.

Gajendar (2008) is separating human perspective on aesthetics into four core elements: style, performance, utility and story (see figure 2) that provide a vital tool for critical analysis comparing of design solutions and helps designer to avoid the opinionated and personally defence.

Style (How does it look and feel?). High style is valued more and more by consumers for emotive reasons and is one of the necessary determinants for achieving marketable successful breakthrough innovations.

Performance (Does it work?), the technical functionality of the product for the intended consumer base and its primary usage scenarios.

Utility (Can I use it?). The combined usability and utility of the product’s features for the targeted audience and context. Is it accessible and standards compliant?

Story (What is the purpose?). A narrative that tells the scenario of use for the product and outlines the benefits for the targeted consumer/context.

In the following objectives and design goals of the research are placed into framework of the ideal aesthetic consumer experience:



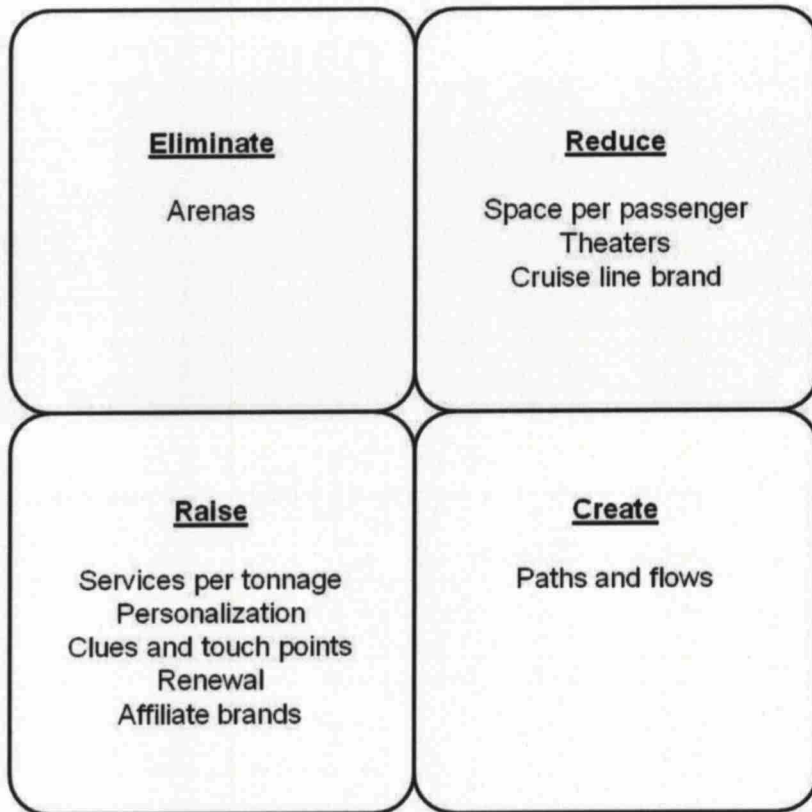
(Figure 8) Structure of the research and objectives of the research placed in to framework of the ideal aesthetic user experience (Uday 2008).

5.2 GENERATING AND EVALUATING CONCEPT IDEAS

The purpose of the design is to create attractive, pleasant environments that we enjoy. It is essential that planners and designers create environmental features that both elicit pleasurable responses and fulfill functional requirements (Kopec 2006, 85).

Concept generation was started by listing all the amenities needed in the xp Tray cruise ship concept. Amenities were organized together with author of the economical thesis (Lampinen 2009) to the matrix (see attachment 5) to generate suitable amenity combinations. Combinations were written on post-its and organized on drawn paper GA to ensure combinations and realize which amenities needs to be close each other's, where they should be located in ship and how they are connected between deck's and each others.

After generating raw GA with space combinations it was compared to insights collected from analyses and statistic information of the space needs (Lampinen 2009; see attachment 2). Gathered insights justify the most important spaces on board, spaces that need development and profitable information gives justification to places that are low profitable to reformation. Recommendations based on economical research (Lampinen 2009) for action areas in cruise ships are showed in following figure and relation with this thesis is explained in following chapter.



(Figure 9) Recommended development areas in cruise ship (Lampinen 2009).

Four combinations were chosen for further-development and absent amenities were located into GA just briefly marked as space reservations to get the overall picture of the GA. Chosen amenity combinations and their conceivable ambience are described briefly in following:

Central Park combination of lobby, park and promenade that is outlined by restaurants, retails, bars and cafeterias. Ambience of the space is a pleasant park kind of free reflationary space (Aura 1997, 102) where passengers can have picnics or just enjoy the people flow. Surrounding urban kind of facades take influences from traditional architecture twisted with modern architecture (see pictures 5.2b, 5.2i and 5.2j). Behind the facades mixes of cafeterias are located, shops and alternative restaurants that are strongly differentiating visually from each other and expanding their services to the routing.

Amenity spaces are realized with modular construction (see pictures 5.2d, 5.2e, 5.2i and 5.2j) that can be merged by removing the dividing walls and personalized or changed for another brand (see figure 9) with redecoration. This is possible when at a harbor, because of standardized dimensions and attachment points for furniture. At both ends of the central park is located inducement (Aura 1997, 114-117) that can be for example casino or theater. In the central park there is also located information desk in the lobby, which also functions as an entrance for passengers. On route are temporary mobile services such as ice cream or hot dogs trolleys and performances. Overall the Central park is an open space where all the activity and service can be noticed and enjoyed from various points (see figure 9).

Mobile **Pool** expands the use of the otherwise traditional pool area. The basis of the pool consists of several mobile blocks (see pictures 5.2e and 5.2j) that can be adjusted vertically and horizontally to create plane for sunbathing, stage for performances or large arena for example for sports and shows.



5.2b



5.2c



5.2d



5.2e

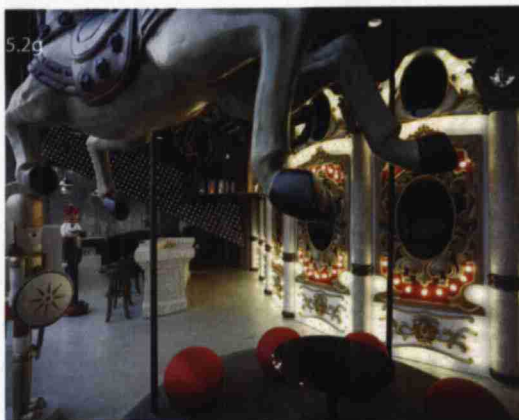
(Picture 5.2a) Raw GA (background beside).
 (Picture 5.2b) AGO Art Gallery of Ontario (Toronto).
 (Picture 5.2c) Les Bains Des Docks (Le Havre).
 (Picture 5.2d) MINI Cooper S Clubman Airstream concept.
 (Picture 5.2e) CheBanka(Milan).
 (Picture 5.2f) Bad Aibling (Munich).



5.2f

In direct proximity to the pool area is a nightclub that can be used in the daytime for conference use and panorama. At night time nightclub is expanding its services outside to the pool area that creates a large party space that can have several areas with different themes. Water with lights in pool area is used for creating impressive visual experiences and strongly differencing day ambience from night (see picture 5.2f). Otherwise styling should be considered to take most of the surrounding sea. Mobile services and performances could also be suitable for Pools atmosphere.

Tivoli is a merging arcade, teen's zone, fast food, surf simulator and adding some traditional amusement park rides (see picture 5.2g) into same space. Also some sport facilities could be placed here. The ambience of this place stands for noise and action;



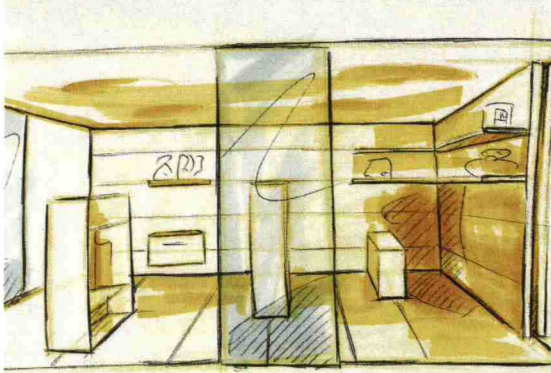
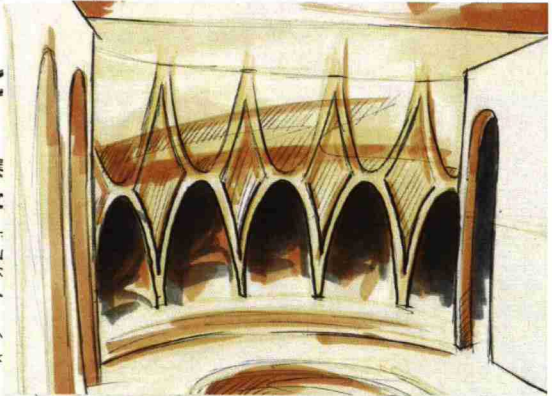
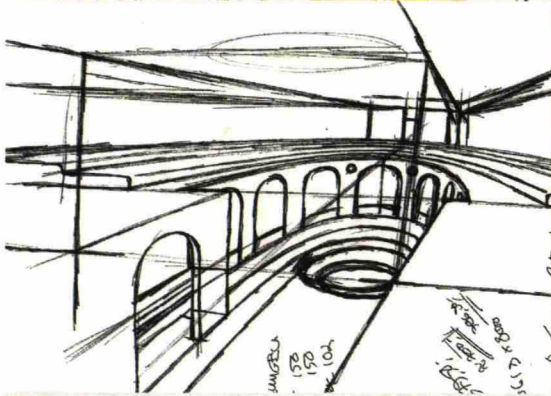
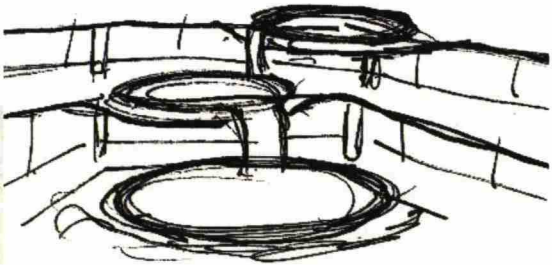
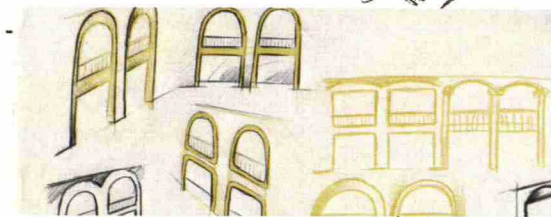
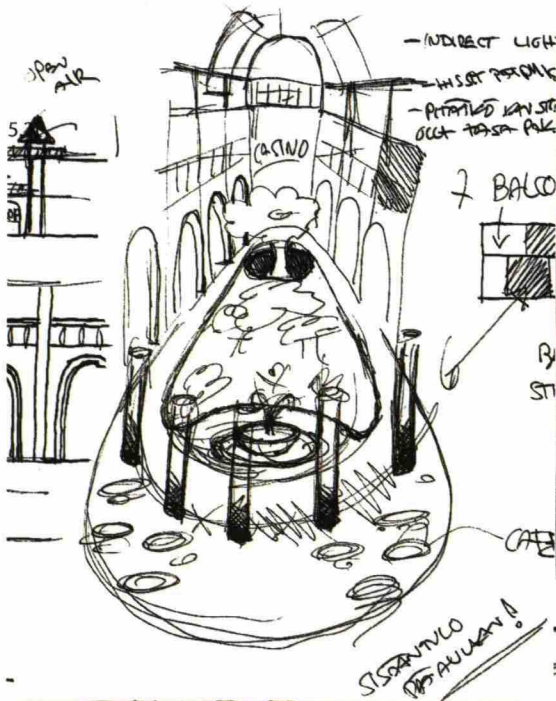
hence it should be separated from low-stimulation activities. Although Tivoli's amenities are mainly used by teens ambience should be designed thus it attracts all consumer groups and appeals passengers who enjoy action. Performances and mobile services are suitable for Tivoli and cafeterias where possible to follow happenings more peacefully. Decoration is open-minded mixture of different styles merged to harmonic entirety.

Theater as such was chosen to be excluded from concept spaces, because of its low utilization (see attachment 1) and profitable rate space that demands relatively large space that majority of passengers can fit in to watch shows and it is used only a few hours during the day (Lampinen 2009). Solution for the

program needs is solved with several small stages that are located all over the ship (see picture 5.2h). This arrangement gives possibility to run a wider variety of shows simultaneously and brings performances closer to the audience. Also when placing stages around the ship, needed vitality spreads out to all ships public spaces.



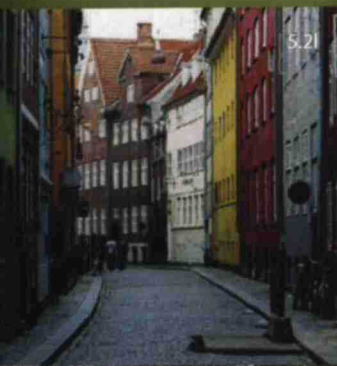
(Picture 5.2g) Ogilvy & Mather's office (China).
 (Picture 5.2h) Light House Cinema (Dublin).
 (Picture 5.2i) Sketch from Central Park.
 (Picture 5.2j) Sketches from Central Park, Pool and modules.





Stages and performances can also be seen from various places and from long distances, which attracts audience, or passengers can enjoy shows by just sitting in for example a cafeteria (see figure 9, page 58).

From these combinations the Central park and the Pool area were chosen for further development, because insights from the consumer research are highlighting elements most relevant for these places and recommendations from economical thesis (Lampinen 2009; see figure 9, page 58) are realized mostly in these places. These spaces also combine various services and are located within immediate closeness of all services on board; therefore it's easy to introduce contents of the consumer research and recommendations for space utilization and modularity in this context. The theatre is also present because the recentralization of small stages. Both the Central park and the Pool-area are extending to several decks because of the space needs (see attachment 2), hence it's reasonable to handle Central park and Pool as a coherent entirety that connects decks together and creates base for the ship's architecture and GA.



The environment of this in entirety is created based on essential contents of consumer research (see figure 4, page 47) with transparent and unlimited layout as much as possible where continuous greenness and present water are creating pleasant and relaxing space experience (see picture 5.2k). The Central park traditionally has a function as a passage and meeting place, but when improving the space in a park kind of free-space direction, the space transforms into a more comfortable place to stay and enjoy activities and people flow. The atmosphere from people can be increased with performances that bring vitality into the central park and pool area. Atmosphere can be changed with lighting during day-rhythm and enliven with live music performances that are highly appreciated in consumer research. Asymmetrical urban layout which consists of blocks with differential architecture gives passengers the needed rich and inspiring space experience (Aura 1997, 114-117).



Overall visual resources for the central park came from observation in Copenhagen, with its narrow shopping streets, direct closeness of the parks; surrounding sea and mix of traditional and modern architecture (see pictures 5.2l -5.2o). Also it was clear from the very beginning that vegetation is going to play a remarkable role in the Central park and one picture really inspired design which was discovered from the cool hunter website's tree life competition, where tree is growing through levels (The Cool Hunter 2008, see picture 5.2p).



Other bearing principle for the central park design was the fact that cruise ship has several constructional elements and these should be visually utilized. The first construction element that has direct impact to central parks design is the pillar lines that are splitting ship spaces lengthwise, with one pillar in every 6 meters. These lines give limitations, but also opportunities to essential design in the concept. Pillars are utilized in outlining the central park space. According to Lynch (1966) edges in space are helping people to conceive space. Pillars are partly covered with facades that calm the central parks ambience from fuzzy service front ends.

Pillar lines (structural necessity) are also creating paths into the central parks space which is one of the development recommendations that raised both from economical thesis and from theories (see figure 9, page 58). Paths are identifiable and continuous channels of movement that tie environment together and strengthen consumer's senses of orientation when they are crossed (Lynch 1966). Basically pillars separate two paths that are going both sides of the façade, thus the passenger has variety to choose the more fuzzy service side or more peaceful park side. Paths are crossed in many points so passenger can change path or enter into a third path that goes around ship in the open air after boards.

The second element that was utilized for design was the staircase (structural necessity) in the middle of the ship. It's a supporting element for construction, thus variability of the element is limited. This highly visible element is playing a landmarks role. Landmarks facilitative legibility of the space and create base for people to categorize the scene and the objects within it (Kopec 2006, 31, 300). Inspiration for the staircase came from architecture of the Art Gallery of Ontario (AGO, see picture 5.2b); the place also plays admirably with traditional architectural shapes in modern way that influenced to the design of the whole Central park.

Besides the elements creating pleasant environment and atmosphere, holistic passenger experience is gained with wide variety of services to choose from and nature that is differentiating from land based resorts with emphasis of surrounding sea and deck based construction of the ship. That is pursued with overall transparency, thus the surrounding sea is attempted to be visible. Amenity spaces are individually decorated mixed among each other and located round the decks 6-8 that makes services more multi-sided. Multi-use space is realized with modular thinking, where amenity spaces are modules that share same measures and for example standardized locations for electricity and plumbing, which makes them easy to redecorate for another service. Modules can be joined together because of removable walls. Modules are relatively small spaces so in many cases service is expanded outside the modules service area to shared customer areas where multiple services can use the same customer area.

- (Picture 5.2k) AA Hijmans van den Berg (Utrecht).
- (Picture 5.2l) Copenhagen: narrow shopping street.
- (Picture 5.2m) Copenhagen: park.
- (Picture 5.2n) Copenhagen: Seaside.
- (Picture 5.2o) Black Diamond (Copenhagen).
- (Picture 5.2p) Tree Life Competition.

For the pool area visual source came from Lamborghini Murciélagos (see picture 5.2q) engine bonnet that has fascinating architectural shapes. These shapes were the first starting point for waterfall that falls down to the pool through several layers, but the idea turned to a more practical direction and the design source gave inspiration for a mobile pool construction, that inspiration was explained more detailed above.



(Picture 5.2q) Lamborghini Murcielago LP 670 4.

Research has demonstrated that color is important to the perception of space (Kopec 2006, 87). The color scheme used in the concept originated from consumer research where vegetation, water and distinctive nature of the cruise ship were emphasized. Observation underlines three main colors that are used in the concept: green, blue and white (see picture 5.2r). Green because the vegetation and its one tone of the sea and green is also estimated in consumer research to be a relaxing color. Blue because it symbolizes the water and emphasizes the surrounding sea on cruises and white because it makes appearances larger and more active (Kopec 2006, 289) and represents cruise ships for the consumers (interviews 3, 5 and 6).

For the color scheme white and light colors decided to be dominating to emphasize feel of spacious and purity. Hue colors were avoided because they make spaces more crowded (Kopec 2006, 89) Real vegetation determined the represented green color as much as possible and floors were decided to extend greenness with green color. Because when looking from above to downward green flooring gives a natural and green ambience and when looking from below to upwards the ship gives illusion of space. Correct tone combination was discovered from Honda's EV-N concept that was introduced in the Tokyo Motor show 2009 (see picture 5.2r).



(Picture 5.2r) Honda EV-N concept.

During process concept ideas were evaluated monthly in meetings with industrial coordinators and in-between with colleagues. In the consumer research interviewees were asked to take part in the design process. In later phases that proved to be challenging because interviewees living abroad and explaining all the necessary information by mail or phone was unnecessarily difficult. Thus it was decided to leave evaluation into the phase where the concept is nearly done and establish survey where consumers could easily evaluate mainly the aesthetics of the concept, because the use of scenarios or mock-ups was declined as being out of the scope of the research.

The established survey was based on Kopec's (2006, 86) formal aesthetic survey, that is based on design distribution in formal and symbolic aesthetics. The survey can be adapted when measuring aesthetics of the spaces that are creating the base for the consumer experience. This survey was sent to consumers (interviewees) in November and they were asked to evaluate concept based on two pictures of the Central park with 13 questions in four categories (dimension, enclosure, complexity and order) and give free comments (see attachment 6).

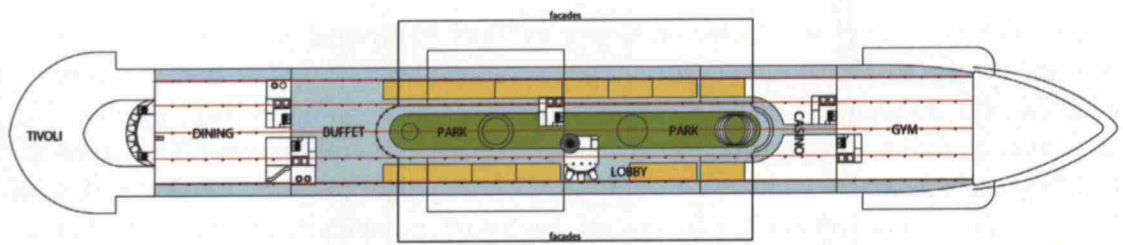
Four of the interviewees returned the survey and commented on the concept. Based on the results the interviewees considered the space attractive. Keep in mind that each individual's notion of beauty will differ based on their past experiences (Kopec 2006, 86). All the categories were graded highly which means the concept's aesthetics are successful, but the result is considered suggestively. The complexity of Central park was valued mostly high (4.31/5) which means space has a great information rate, visual richness and diversity. Enclosure of the space was scored as second best (4.25/5), which means the feel of spaciousness is reached and density of elements in space is convenient. Order in space reached lowest scores (3.5/5) and scores differentiated clearly in narrow dispersion. Results show that space is lacking unity and clarity and needs to be taken into account when refining the concept.

In single questions the best result shows that the space gives appearance of having more room and not being cluttered and no single elements in the space too dominating. Development was asked for in unifying the theme in space and for fascination of single elements.

In addition concept was evaluated, detailed with technical thesis (Bergström 2010), because constructional challenges of large open spaces in hull and removed bulkheads and pillar lines. When investigating layout introduced in this thesis from longitudinal strength point of view structure was founded feasible. Only plate thickness of the remaining bulkheads needs to be strengthened.

5.3 GENERAL ARRANGEMENT

Design of the general arrangement is based on border and pillar lines of the xp Tray – concept (see picture 5.3a). Outlines gathered with xp Tray-concept where mainly based on construction design, thus bulkhead and pillar demand (see picture 5.3a), where layout of the spaces were more or less space reservation drafts. Construction of the cruise ship with pillar lines, bulkheads and other supporting structures (e.g. elevator shafts) are setting challenges for the transparent and spacious layout (see picture 5.3b). Supporting structures are considered in technical thesis (Bergström 2010) where constructional possibilities are researched to execute the layout of the general arrangement proposed in this thesis.



(Picture 5.3a) Deck 6: pillar lines (red), baths (blue) and modules (yellow)

In GA the concept is strived to a transparent layout, thus passengers are applied to perceive the Central Park as a whole and easily locate all the activities, services and navigate easily from one place to another. The ability to navigate through an environment easily influences our overall perception of it (Lawton 1996, 137-145). Greater environmental legibility facilitates greater exploration, which leads to greater understanding or at least a sense of familiarity, all of which promotes greater overall satisfaction with an environment (Kopec 2006, 91-92). A content of the consumer research is supporting legibility and guides the GA design to a more unlimited direction where passenger can choose from multiple paths.

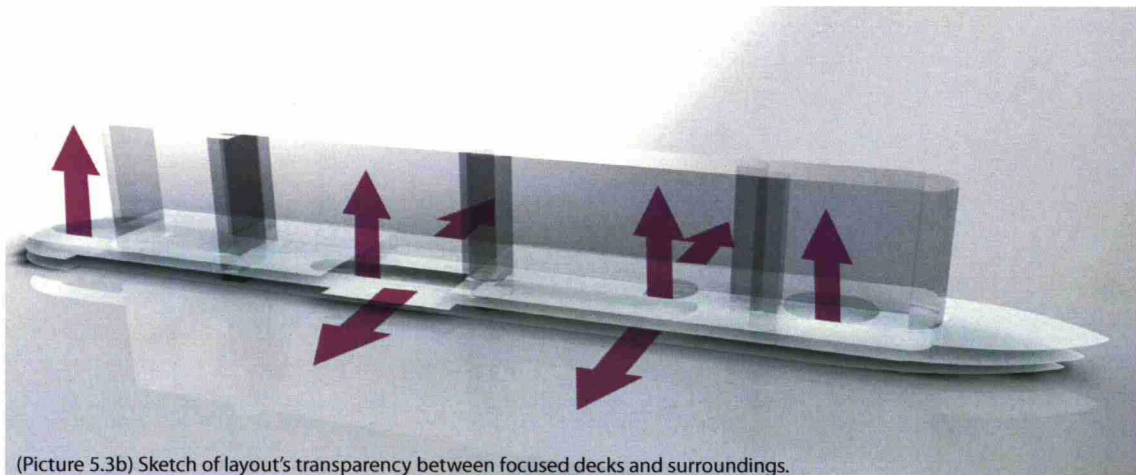
Vegetation and water (see chapter 4.3) are appearing in the Central Park in the form of grass flooring, fountains and with a central tree that is chopped between decks delivering greenness horizontally to all decks. The layout is unlimited, which means given paths are avoided and this gives passenger's needed free space with unlimited activity possibilities. According to consumer research (see chapter 4.3) people create the activities by themselves; this culminates on the 8th deck where almost whole deck is missing fixed elements (see picture 5.3c). Several stages are rejuvenating the Central Park's atmosphere with live music and performances.

During the daytime as much as possible daylight from openings and windows to the sea side are used and evening ambience is improved with multiple lighting. Spaciousness is increased with transparency into surrounding sea from between and through modules.

In the Central park a way finding mechanism is utilized as introduced in chapter 3.3 (Kopec 2006, 91) where visual access helps to reach destinations, architectural delineation (facades) separate the park space from the fuzzy service front ends and this arrangement creates clearly articulated paths that are circulating space for better com-

munication with space. Longitudinal construction of the ship with visual access gives opportunity to exploit inducements at both ends of the Central Park's space which makes perception of space easier (Aura 1997, 28). Middle pillar lines (see picture 5.4a) under the park section possess challenges both in the constructional and the visibility for the layout, possible reduction of the pillars are researched in technical thesis and introduced in chapter 5.2 (Bergström 2010). Reduction of the pillars allows longitudinal visibility in whole Central Park's space, which makes spaces even easier to perceive and navigate.

Central Park is circulated by three paths that give people experience of reaching various destinations a quick and efficient feeling (Kopec 2006, 91). This also gives passenger freedom to choose (see chapter 4.3) for example a peaceful park path, an inspiring path in front of the services or a panorama path outside. Several paths represent the unlimited navigation in space (see chapter 4.3). Park benches create natural resting places along busy pathways (Kopec 2006, 92). According to Kopec (2006, 92) it is recommended to use floor plans with greater symmetry as well as multiple architectural elements that interact so as to facilitate way finding, noting that such measures are more effective than the use of signage. On deck 7 it is realized that similar path ideology with a difference because the openings to the lower decks and in the deck 8 layout are completely park without certain paths (see picture 5.3c).

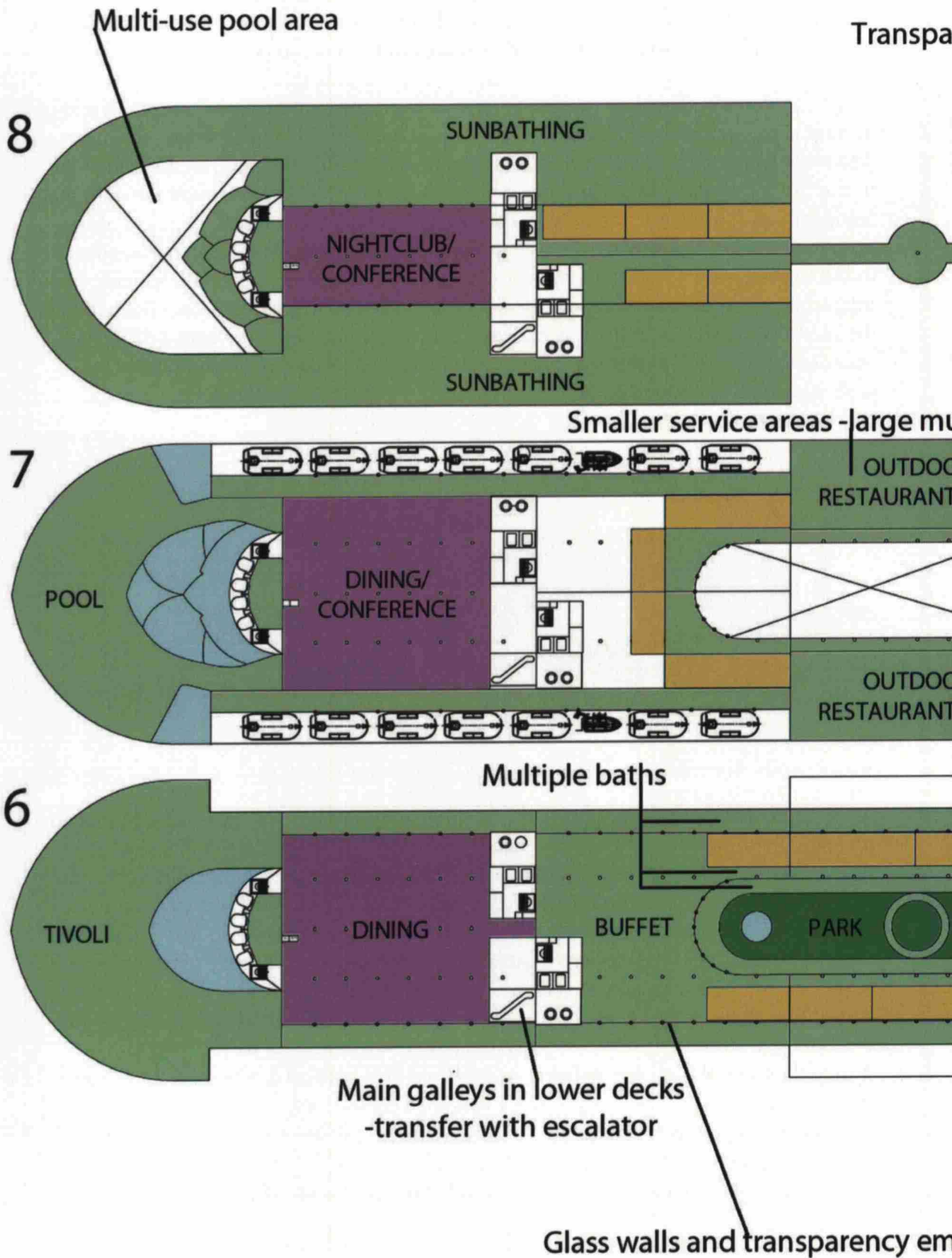






(Picture 5.3b) Sketch of layout's transparency between focused decks and surroundings.

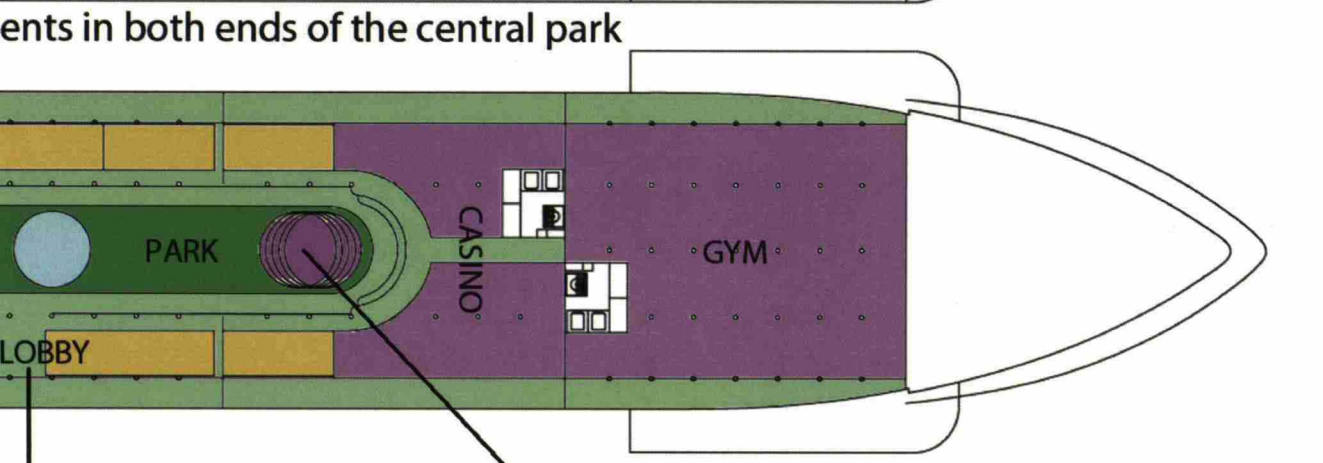
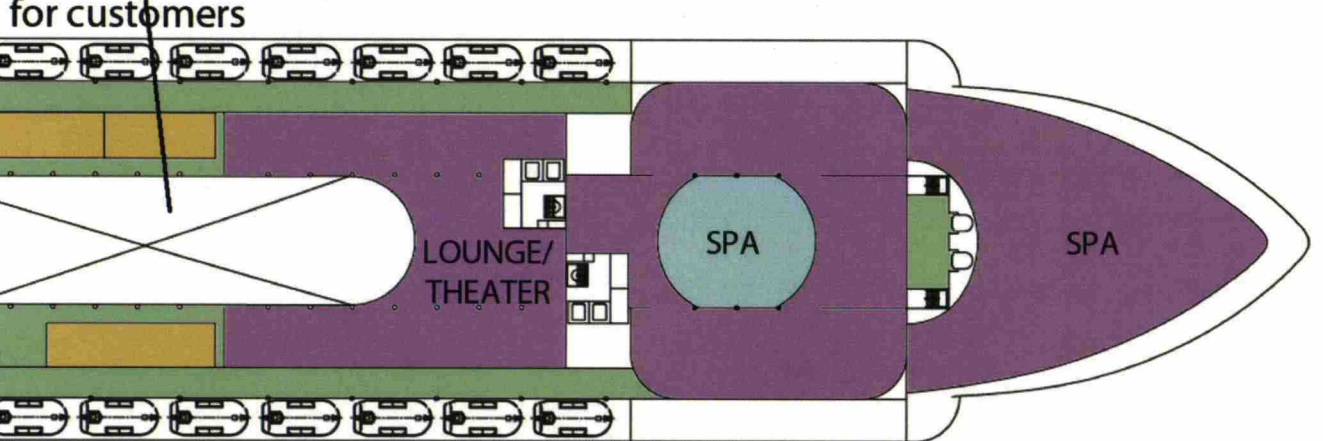
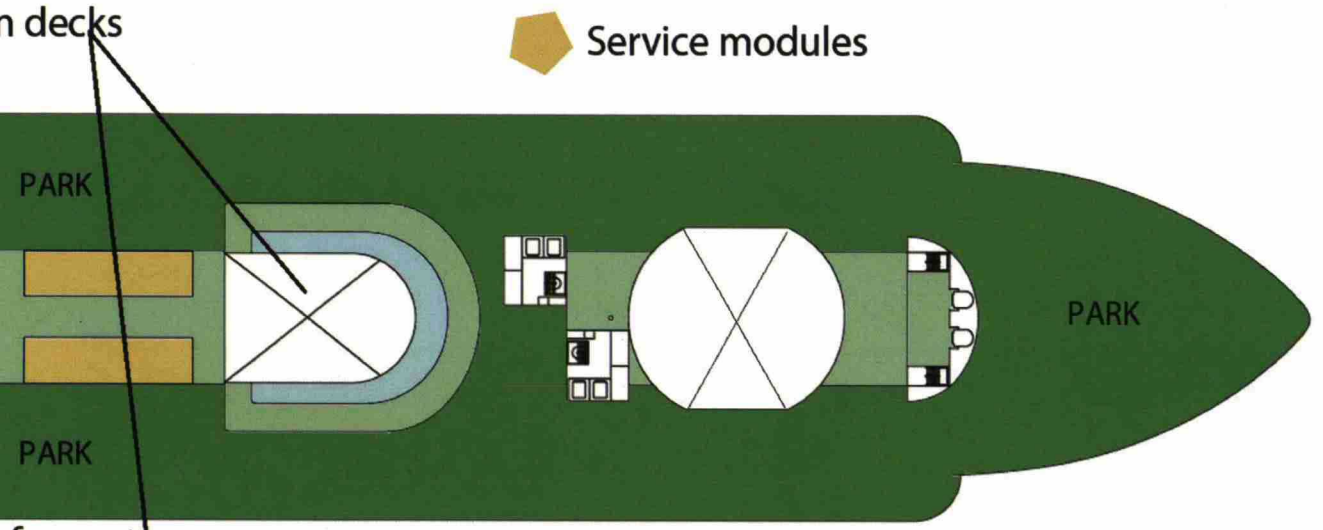
As mentioned above the Central Park is boarded with facades (see picture 5.3b) that are quieting the fuzziness of the service spaces (modules). In the placing of facades pillar lines are utilized that define the park area on the sides. Facades separate different areas and give rhythm to the Central Park with architectural elements that are varying from traditional to the modern to achieve rich space experience (Aura 1997, 114-117). Behind facades service cape modules are located which are introduced in following section. On deck 7 facades are composed together with circulating path balconies that can be used as an auditorium for performances played in stages of the Central Park.

Along the Central Park architectural delineations (landmarks) are located, thus from head to tail is: a stage surrounded by a fountain, a central tree, a stairway, a fountain and a miniature amphitheater (see picture 5.3c). Many people use reference points for orientation purposes (Lawton 1997, 204-219). In a resort, for example, the lobby, a landmark, or particular amenities are all reference points (Kopec 2006, 92).

(Picture 5.3c) General arrangement recommendation for the xp Tray concept's public spaces.



-  Open space for multiple activities and people flow
-  Entertainment and activity spaces
-  Park kind of 'free' space with vegetation
-  Service modules



directly into park and lobby

Small decentralized stages for performances

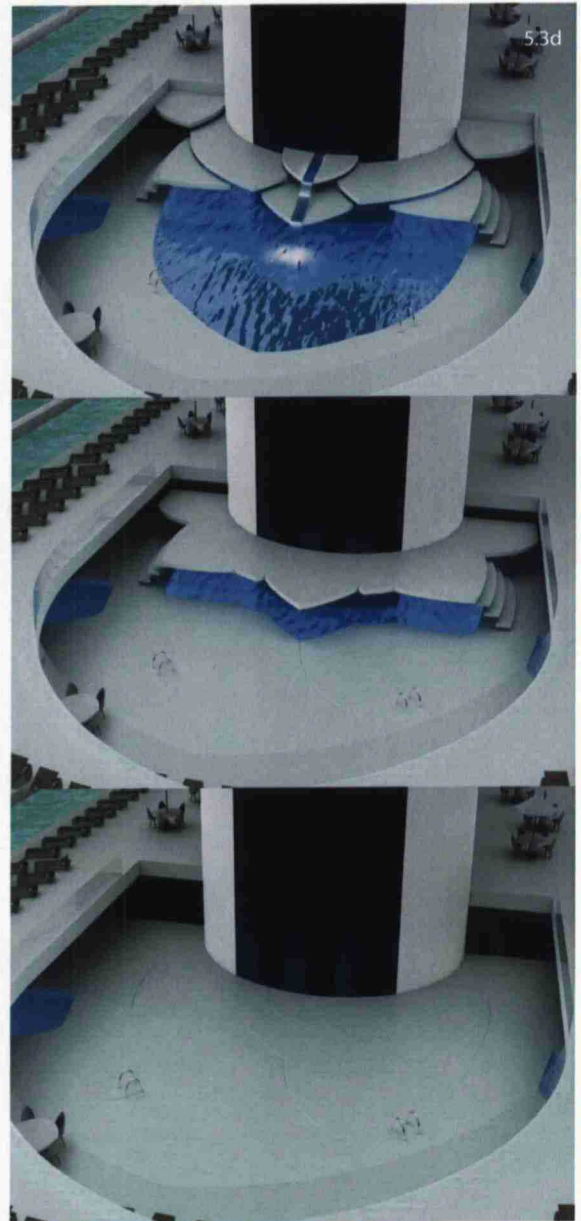
bounding sea

Space locations for different kind of activities are considered, thus spaces with high-stimulation activities are grouped together elsewhere than spaces for low-stimulation activities (see picture 5.4d). According to Kopec (2006, 259) it is important to consider the locations of amenities in the space planning of a cruise ship, high-stimulation activities should be clustered together so as not to interfere with low-stimulation activities. Entertainment and activity (high-stimulation) spaces are placed at both ends of the Central Park centralized on decks 6-7 (see picture 5.3c) that leaves long low-stimulation transition zones between them and calms the overall ambience and leaves whole outside deck (8th deck) for low-stimulation activities. This arrangement still keeps the Central Park lively, because the inducements in the both ends of the Central Park: at the fore is Casino at deck 6 and above it is located Lounge and at the tail direction is located Buffet and above it alternative restaurants with outdoor service spaces (see picture 5.3k, page 75). Restaurant related services and modules are clustered near escalators via which transport between galley and restaurants is conducted.

Passenger entrance to the ship is taking place directly into the Central Park from lobby at 6th deck. This gives passengers great first impression of the ship and helps perceiving public spaces immediately when stepping on board, unlike in the traditional way where passengers are boarding into the ship somewhere in lower cabin decks (see chapter 4.1).

The pool area is located in tail section of the ferry, to better protect against wind and increase visibility to the surrounding sea. Basically the whole 8th deck works as a sunbathing space, on which, at close proximity to the pool is located easy

chairs. The rest of the park area is mainly for picnics and sunbathing with blankets. Cuttings in the forepart of Central Park and Spa are entailing water as a relaxing element into the park and work as a more peaceful sunbathing area.

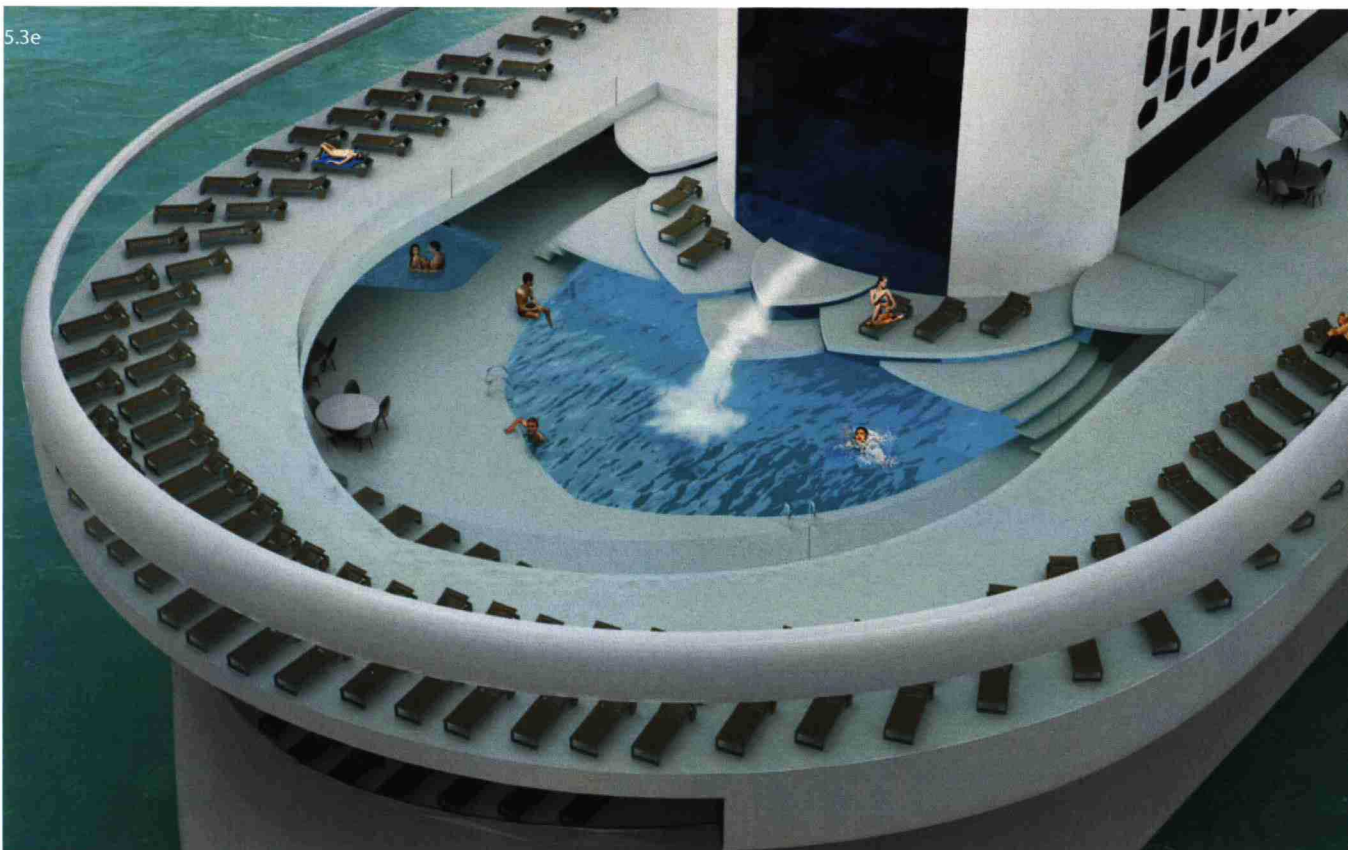


5.3.1 POOL

Pool area is a direct extension to the Experience Tray’s park and outdoor area that is located in tail of the ship, because of better wind protection. The pool area spreads into deck 7 and 8 so that the main sunbathing facilities are on deck 8 where free visibility to the partly covered deck 7, where the main pool and Jacuzzis are located.

Main pool plays an important role in multi-using because bottom of the pool is constructed from mobile blocks that can be adjusted to create stage or solid floor over pool (see picture 5.3d). The stage can be used for sunbathing, performances or utilized for immediately located nightclubs use when it’s expanding parties outside the nightclub space. The partly covered pool can be used as a dance floor when its transparency is creating ambitious lightning together with underlying water. When the pool is fully covered it can be used for multiple activities such an arena for sports or markets. Additional feature of the pool is that main swimming pool is limited to the transparent elevator shaft that creates visual illusion of elevator diving through water. Operating model and visual inspiration for the multi-use pool was gathered from Lamborghini’s bonnet (see picture 5.2q).

(Picture 5.3d) Pool operating model.
(Picture 5.3e) Overall view to the Pool area.

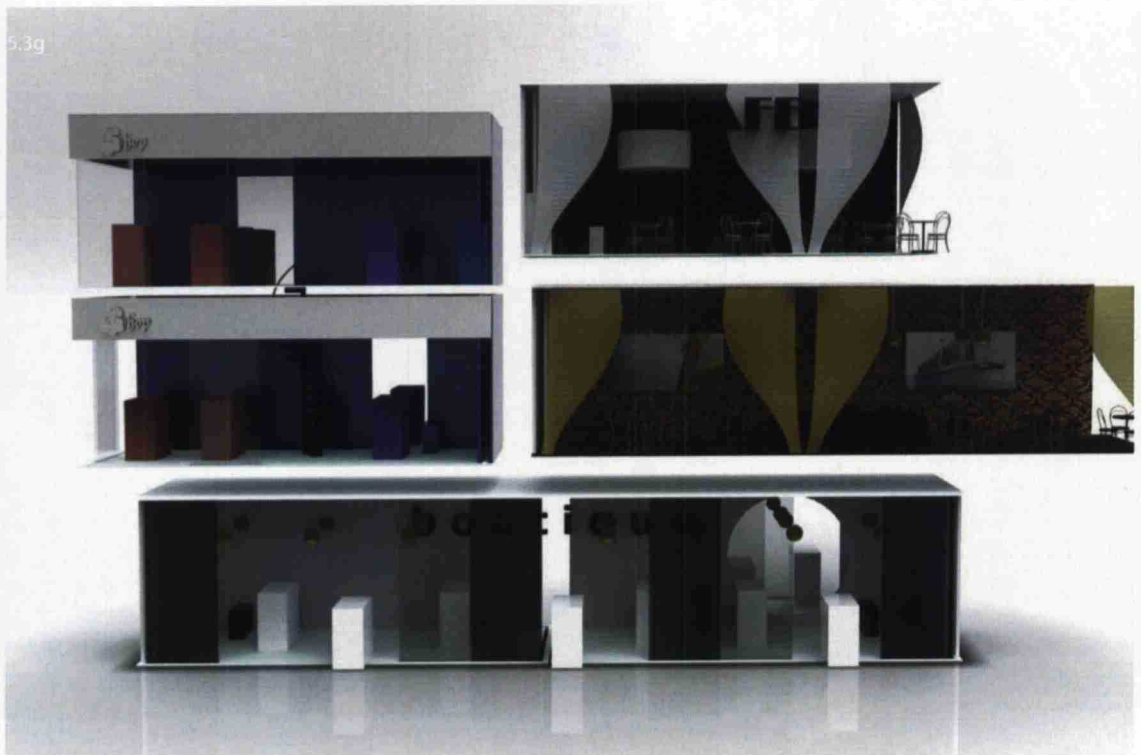
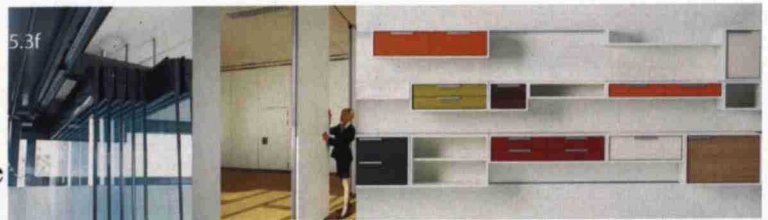


5.3.2 MODULAR SERVICE SPACE

It is essential for designers to both understand and design appropriately for spaces that serve multiple purposes (Kopec 2006, 127). Public spaces in the presented concept are designed to serve multiple purposes; in deck 7 balconies can be used as an auditorium, the mobile pool can changing its purpose and unlimited park spaces serve facilities for various activities. Service spaces in the concept should provide multiple purposes as well. Which lead to smaller service units that can extend their services into larger customer areas which can be used for several service units (modules). Modularity in this research means, at idea level the presented service modules that can be combined and redecorated.

The principle of the modules are that the ships service spaces, except larger amenities (gym, dining room etc.), are realized with standardized modules that have mobile walls that enables combining with other modules. Service modules have two bearing walls that operate as storage for two other walls. Moving walls is possible with mobile sections that are moving on rails for combining modules and connecting or separating the module from its surrounding (see picture 5.3f).

Modules are realized in two different sizes, because of the need of bigger modules, for example restaurants. Also this is practical because the measurements between



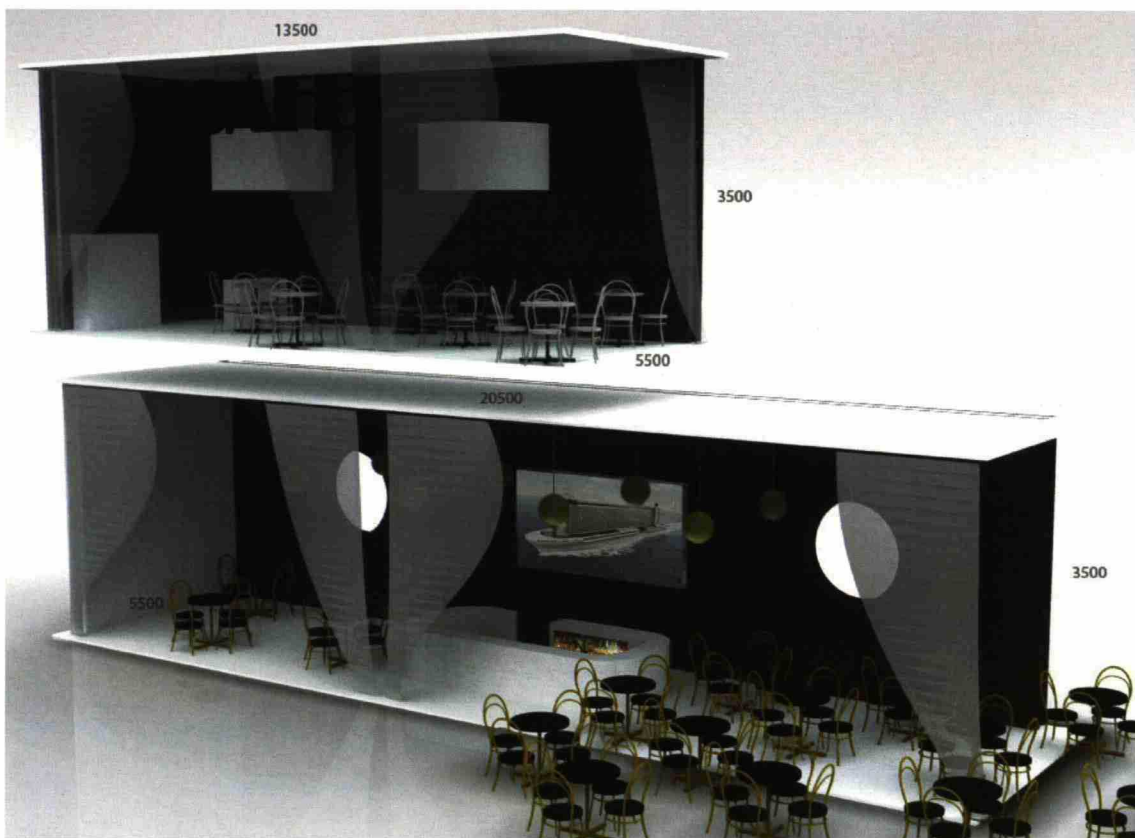
(Picture 5.3f) Operating model of module's mobile walls and furnishing.

(Picture 5.3g) Module combinations.

(Picture 5.3h) Module (measures and operation model for mobile furnishing).

partitions of constructional elements require different sized modules for efficient filling (see picture 5.3a). Module measures are gained from average service space of the freedom class ships that is 150 m² for cafés and shops and 140 m² for alternative restaurants (see attachment 2). Sizes are lowered because emphasis on shared service areas, and shops expanding services into corridors when needed. Thus the smaller modules are 74 m² and larger 113 m². The use of similarly sized modules requires standardization of deck heights.

The majority of the 28 modules located in the Central park are located between one or the other of the decks, thus modules can be combined also vertically (see picture 5.3c and 5.3g). Modules can be used for different services, but part of the modules for example larger "restaurant"-modules are clustered thus connecting to the galley's can be easily accomplished. Possible cafeteria and pub modules with shared customer areas can be utilized as bleachers for performance in the stages of the Central park.



Modules can be redecorated easily with standardized plumbing and electricity. Redecoration is intended to happen in smaller scale at a harbor or even during cruise. Larger modifications can be completed while the ship is maintained. Modules can be redecorated for totally new service or for example changed to the service provider that emphasizes personalization and customization of the cruise ship. Convertible wall construction makes space expansion possible in real time if needed. Furnishing is carried out with modular items that can be attached and moved with rails on flooring and on walls. Mobile walls enable access to a service module from various points and bearing walls can be equipped with windowing that uncovers the service to the backside and introduces the sea view and increases feel of space and transparency.

5.3.3 EXPERIENCE TRAY

Title of the chapter refers to deck 8 (experience tray), but because cantilevered structure this chapter covers decks 6-8 and focuses on spaces in those related to the research.

The main issue when designing the cruise ship interior is the particular nature of the ship. Which consists of narrow spaces, deck based construction, pillar lines and bulkheads, and limited amount of natural light. An important consideration in design for cruise ship interiors is the limitation of space. Designers must use their creativity to enhance the illusion of space (Kopec 2006, 266). Many times cruise ferries are known as small cities, because the wide selection in facilities, activities, and amenities. According to Kopec (2006, 258-259) cruise ships can be thought as a micro community that contains many different types of amenities that have different behavior settings that require the careful consideration of transition zones during space planning process. For hospitality environments high-stimulation activities must be clustered together so not to interfere with low-stimulation activities.

The buzz of different types of amenities in Central park is quieted with facades inspired by traditional architecture that gives passengers cozy and safety perception (Schmandt, M.J 1999, 157-165). Facades are covering partly pillar lines that are dividing central park and in some parts leaved visible for aesthetics and emphasizing ship's structure purposes. Facades are varying their style accordance blocks that are enriching space experience and ease perceiving space (see chapter 5.2; pictures 5.3i-k). Visual richness is emphasized mixing traditional and modern elements in architecture and objects in space, universal style is minimalist, and colourful service front ends are giving spice to the ambience.

At both ends of the Central Park are inducements that are pulling passengers in (Aura 1997, 114-117). Fore inducement are the Casino and the Lounge on decks 6 and



7, whose frontage is imitating a waterfall that starts from a pond in experience tray's outdoor lounge (see pictures 5.3i and 5.3j) and mirroring glasses create feel of space. In the middle of the Central Park wells divide space in two sections, but still holding visibility along whole space. The staircase is disclosed from structure creating sculptural landmark into the space. As a tail sections inducement works traditionally as an uninteresting buffet of the concept ship (see picture 5.3k). Buffets visual interesting is increased with long pillars that are delimiting space from central park and above on deck 7 located alternative restaurant modules. Also the entrance to the dining venues happens through buffet. Buffet is also playing an auditorium role for the stage standing in front and as a customer area for closely related cafeterias.

According to consumer research the Central Park should possess vegetation and water in the form of real grass in the park section and fountains and openness to the surrounding sea brings water into space. The attraction of the Central Park is the real Central Tree that grows from deck 5 and spreads vegetation into the decks vertically (see pictures 5.4a and 5.4b).



(Picture 5.3i) View to the Central Park towards bow.
 (Picture 5.3j) View to the Central Park towards tail from 8 deck.
 (Picture 5.3k) View to the Central Park towards tail from center well.

5.4 REFINEMENT CONCEPT

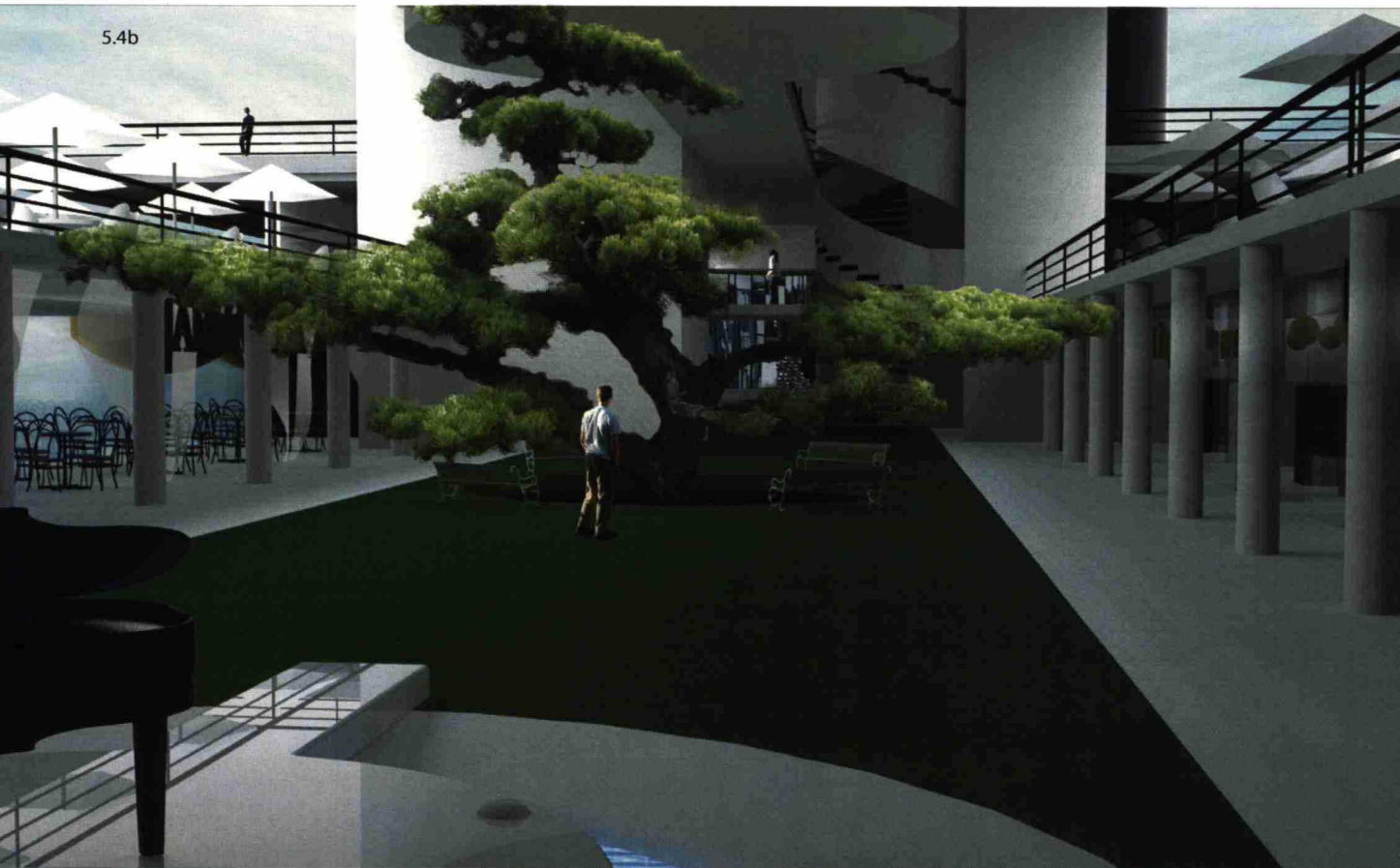
Lack of unity and clarity is mainly consequence of two sides of Central park evaluated by consumers (see attachment 6) are differentiating from each other with style and ambience. Also different angles of views could have affect on opinions. Different style of sides was an appropriate solution to create two differentiating space experiences in one space to reach richer space experience. This was mainly reached by excluding facades from the back section. The unifying theme is increased with the use of similar colours also in rear section (see pictures 5.4a-5.4d).

Requested development of the fascination of single elements was attributed to originate from rather traditional design of the single elements, and investments to the details in the stage so that pictures were shown. Attractiveness of the elements was improved with attention to detailing and adding missing elements such as vegetation. (see pictures 5.4a-5.4d). Verdancy is also emphasized with chancing materials and colours more natural (compare pictures 5.4c and 5.3i). Plantation is kept as minimalistic as the overall design to underline transparency and visibility.

According to technical thesis (Bergström 2010) introduced layout and design with large open areas and cuttings is feasible when researched from longitudinal strenght point of view. Therefore structural changes that interact to design are not required.



5.4a



5.4b



5.4c

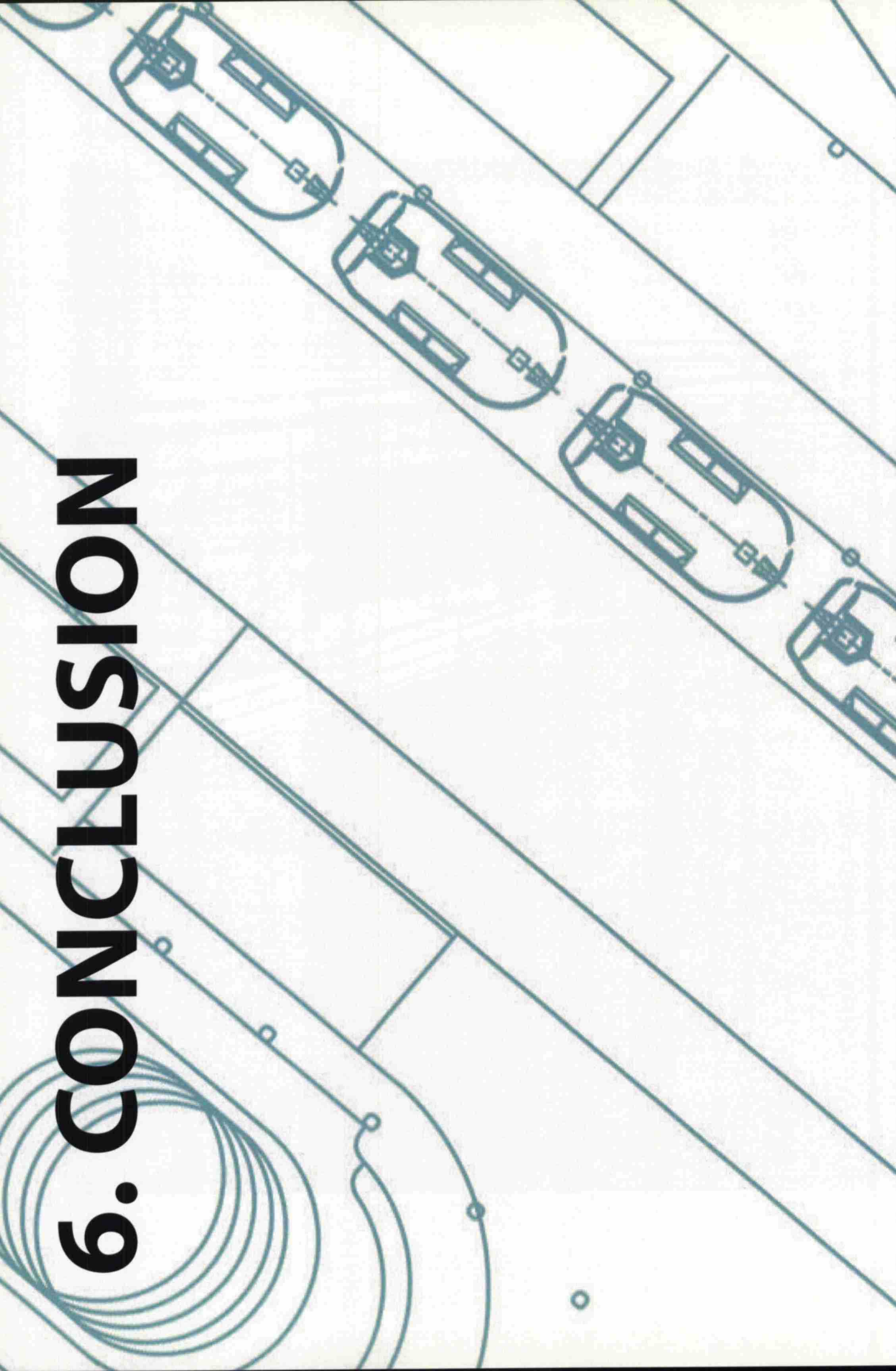
(Picture 5.4a) View to the Central Park towards tail from center well.
(Picture 5.4b) View towards bow from tail.
(Picture 5.4c) View to the Central Park towards bow.

(Picture5.4d) View to the Central Park towards tail from center well.





6. CONCLUSION



06

The background of the page is a light blue architectural drawing. It features various geometric shapes, including circles, rectangles, and lines, which appear to be part of a floor plan or a technical drawing. The drawing is oriented diagonally across the page.

In this chapter is represented conclusions and thoughts over the completed thesis. First discussed is research as a whole and secondly the estimated course of the research from working point of view and finally is considered possible subjects for additional research.

6.1 DISCUSSION

Aim of the user centered concepting is to develop a concept from the contents of consumer research and developed it with consumers. In this project industrial design was adapted to represent passenger's point of view from technical and economical angles. In my opinion the aim of creating layout and space concepts that are based on consumer's desires and needs was successful. Because nowadays region divided construction of the cruise ships doesn't attract consumers that desire environment which is outlined but not limited. Hence space concept is representing the feel of space in three dimensions with transparency. Transparency is created with unlimited spaces that are outlined for ease perception of the space. Together with vegetation and water elements park kind of environment is created that was the most significant desire among consumers.

Atmosphere that was estimated to be inspired from people was strived with creating spaces that have pleasant atmosphere to stay and introduce performances into same space. The creation of such a space attracts people with the desire for multiple activities. The structure of the ship restricts the possibilities to create enough large open spaces to give a connection between high-stimulation activity and low-stimulation activity like in parks. This was solved by calming the front section of the experience tray (deck 8) to low-stimulation activity, but still preserving the visibility to the more high-stimulation decks 6-7.

Versatility and freedom to choose were highlighted themes that were implemented into the concept in many points: multiple path are creating choices to experience space from many angles, transforming service cape creates activity possibilities to wide consumer group and multi-layered performance supply enlivens atmosphere and offers experiences.

The cruise ship and space experience as a whole is an abstract subject that needs more background research that was possible to carry out within Master's thesis. Therefore research in this respect remained too incomplete and focus was aimed to create space concept that introduces elements and objects important to pleasant space experience.

Decreasing of the service spaces and increasing space for the customers and using multi-use modules feels functional solution for cruise ships because flexibility increases interaction within individuals. As one interviewee (interview 2) was mentioning the most multi-use space is a central square that transforms its appearance and ambience according experiences what people are offering there.

Concepts were also evaluated with consumers which gives additional value to the fact that concept is separated from designers own desires and wills. Carrying out interviews in the places where interviewees have had great space experiences so they could also introduce examples confirmed with its efficiency and had a great influence to the outcomes.

6.2 SUBJECTS FOR ADDITION RESEARCH

Cruise ships are wide systems that offer countless possibilities to utilize industrial design competence. In this thesis cruise ships were considered from consumer's point of view in relatively narrow sector that leaves many subjects untreated. This research has bias towards aesthetic experiences, and functionality of its solutions leaves many questions unsolved. For example how people and transportation flow between different services and galleys during day rhythm is to be maintained? Also introduced user research analyse offers great starting point to develop aesthetic experience beyond to answer contemporary design and architectural trends.

Multi-using and modules could be covered on a more detailed level and modular thinking could be studied beyond to handle the maintaining of the whole cruise ship. Cruise ship could be the base for the modules that can be changed in harbors depending on destinations and passengers to totally transfer theme between cruises. Thus cruise vessel could serve consumers more individually and outlast better changes of consumer habits. What kind of scenarios multi-use of the spaces and transforming of modules creates should be considered? What kind of usability problems modularity carries or could modularity solve, for example, people or transportation problems. Basically developing the usability of public spaces could generate great topic for additional research.

Whole cruising experience is tending to be changing along with new generations and experience, that is offered, should be discovered. What are the benefits that the cruising attraction can offer towards land based resorts. For example: how the cruising experience could be developed to create holistic experience that starts from the booking of the voyage and ends to arriving home via bundling ship and visited destinations together. Also as an outcome in consumer research, lighting and music was considered to be notable ambience creators and their influence into space experience would make great topic for additional research.

Modernization of aging cruise vessels could be interesting topic. How old cruise ships could be changed to respond to today's regulations and requirements of the consumers or should those be left alone and polished to entail glamour from the old days to be accessible for present consumers. How cruise ships themselves could be turned into a world known attraction that tempts passengers to see the ship rather than its services or destination harbors.

6.3 APPRAISAL

In the beginning of the journey I assumed that the most challenging fields of the thesis would be; framing the subject, scheduling and pulling everything together in a project this broad. The cruise vessel is a large entity where everything is interlinked which caused problems in framing the topic. It was both matter of time and creating solid research from a basis in the concept stage and therefore offers several opportunities for focus. Framing noticeable places and making consumer research in those places appeared to be a suitable starting point for defining the research field. Analyses of the consumer research confirmed the most suitable targets to represent essential contents of the consumer research.

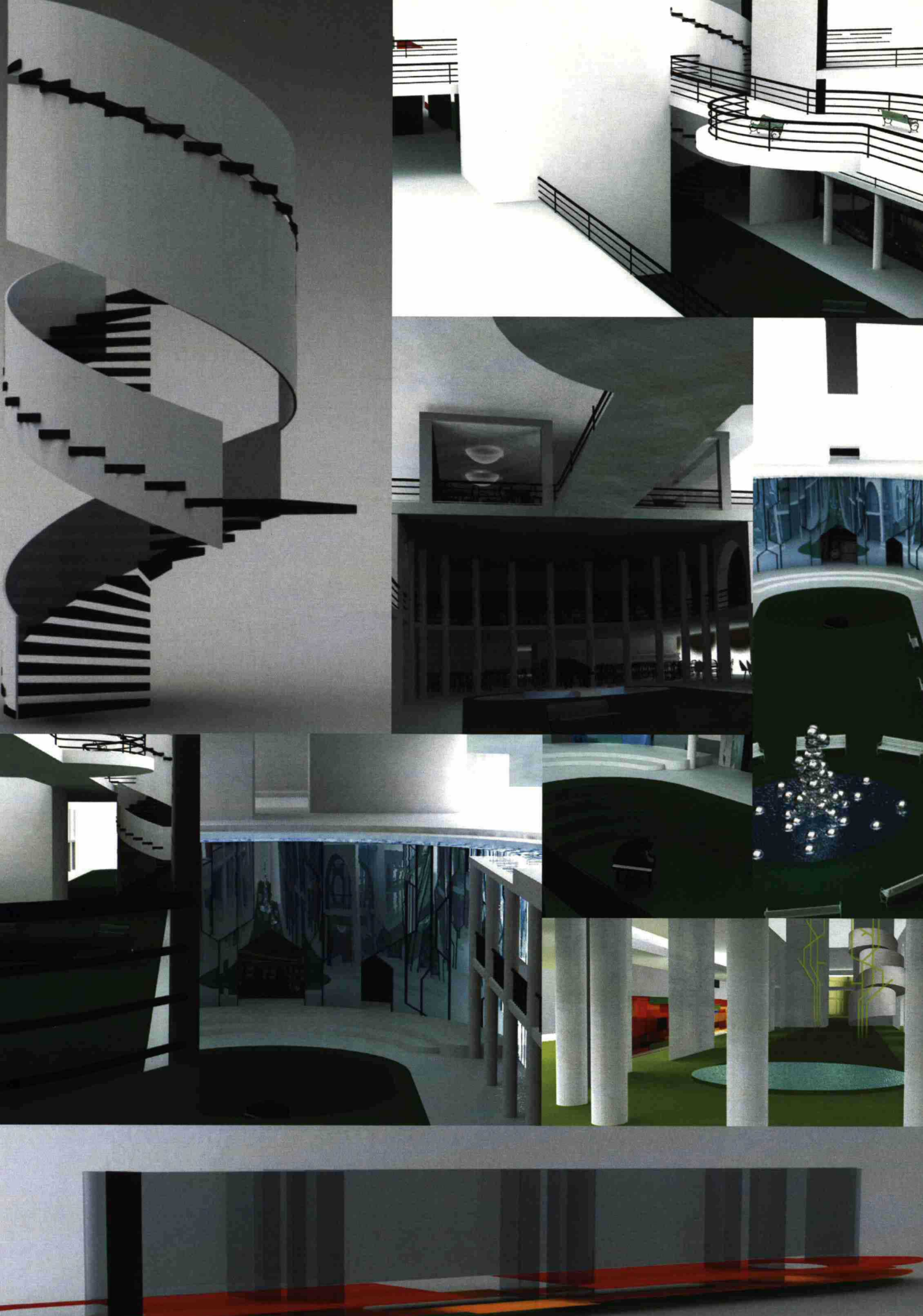
In the end it can be said that framing could be done more carefully to cover one subject in a more detailed manor to produce more exact information. When dealing with layout and case studies in fairly general level, outcomes of the design are mainly only illustrating guidelines for possible cruise ship aesthetics and aesthetically pleasant experiences. On the other hand I believe that consumer research itself produces valuable information for future directions in cruise ship space development and suggestive designs are more profitable for the partners, because the early stage of the xp Tray –concept.

The lesser used approach to cruise ship design posed difficulties first in finding suitable literature to suspend research, but after detaching literature research from cruising and cruise ships uncovered the theories used in architecture that carried research on. Consumer research was defined with suitable land based resort for comparing cruising and finding interviewees from the spots. This opened great possibility to observe interviewees experiences in authentic environment and get inspired, that influenced greatly to the outcomes in design sense.

Even being the pioneers of doing our theses in clustered form in the “Cruise Ship Experience Center” task we were succesfull and found natural interfaces between our theses that were supporting each other, even though the contents differ largely. Economical thesis helped to define the most central and irrelevant spaces to be handled in layout design and consumer research done in this research gave information about passenger point of views to be utilized in economical thesis. With technical thesis interface was self-evident because forming the structure of the concept with layout design and so design driven layout gave challenging starting point for the technical solutions.

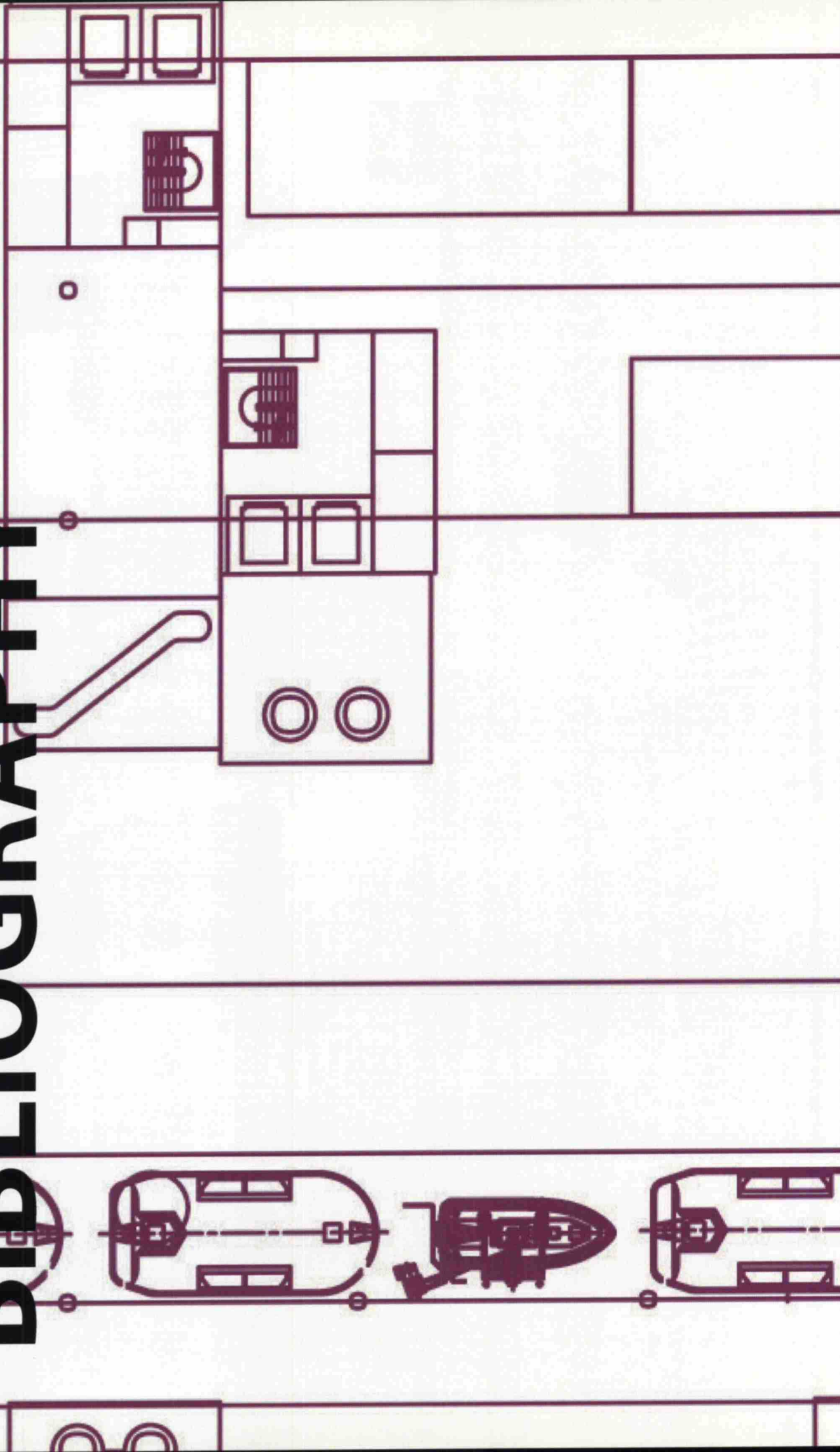
Different starting times with the technical thesis caused some delay, because after finishing the concept design it was reasonable to confirm technically that the proposed space solutions were possible to execute. Although some delay arrangement was proved to be functional, because I was able to carry out consumer research and develop concept ideas before xp Tray -concept was started to be examined from the technical angle.

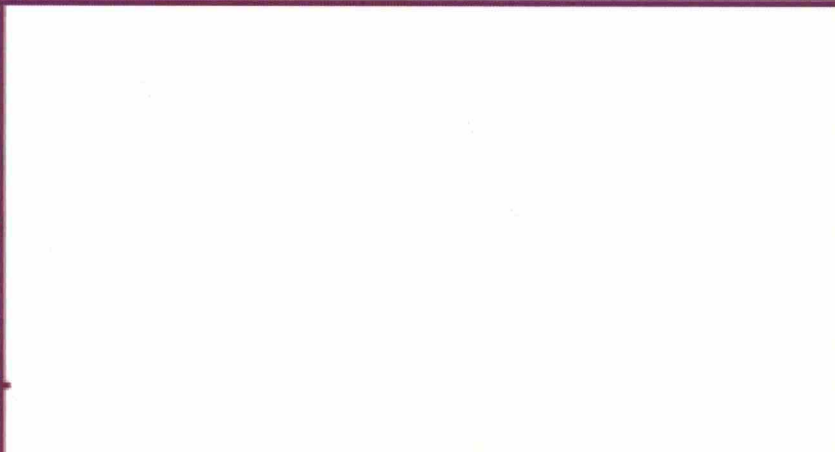
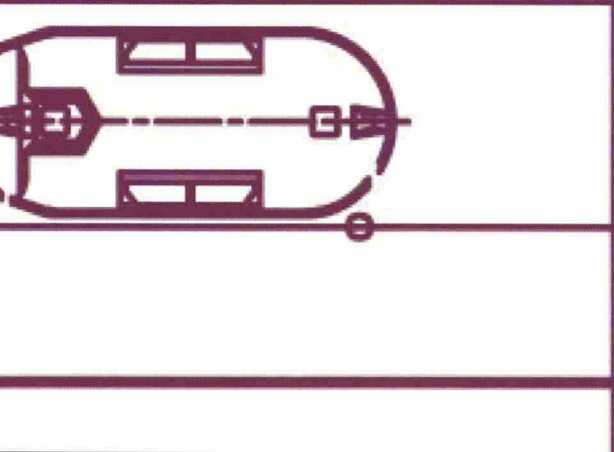
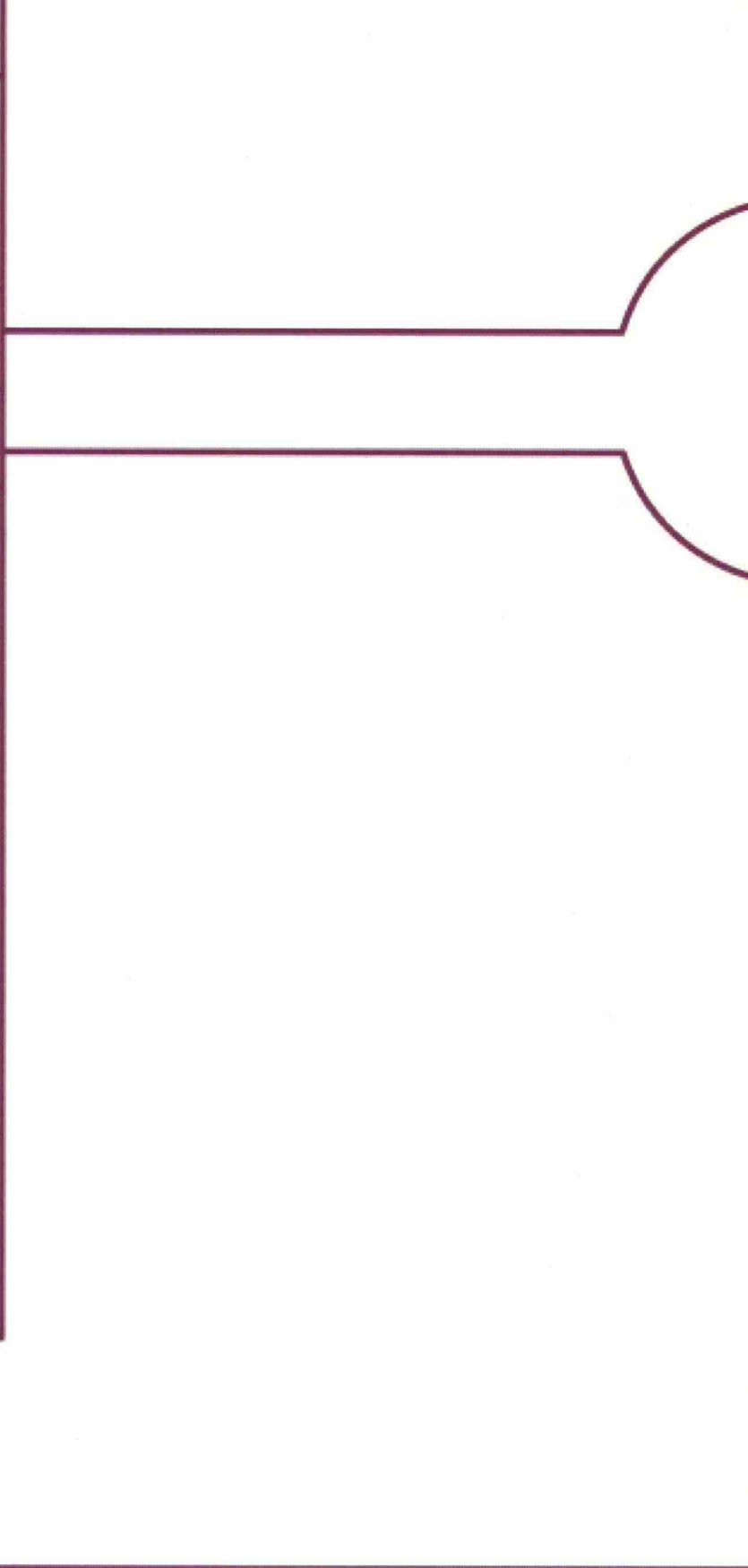
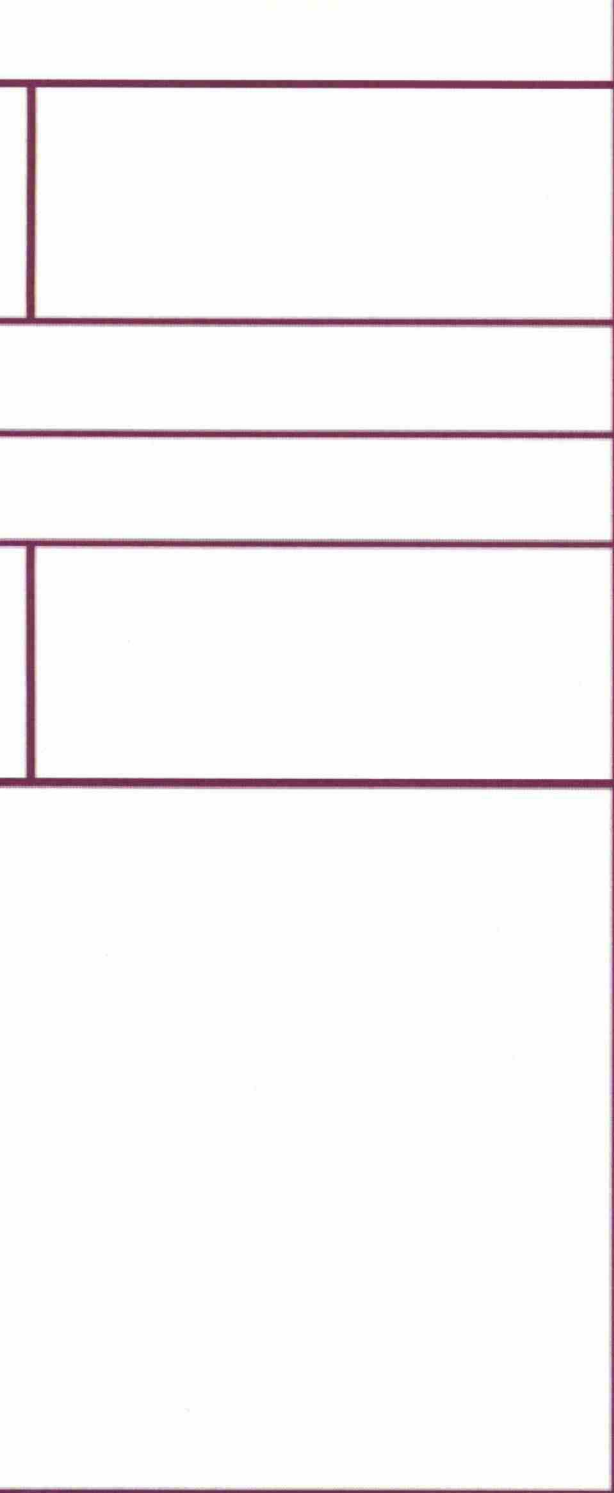
Work was carried out in premises of The Department of Applied Mechanics, thus giving a degree in marine technology. Working in a place where everybody has a touch point to marine technology and culture, facilitated myself to get familiar with subject that I didn't have much experience beforehand. Research done on an unfamiliar subject also confirmed my beliefs of industrial design expertise suitability to be adapted in any given creative assignment. Consumer research completed in authentic circumstances towards interviews done in office etc. confirmed to be great starting point for user centered conceping. After all the most pleasant times with this thesis were the moments when you find yourself transforming consumer's opinions into design.



(Picture 6) Additional views views to the concept.

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ATTACHMENTS

ATTACHMENT 1 UTILIZATION RATE MATRIX

Usage of Different Spaces between August 9th and 10th at Vision of the Seas		Sunday August 9th 2009					Monday August 10th 2009		Note!
Deck	Space	12:00	15:00	17:30	19:30	0:00	8:30	14:30	
11	Viking Crown Lounge	0	0	0	0	25	0	0	
10	Observatory	100	75	0	0	0	0	0	
10	Adventure Ocean	0	50	0	0	0	0	0	
10	Teen Center	0	0	10	0	0	0	0	
10	Video Arcade	50	25	25	0	0	0	50	
10	Table Tennis	100	100	25	0	0	50	100	
10	Fitness Center	50	25	10	0	0	0	0	
10	Rock Climbing Wall	100	100	0	0	0	0	0	
10	Upper Sundeck	100	100	0	0	0	0	0	
9	Windjammer-cafe	25	75	0	25	0	100	100	
9	Lower Sun Deck	100	100	10	0	0	0	0	
9	Solarium	75	100	50	10	0	10	100	
8	Explorer's Lounge	0	50	10	0	0	0	50	
8	Crown and Anchor Study	0	75	50	0	0	0	0	
7	Card Room	25	25	10	10	0	0	50	
7	Kids' Room	0	50	10	0	0	0	25	
7	Library	10	25	10	0	25	0	0	
6	Masquerade Theater	0	10	0	0	0	0	0	During shows 25%
6	Photo Gallery	0	0	10	50	0	0	0	
6	Centrum Balcony	50	50	75	50	0	0	25	
6	Showboat Lounge	0	0	10	0	0	0	10	
6	Schooner Bar	10	25	25	100	0	0	0	
6	Some Enchanted Evening Lounge	0	25	100	100	0	0	0	
5	Casino Royal	10	10	25	25	Not measured	0	0	
5	5th lounge	25	25	25	50	Not measured	0	25	
4	Acvarius Dining Room	0	0	100	100	0	0	0	
4	Champagne Bar	25	25	25	85	Not measured	0	10	

ATTACHMENT 2 FREEDOM CLASS CRUISE SHIPS SERVICE SUPPLY AND SPACE REQUIREMENT

				AREA	REL. AREA	VOLUME
				103 007 m²	0,70 m³/Vol.	343 902 m³
				71 561 m ²	19,69 m ² /pass	244 762 m ³
	1817	cabins		41 509 m ²	11,42 m ² /pass	116 622 m ³
Restaurants & Café's	2,1 m ²	3321	seats	6 987 m ²	1,92 m ² /pass	27 671 m ³
Main Dining Rooms	1,9 m ²	2105	seats	4 102 m ²	1,13 m ² /pass	17 143 m ³
Windjammer & Jade	2,7 m ²	774	seats	2 065 m ²	0,57 m ² /pass	7 681 m ³
Pizzeria Sorrentos	1,7 m ²	90	seats	156 m ²		516 m ³
Cafe Promenade	1,6 m ²	74	seats	116 m ²		384 m ³
Chops grill	2,5 m ²	94	seats	238 m ²		870 m ³
Italian restaurant	1,5 m ²	80	seats	117 m ²		427 m ³
Portofino	2,2 m ²	56	seats	122 m ²		446 m ³
Johnny Rockets	1,5 m ²	48	seats	70 m ²		203 m ³
Bars & Lounges	1,8 m ²	3457	seats	6 221 m ²	1,71 m ² /pass	30 507 m ³
Main Show Lounge	1,5 m ²	1281	seats	1 907 m ²	0,52 m ² /pass	11 663 m ³
Observation Lounge	2,6 m ²	134	seats	353 m ²	0,10 m ² /pass	1 703 m ³
Pharaos Palace	2,2 m ²	299	seats	672 m ²		2 219 m ³
Studio B	1,5 m ²	942	seats	1 430 m ²		7 597 m ³
Night Club "The Crypt"	2,6 m ²	218	seats	564 m ²		2 351 m ³
Karaoke Club	1,0 m ²	133	seats	135 m ²		527 m ³
Lobby Bar	6,5 m ²	77	seats	500 m ²		2 005 m ³
Piano Bar	1,2 m ²	112	seats	136 m ²		546 m ³
Pub "Bull and Bear"	1,2 m ²	96	seats	117 m ²		387 m ³
Wine Bar Vintages	1,2 m ²	72	seats	85 m ²		280 m ³
Champagne Bar	2,6 m ²	49	seats	128 m ²		421 m ³
Concierge Club	6,0 m ²	20	seats	121 m ²		483 m ³
Coctail lounge	3,0 m ²	24	seats	73 m ²		325 m ³
Conf.rooms, cinema	2,1 m ²	485	seats	1 022 m ²	0,28 m ² /pass	3 061 m ³
Cinema						
Conference rooms	1,1 m ²	368	seats	411 m ²		1 149 m ³
Library	4,7 m ²	48	seats	225 m ²		664 m ³
Card Room		-		182 m ²		701 m ³
Chapel, Mosque	1,8 m ²	45	seats	81 m ²		209 m ³
Business center	5,1 m ²	24	seats	123 m ²		337 m ³
Casino	2,0 m ²	447	seats	899 m ²	0,25 m ² /pass	3 592 m ³
Spa & Beauty, Sports				2 869 m ²	0,79 m ² /pass	11 398 m ³
Spa, Sauna, Massage		-		406 m ²		1 420 m ³
Gym, Aerobics		-		1 777 m ²		7 845 m ³
Beauty care, Barber		-		686 m ²		2 134 m ³
Kids' & teens'		222	seats	1 089 m ²	0,30 m ² /pass	3 147 m ³
Teens' activities	7,8 m ²	78	seats	610 m ²		1 758 m ³
Kids' activities	3,3 m ²	144	seats	479 m ²		1 389 m ³
Shops				1 878 m ²	0,52 m ² /pass	7 322 m ³
Shopping center		-		891 m ²		2 979 m ³
Special shops		-				
Photo / Art gallery		-		988 m ²		4 343 m ³
Atrium, arcades, corridors, toilets				4 707 m ²	1,30 m ² /pass	27 494 m ³
Atrium, Entrance		-		1 825 m ²		17 538 m ³
Arcades, Corridors		-		2 133 m ²		7 369 m ³
Public Toilets		-		749 m ²		2 587 m ³
Passenger main stairs				4 379 m ²	1,21 m ² /pass	13 948 m ³
Aft		-		1 113 m ²		3 490 m ³
Middle		-		1 703 m ²		5 419 m ³
Middle		-		1 271 m ²		4 251 m ³
Fore		-		292 m ²		789 m ³

ATTACHMENT 3 INTERVIEW REQUEST FOR INTERVIEWEES
INTERVIEW REQUEST

Hi,

I'm working on my master of arts thesis about experiences and design in cruise ship. Thesis is performed for University of Art and Design Helsinki under industrial coordination by STX Europe. My purpose is to interview regular people, who are best experts for my interview.

Aim of the interview is to clarify individual experiences in public places and design supporting that. Which factors are creating unique places and experiences.

Interviews are carried out between 31.7-4.8.2009 in Copenhagen down town, rather in place which is distinctive for the interviewee. Hope I can contact you in the near future and we can discuss more about interview and settle convenience time and place for interview.

Wishing fruitful cooperation!

Best regards

Markus Ahola
Designer, BA
email address
phone number

ATTACHMENT 4 FRAME OF THE FOCUSED INTERVIEW

Information about interviewee

- Male/female
- Age:
- Recidency:
- Education/profession:

0. Warm-up questions (Place and its meaning to the interviewee generally)

- How long have you stayed in Copenhagen?/Is this your first time in cruise/Naantali Spa?
- Why did you come here?
- What first comes to your mind, what symbolizes the word "Copenhagen/cruise/Naantali Spa" for you?
- How much time do you spend using facilities that Copenhagen(public and privat)/cruise/Naantali Spa is offering? (Scale: couple hours a day/many hours a day/daily/on weekends/weekly/lessoften)
- How remarkable is Copenhagen/cruise/Naantali Spa to you, compared to other cities/resorts? (Scale: very remarkable/remarkable/indifferent/not very remarkable/N/A)
- Reasoning (Why very remarkable/remarkable/indifferent/not very remarkable/N/A)

1. Experience in Copenhagen/cruise/Naantali Spa

- How successfully have Copenhagen's/cruise's/Naantali Spa's facilities met your needs? (Scale: from 1-5)
- What are the best/worst things?
- (How it could be improved, what is missing?)
- Is your age group considered, how?
- (How about children?)
- What's been your best experience about Copenhagen/cruise/Naantali Spa?
- How about worst?
- Can you recommend some place which is representative of Copenhagen/cruise/Naantali Spa experience? Why?
- What has been the most surprising experience in Copenhagen/cruise/Naantali Spa?
- Could you describe how you would spend freeday in Copenhagen/cruise/Naantali Spa?

2. Service experiences and supply in general

- What would you like to know beforehand about services?
- How you usually get the information?
- What makes a restaurant street?
- What makes you choose restaurant from restaurant street?
- (If interviewee mentions services)How should be these services placed?
- How could restaurants expand their services closer to you (when you are walking by)?
- Which one you enjoy more: eating in lodge or whole open space? Why?
- What makes a shopping street?
- What makes you enter into new shop in shopping street?
- (If interviewee mentions services)How should be these services placed?
- How could shops expand their services closer to you (when you are walking by)?
- What features makes you stay longer in a shop?
- What kind of places should be open 24/7?
- How about service availability?
- What separates night club from bar?
- What is suitable place for performing art?
- How could night club/theaters be used during day time?

3. Ambience in Copenhagen/cruise/Naantali Spa

- Please describe the trip that you normally take going from home/work to shopping/eating/partying...etc. describe the things you see, hear, or smell along the way, including the pathmarkers that have become important to you?
- How would you describe Copenhagen/cruise/Naantali Spa in a physical sense?
- What has been the most surprising things in Copenhagen/cruise/Naantali Spa in physical sense?
- I would like to know what objects are most significant in Copenhagen/cruise/Naantali Spa?
- Is there any particular emotional feelings that you have with these places?
- If I was a blind, how would you describe the place for me?
- What features make this space unique?
- What surprising things have you faced in other places like this?

4. Ambience in general

- Which you prefer more architecture as a public art or functional space?
- What separates public space from private?
- How do you think physical elements are creating space?
- Which elements?
- How about elements from nature?
- How different elements are affecting to atmosphere?
- What factors makes space easy to navigate?
- How quickly you get to know the place and its services in new environment?
- How quickly you get bored in places?
- Have you changed public space some how?
- In your opinion, what reveal target group of establishment?
- Is there any particular elements that are creating place for kids?
- How ambience is affected when service expands its scope?

5. Atmospheric changes in general

- Are there any certain activities in your personal routines which are related to certain time of the day?
- Is this changing when you are on holiday?
- Have you noticed certain objects which are related to day-rhythm or season?
- In your opinion, what changes the atmosphere in restaurant between breakfast/lunch and pre party?
- What makes you do all these things in a same place?
- How this space should change its atmosphere according to a day-rhythm?
- Should it change its atmosphere seasonally?
- Can you name some places which are changing their atmosphere during day-rhythm?
- What kind of places you can go to relax?
- What makes you feel cozy/relax in public place?
- Can you name some relaxing services?

6. Transformability and efficiency of space in general

- What kind of spaces can be used for many different kind of ways?
- Can this space be turned in other kind of activity? What kind of? How?
- Can you describe some places where space is used very efficiently?
- What is space saving? How you can save space in your life?
- How about in public spaces?
- What comes to your mind if talking about mobile space?
- If this place would be made out of lego bricks, how would you change it?
- (Describe different situations)
- If you had a space with only frames, how would you separate different areas from it without using walls?
- What makes space flexible?

7. Is there still something you like to add?

ATTACHMENT 5 SERVICE COMBINATION MATRIX

	Amusement Park	Arcade	Bakery	Buffet	Casino	Children's zone	Cigar room	Computer terminals	Conference room	Dining room	Dock	Game room	Gym	Library	Lobby	Lounge	Night club	Park	Pool (w/ sundeck)	Pub	Retail	Rock climbing	Spa	Sports arena	Sunbathing (w/o pool)	Surf simulator	Teens' zone	Theater
Amusement Park	1				1						1			1		1	1	1			1	1	1	1	1			
Arcade	1	1			1	1					1	1				1	1	1			1					1		
Bakery			1										1	1	1		1		1	1								
Buffet			1	1				1							1	1												
Casino					1						1																	
Children's zone						1						1				1	1	1										
Cigar room							1				1	1		1					1									
Computer terminals								1					1			1												1
Conference room									1							1							1					1
Dining room			1					1																				
Dock																	1	1				1			1			
Game room						1														1					1			
Gym																	1					1			1			
Library																	1		1	1		1		1	1		1	
Lobby																	1			1								
Lounge			1																									1
Night club								1																				
Park																	1						1		1			
Pool (w/ sundeck)					1												1											
Pub			1			1				1		1										1			1			1
Retail													1	1														
Rock climbing																												
Spa																												
Sports arena																												
Sunbathing (w/o pool)												1	1							1			1					
Surf simulator	1																											
Teens' zone		1																										
Theater								1							1													

Within the Service combination matrix introduces suitable service combinations. Number one symbolizes suitable combination and yellow background symbolizes combination is considered suitable also in second round.

ATTACHMENT 6 FORMAL AESTHETIC SURVEY



- | | | |
|-----------|--|-------|
| 1. | Dimensions: | |
| a. | Do these spaces have a shape that is appealing for its intended use? | 12345 |
| b. | Are items in the spaces sized so that no single object dominates the scene? | 12345 |
| c. | Do furnishing and accessories fit the spaces without looking too large or too small? | 12345 |
| d. | Are the elements or components of uniqueness or fascination? | 12345 |
| e. | Is lighting sufficient and appropriate for the spaces? | 12345 |
| 2. | Enclosure: | |
| a. | Do the spaces give the appearance of having space and not being cluttered? | 12345 |
| b. | Is the floor space ratio ample in relation to object occupying the space? | 12345 |
| c. | Do elements within the spaces inspire or beg for exploration? | 12345 |
| 3. | Complexity: | |
| a. | Are there interesting items to view while maintaining the spaces unifying theme? | 12345 |
| b. | Is variety of objects or architectural features present within the room? | 12345 |
| c. | Do all aspects of the spaces register with the viewer at an equal rate? | 12345 |
| 4. | Order: | |
| a. | Is there a unified theme among all parts of the spaces? | 12345 |
| b. | Is the purpose or function of the spaces and objects obvious? | 12345 |

TOTAL:

Aalto University
School of Art and Design
Department of Design

Master of Arts thesis
Markus Ahola
2010

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Taideteollinen korkeakoulu
Muotoilun laitos

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