A. Papathanassis / M. H. Breitner
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Cruise Management

Information and Decision Support Systems

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RESEARCH

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Prof. Dr. Alexis Papathanassis
Prof. Dr. Michael H. Breitner
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(June 2011)

Foreword

Cruisers are not surfers!

The contention that cruisers are not internet-affine is supported by the fact that approximately 80% of cruises are booked in travel agencies. The rest 20% share is attributed to direct booking per telephone or internet. Only a fraction of cruise revenue (7%) is generated online[1]. This, in conjunction with the fact that cruising represents a relatively small fraction (1.8% - 2.2%) of the overall tourism sector in terms of passenger numbers[2], challenges the relevance and impact of e-Cruising research. Simply stated, at a first glance e-cruising may represent more an academic niche than anything else. At a second, more in-depth glance, a different picture emerges.

The cruising sector is experiencing major growth and is mutating from a tourism niche to a mass-market[3], attracting segments and changing the traditional demography of cruisers. According to the Cruise Line International Association[4], nowadays, average cruisers earn over $70.000, are in their mid 40s, well-educated and professionally active; hardly the profile of internet laggards. An indicative online survey conducted by the Cruise Research Society, challenges the future relevance of this cliché.

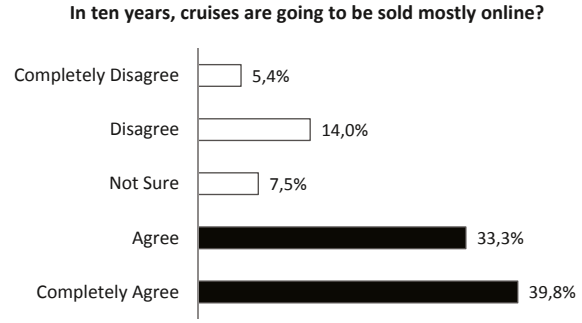

Fig 0: CRS Online Survey (n-93)

[1] Peterson, K. (2008). Cruising: Online Trends, Tourism Marketing. Available Online: http://www.marketing 2tourism.wordpress.com/2008/03/10/cruising-online-travel-trends/. Access: 14.09.2008

[2] Wild, G.P. (2007). Contribution of Cruise Tourism to the Economies of Europe. Retrieved February 2, 2009, from Maritime Industries Forum: http://www.mif-eu.org/ECC_ Report_6.pdf

[3] Papathanassis, A. Ed. (2009). Cruise Sector Growth: Managing Emerging Markets, Human Resources, Processes and Systems. Wiesbaden: Gabler; Papathanassis, A. (2010). Kreuzfahrt: Rendite oder Hype?, presented in the FVW Kongress – Cruise Sales Day (Cologne, Germany). September 15th. Available URL: http://www. papathanassis.com/dlfiles/cruisemidas.pdf; Weaver, A. (2005), The McDonaldization Thesis and Cruise Tourism, Annals of Tourism Research, 22 (2), pp.346-366

[4] CLIA - Cruise Lines International Association (2008). CLIA Cruise Market Profile Study 2008. May 30th. Available URL: http://www.cruising.org/sites/default/files/pressroom/ Market_ Profile_2008.pdf

From a total of 93 respondents, 73.2% supported the contention that in the next decade the vast majority of cruises will be booked online, see following figure.

A cruise neither begins nor does it end with the reservation

It is worth looking beyond the scope of online reservations and consider the overall cruiser consumption cycle from information search to fulfillment. With regard to their consumption decision, 37% of cruisers are strongly influenced by cruise websites, 34% by destination websites and 10% by internet advertisements[5]. Moreover, the potential of Information & Communication Technologies (abbr. ICT) is not limited to the demand side alone. Increasingly, cruise operators are utilising ICT to improve service-effectiveness and process-efficiency, both on- and off-board and both a priori and during a cruise. In light of the above, it may well be worth extending the scope of 'e-cruising' to incorporate the potential ICS entail for both the 'cruise operator's back-office' and for the 'cruiser's consumption experience'.

An interdisciplinary challenge

This book documents the proceedings of the 1st e-Cruising Conference (1st eCC) held in Bremerhaven (Germany) between the 9th and 11th of December, 2010, and aims at discussing the possibilities and applicability of ICS and mobile services in various aspects of cruise operations (e.g. excursions, infotainment, complaint management, crew scheduling, revenue management). To meet the interdisciplinary challenge posed by a topic as such, the conference was jointly organised by the Institute of Wirtschaftsinformatik (Leibniz Universität Hannover), the Cruise Research Society (Bremerhaven University of Applied Science) and the GISMA Business School (Hannover). By combining expertise in the research domains of information systems, business administration and cruise tourism, the organisers aimed at facilitating a cross-fertilising and lateral-focused discussion. Following a rigorous double-blind review, the best 40% papers were chosen to be incorporated in this volume. We hope that this piece of work will inspire both academics and practitioners to become 'fellow-passengers' in this specialised, albeit fast developing research domain.

Prof. Dr. Alexis Papathanassis
Prof. Dr. Michael H. Breitner
Prof Dr. Cornelia Schoen
Dipl. Ök. Nadine Guhr
(June 2011)

[5] CLIA - Cruise Lines International Association (2008). CLIA Cruise Market Profile Study 2008. May 30th. Available URL: http://www.cruising.org/sites/default/files/pressroom/ Market_ Profile_2008.pdf

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1 Cruise Passenger Choice Behavior Analysis & Implications for Service Design

Tim Martikke (GISMA Business School)

Constanze Weisser (GISMA Business School)

Conjoint analysis is a statistical technique used in market research to determine how people value different features that make up an individual product or service. These implicit valuations can be used to create market models that estimate market share, revenue and profitability of new designs. The objective of this paper is to discuss the application of conjoint analysis for forecasting cruise passenger choice behavior and designing optimal cruise services.

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1.1 Introduction

With an average growth rate of 7.2% since 1990, the cruise industry is the fastest growing category of the leisure market and the market potential is still strong. “Whether a frequent or first-time cruiser, the cruise experience consistently exceeds expectations on a wide range of important vacation attributes. The on-going challenge for [this] industry is to convert cruise prospects into new cruisers” (CLIA, 2010). Although there has been extensive market and consumer research, the industry seems to have a problem to sell its very diversified products which leads to the question whether it really knows what customers are looking for. Service design is the key issue here. Selling those services is the next step. We therefore need a tool to find out which aspects of cruises are valued most by consumers and whether the services offered can be improved.

Conjoint analysis is a market research tool for developing effective product design (IBM, 2010) and has been used for this purpose by various industries for several decades now. We will link conjoint analysis with the cruise industry in this study to find out where the marketing problems are and how the industry can react to improve its marketing strategy.

1.2 Cruise Industry

Vessels have been crossing the oceans for centuries now, but their purpose of serving as a mean to an end, that is carrying commodities and passengers from one point to another, became an end in itself when air travel began to dramatically decrease travel time during the 1950s (Gulliksen, 2008) and the cruise industry transformed into an important and constantly growing part of the tourism branch. Luxury cruises have been popular with upper class travelers since the 19th century. At that time, Thomas Cook offered a world tour including railroads but also various vessels as means of transportation, and Albert Ballin, general director of HAPAG, explored his idea to increase vessel utilization by sending unused liners in slow winter months on Mediterranean cruises carrying passengers instead of packages (hamburgcruisecenter.eu). This concept worked out great as long as middle class was using vessels to get from point A to point B and the cruise industry generated a stable income from those mass travelers. But when air travel became popular, the industry had to rethink its strategy. Carnival Cruises was among the first to provide vessels built purely for vacation purposes (Gulliksen, 2008). Other cruise companies followed and cruise vessels transformed into swimming hotels offering all kinds of leisure time activities on board including gyms, cinemas, theaters, pools, themed restaurants and clubs as well as day care for children and special offers for teenagers and young adults. The routes were also adjusted focusing on destinations interesting to tourists, and shore leaves became part of the cruise experience as a unique chance to see several different cities/islands/landmarks in a short period of time without the need to change hotels. As a result, the average age of cruise passengers fell from 65 to 46 (CLIA, 2010) in recent years as the industry tries to attract families and lower-budget tourists, advancing from pure luxury to a special vacation attracting both upper and middle class, couples as well as families with children.

1.3 Conjoint Analysis

1.3.1 History

Conjoint analysis was first introduced by the psychologist Luce and the statistician Tukey in 1964 (Green and Srinivasan, 1978; Carroll and Green, 1995). Since then it has permanently been developed by several researchers and mathematicians. In the USA the breakthrough was achieved between 1971 and 1980, when 698 conjoint projects were run by 17 companies (Cattin and Wittink, 1982). In the following years, the method spread out. Between 1981 and 1985 more than 1,000 conjoint analyses were conducted just in the USA. Between 1986 and 1991 Wittink, Vriens, and Burhenne counted a total of 956 projects in Europe carried out by 59 companies (Wittink, Vriens, and Burhenne, 1994; Baier and Gaul, 1999). The next revolution came in 2004, when Sawtooth launched customer online surveys. The software is able to support the whole conjoint process including reports and analysis. Since then Sawtooth is state of the art.

1.3.2 Concept

Conjoint analysis is a marketing research tool focusing on product design. It measures preferences based on trade-offs consumers make when asked to compare similar products. Results of the analysis can be used to simulate “how consumers might react to changes in current products or to new products introduced into an existing competitive array” (Green, Krieger, 2001). Conjoint analysis is able to determine how consumers value different attributes of a certain product and which levels of those attributes are most and least preferred, but the trade-off component differentiates this method from other multi-attribute utility measurements.

Generally two kinds of methods are widely used to accomplish customer research. The first method is called compositional approach or self-explicated approach (Sattler/Hensel-Börner; Melles, 2001). Single attributes are evaluated and summarized to determine the overall judgment. The second method, which is used in conjoint analysis, is called decompositional approach. The contribution (partial benefits) of various attributes to the overall preference (overall benefit) are estimated on the basis of overall preference judgments expressed by the test person. Accordingly, each product concept is assigned a specific overall benefit value, which is afterwards decomposed into the partial benefits of the various attributes. Thus, no attribute-specific single judgments are made to evaluate the overall benefit.

To keep it simple, compositional methods survey single attributes as for example price and size by asking the interviewee directly to rank on a scale the importance of price and, independently, the importance of size, adding up both answers afterwards to calculate the overall benefit of a product consisting of both attributes. Conjoint analysis on the other hand asks to rank complete products, each consisting of a different combination of attribute levels (e.g. product 1: high price/small size, product 2: medium price/large size, product 3: low price/medium size...). Using statistical software one can then find out the importance of each single attribute and the preferred attribute levels related to the presented product by decomposing the overall benefit into partial contributions. This procedure has a huge advantage: When customers are interviewed to score different attributes separately, the results can be misleading. Since the interviewee concentrates on a single attribute at a time, the answer is likely to be biased. Many surveys have found that these customers would not ulti-

mately buy a new product designed based on the results of compositional analysis (Baier and Brusch, 2009) because single attributes are weighted differently as part of a whole product.

Overall, the decompositional approach outlines the following advantages: (Gustafsson, 2007)

1. greater similarity to real choice situations

2. greater chance of detecting real importance weights

3. less chance of receiving only socially accepted responses

4. greater range sensitivity

5. better chance of detecting potential nonlinearity in the partworth function

6. less likelihood of double-counting

Furthermore, Susanne Hensel-Börner and Henrik Sattler (2001) tested the correlation between predicted buying decisions based on compositional and decompositional approaches with real buying decisions. Results were the following:

	Decompositional analysis	Compositional analysis
customers who have chosen the product compared to prediction	52, 8 %	41,7 %

Table 1.1: Comparison of decompositional and compositional analysis

Based on this survey, the decompositional approach delivers more accurate forecast validity. Baier strengthens this argument by stating that “results of compositional analysis do not correspond to reality” (2009).

Decompositional approaches can be further divided into two categories:

- traditional conjoint analysis (TCA): combinations of attributes are to be valued via rating or ranking, only a limited number of variables can be used (Hillig, 2004)

- adaptive conjoint analysis (ACA), hybrid conjoint analysis (HCA), and customized conjoint analysis (CCA): more complex products are presented through the use of software.

1.3.3 Application

Results of conjoint analysis can be used to design or improve products and services. Additionally, implicit valuations can be used to create models which estimate market share, revenue and profitability of new designs or improved products. Simulations can also help to analyze the behavior of competitors (Mohn; 1991).

Further applications of conjoint analysis results are:

- To reduce variants (Eversheim, 2003): A producer offering a wide range of product variations might find that the portfolio can be reduced thus saving costs while still maintaining or even improving market share and profit.
- To help determine the impact of innovations (Bauer, Huber, and Keller, 1997)
- To improve existing achievements (Dellaert et al., 1995)
- To evaluate price strategy (Currim, Weinberg, and Wittink, 1981)
- To improve advertising (Levy, Webster, and Kerin, 1983)
- To optimize controlling (Herrmann et al., 1999)
- To analyze market segmentation (De Soete and Winsberg, 1994)

1.4 Conjoint Analysis – Practical Example

The process of conducting conjoint analysis can be divided into 6 main steps.

Figure 1.1: The process of conducting conjoint analysis

In the following, theory will be applied to a practical example discussing how the cruise industry could improve service design to attract more young adults. This cruise passenger choice behavior analysis should yield implications for service design that, if realized properly, result in an increase in revenue and profit through more frequent purchases by members of the target group.

1.4.1 Definition of Target Group

The first and most important step is to define the target group (Jobber, 2010). Focusing on this group provides clearer information about product preferences simplifies implementation and, assuming that marketing efforts are executed appropriately, leads to better results.

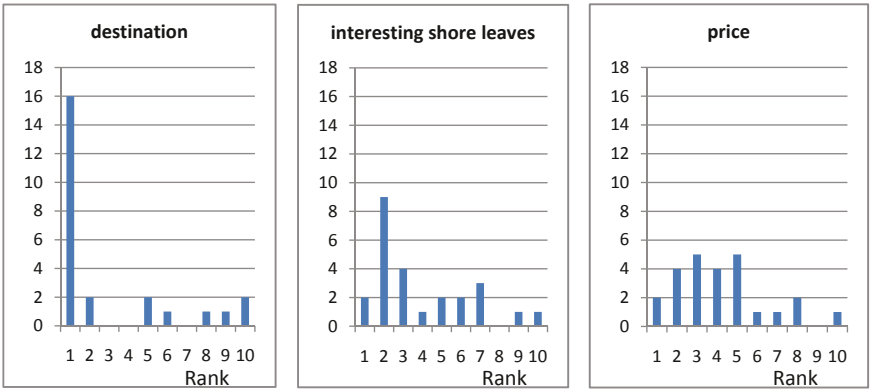
Here, the target group is defined to be 25-35 years old, employed and willing to pay at least 4,000 EUR for a special vacation (10 days, 2 persons). To focus even more, members of this target group have no children but an academic status. The additional information can be helpful later when considering how to sell the new product, where and how to advertise etc.

1.4.2 Preliminary Survey

Since conjoint analysis presents whole products (stimuli) while every product needs to include a certain level of every attribute, the attributes have to be chosen carefully. Too many attributes result in very complex products where a high number of different combinations would be necessary to yield reliable results. This might overwhelm the test person.

To decide which attributes have the highest impact on buying decisions and are worth to be investigated further by conjoint analysis, we created a preliminary survey using surveymonkey.com to find out the preferences of our potential customers.
The preliminary survey consisted of tree parts and was sent out to 35 potential customers who were assumed to belong to the defined target group. The questions in the first part of the survey ensured that all target group criteria were actually met. In the second part, participants were asked to name their five most important considerations when thinking about booking a cruise. Afterwards they were shown a picture of a cruise liner and asked to name the first five attributes they could think of. These open questions were included on the one hand to get an impression of the participant's overall attitude towards cruise. On the other hand we had to provide for the possibility that important attributes were not considered when the survey was created. In part three, participants were asked to rank ten given attributes out of which the three most important ones were chosen for the conjoint analysis. The results show that destination, interesting shore leaves and price are on average the most important attributes considered by our target group.

* * *



* number of responses

Figure 1.2: Preliminary survey

As illustrated in the charts above, 16 out of 25 test persons ranked destination as their most important consideration which results in a median of 1, even though the mean rank is only 2.92 due to the comparably high variance and standard deviation of 9.67 and 3.11, respectively. The mean rank for interesting shore leaves is 3.92 with a median of 3 followed by price with a mean rank of 4.2 and a median of 4. The next two most important attributes were cabin size and catering, both with a mean rank of 5.16. The open questions did not yield more important attributes, so destination, shore leaves and price are the attributes which will be further investigated in conjoint analysis.
To be used in conjoint analysis, all attributes need to fulfill certain criteria (Backhaus, 2006). First, the attributes have to be relevant for the product. Our preliminary survey has shown that all three chosen attributes are relevant based on the high ranking. The attributes also have to be orthogonal, i.e. independent in a way that no attribute has influence on another

attribute. This point is considered in more detail when attribute levels are set. For now, we assume the chosen attributes to be orthogonal. Further, the attributes must be compensatory so that the sum of the partial benefits generated by each attribute yields the overall benefit of the product, also the attributes cannot include K.O.-criteria and the different attribute levels have to be realizable by the service provider. All points are considered to be true for the chosen attributes.

1.4.3 Main Survey

Analysts currently recommend the following two procedures as appropriate data collection methods:

(1) Full profile technique: all products (stimuli) include a certain level of every attribute and are presented to the test person at the same time with the request to rank or evaluate them.

(2) Adaptive conjoint analysis (hybrid technique developed by Sawtooth Software): each respondent evaluates several partial-profile descriptions, mostly two at a time. This way, the presented products are less complex and the test person only has to trade off one versus one other. The software determines the next presented pair based on the previous answer and ensures that sufficient attribute level combinations are tested to deliver adequate results (Johnson, 1987).

Both procedures can deal with the complexity of choosing among two or more competitive profiles, each of which can vary across attributes and levels (Green, Krieger, 2001). In order to explain how to conduct conjoint analysis and analyze results without the help of costly software, this study shows a full profile technique supported by MS Excel and IBM SPSS Statistics. Therefore, the critical remarks by Wittink (1989) must be taken into account that this method is limited to approximately eight attributes. Green and Srinivasan (1978) recommend limiting the amount of attributes to a maximum of five to six. For this reasoning and due the constraint of basic software we decided to create our products out of three attributes.

In accordance with the data collection procedure, we have to decide which rating method to use. Basically one can distinguish between two kinds of rating methods, non metric and metric rating scale (Green and Krieger, 1993).

Non metric rating is executed by paired profile comparison. As already mentioned above, hybrid techniques mainly use this method. Interviewees only have to decide which one out of two presented stimuli (products) they prefer. Today computer aided software enables the operation (Green, Srinivasan, 1978).

Metric rating can be further divided into rating method and ranking method. When using ranking method interviewees have to order the presented stimuli into different classes or rank them from most to least preferred. When using rating scale respondents have to grade each stimulus. Both methods are applied equally (Wittink et al., 1994). In our behavior analysis we decided to use the ranking method.

In a second step, the attribute levels and the total amount of stimuli need to be chosen. A full design of stimuli consists of all possible combinations of attribute levels. But studies have

found that conjoint analysis should not exceed 30 stimuli (Green, Srinivasan, 1978), otherwise interviewees show signs of fatigue and results do not yield reliable data. A reduced design consists of a selection of stimuli from the full design. The requirement of a reduced design is to find a partial quantity which represents the full design in a way that still guarantees reliable results (Backhaus, 2006).

Stimuli designs can be symmetrically or asymmetrically. The former is given if the total number of attributes equals the number of levels each attribute has (e.g. three attributes with three levels each results a full profile of 3^3=27 stimuli), the latter is given if the total number of attributes differs from the amount of levels (e.g. two attributes with three levels each: 2^3). Our practical example features three attributes which will be represented by three levels each. We thus have a symmetrical design. One special application to create a reduced symmetrical design is the "latin square". This method guarantees that every level of an attribute is combined with every level of the other attributes exactly once. In practice this means one can reduce a full design of 27 stimuli (all possible combinations of 3 attributes featuring 3 levels each) to 9 necessary stimuli in a reduced design.

After determining which attributes and how many levels of those attributes to use in our conjoint analysis, the next step was to define those levels. The maximum number of attributes and levels in our study is limited due to the constraints mentioned above while the cruise industry on the other hand offers a huge variety of product features. For this reason we decided not to define very specific attribute levels but rather look for trends supported by our target group.

The most important aspect was to ensure that all attribute levels were orthogonal. Since price levels were included into the products we had to consider distance when determining destination levels because test persons were not supposed to associate lower prices with routes closer to their home country and vice versa. We therefore only considered destinations at least 6 flight hours away from Germany, the home country of our test persons. Also, with our third attribute focusing on shore leaves, test persons were not supposed to associate certain activities or weather conditions with given routes. For this reason we included cities as well as landmarks into every description of possible destinations and avoided extreme climates (Alaska, Amazonas…) focusing more on geographical areas associated with sunny beach weather. We defined the following levels for the first attribute

destination:

Caribbean (island St.John, Panama City, Santiago de Cuba…)
East coast USA (New York, Miami, Florida Keys…)
Australia/New Zealand (Sydney, Great Barrier Reef, Auckland, Fraser Island...)

In the preliminary survey our target group ranked interesting shore leaves as the second most important attribute. In order to find out what "interesting" means in this context we decided to cluster different leisure time activities under the three independent umbrella terms sports, cultural and relaxing activities. Especially with regard to sports activities we had to make sure not to include K.O. criteria in case a test person enjoys a very specific type of sports but would not engage in anything else. We therefore again further described every attribute level and noted that the chosen category would not be the only but the main sort of activity included in the cruise. Thus the following levels were set for the second attribute

main shore leave activity:

sports activities (quad, golf, scuba diving, mountain rafting, climbing,…)
cultural activities (sightseeing, museum,…)
relaxing activities (recreation at the beach, reading,…)

Considering price levels we set 4,000 EUR as the minimum since that is the amount our target group is at least willing to pay for a special vacation according to our preliminary survey. We further made assumptions based on ads we found in catalogues and on the internet and estimated the following levels for the last attribute.

price:

4,000 – 4,500 EUR
4,500 – 5,000 EUR
5,000 – 5,500 EUR

With the attribute levels set we had to create our stimuli next.

Two ways are widely used and discussed by studies (Vriens, 1995). The first way is to present product information, mostly key words. The other way is executed visually. Products are presented to the test person as photographs or drawings. Studies do not agree whether the one or the other one provides better outcome (Moore and Holbrook, 1990; Louviere, 1984). Since our products are intangible services, we decided to present them as cards containing the relevant information. As already mentioned we used a reduced design of 9 cards determined by the Latin square method. The results were checked using SPSS and imported into excel as part of the main survey.

There are several ways to present the survey to the test persons. One can collect the data in an interview either face to face or via telephone. Another way is to use E-mail or computer software (Vriens, 1995). Telephone or face-to-face interviews might improve the return rate, but computer software enables to filter information in advance. The latter also allows sending out data to a huge amount of people independently of where they live at low cost. We decided to create the survey as an excel file and send it to our test persons via E-mail.

The main objective of our survey regarding layout and design was to increase the return rate by generating a positive attitude and keeping questions and ranking task simple and fast. Similar to the preliminary survey the first part of the questionnaire dealt with target group criteria. In addition we asked whether the test person would consider a cruise when thinking about planning a trip. Afterwards we presented the 9 stimuli as flexible variables of a given product and asked the test person to rank them via drag&drop from most to least preferred. The given product was a 10 day cruise for 2 persons including flight, 6 days shore leave, breakfast, dinner and a two-bed cabin.

To further enhance the survey and create a positive vacation feeling we included pictures designed as photographs showing various sports activities, cities, beaches and cruise liners.

1.4.4 Data Analysis

We sent out 370 emails and received 148 responses, but not all of those belonged to our target group.

Depending on the answers to the first part of the survey, which checked target group criteria, we recorded the results of the ranking task in different excel spreadsheets and imported them into SPSS to run the conjoint analysis. With a correct syntax, SPSS decomposes the utility information of the complete products into part-worths of each attribute level via regression analysis. Now those part-worths can be used to create new products with high utilities. “The utility of any stimuli, which may be combined using the predefined levels of all attributes, is calculated by adding up the part-worths of the associated attribute levels” (Scholl, 2004).

The following figures show the results of the conjoint analysis with the input of those respondents which belong to our target group and can imagine booking a cruise.

Attributes	Results
Price	18,555
Location	36,368
Activity	45,078

Figure 1.3: Results 1

While the numbers themselves are rather unimportant, the relationship shows that the main shore leave activity is considered the most important attribute of a cruise by our target group. The destination of the cruise comes second and the price is least important out of those three attributes.

Attributes		Results
Price	4000-4500	0,228
	4500-5000	-0,298
	5000-5500	0,070
Location	Australia / New Zealand	0,316
	USA East Coast	-1,123
	Caribbean	0,807
Activity	Relaxing	-0,702
	Sport	0,579
	Culture	1,123

Figure 1.4: Results 2

Further, the next figure shows the estimated partial benefits of the various attribute levels. Again the relation-ship is more important than the numbers themselves.

The higher the number, the greater the contribution of the attribute level to the overall benefit.

We can now use this information to improve our service design. Assuming that every combination is realizable, the product with the highest overall benefit for a consumer of our target group consists of the following attribute levels:

price:	4,000–4,500 EUR	.228
destination:	Caribbean	.807
activity:	sports	.579
and yields an overall benefit of		1.614

Before we further used this information to create market models, we ran a second analysis including responses of test persons which could also imagine booking a cruise but did not belong to our target group to see whether results would differ substantially.

Attributes	Results
Price	20,566
Location	36,701
Activity	42,733

Figure 1.5: Results 3

The next two figures show that results are indeed very similar. Although the relative partial benefits of the various attribute levels differ slightly from the results shown by our target group, activity is still the most important attribute followed by destination and price. Also, the ranking of the attribute levels within each category is equal to the first analysis. According to these results, the implications for our service design can be applied to a broader range of consumers than defined by our target group.

Attributes		Results
Price	4000-4500	0,306
	4500-5000	-0,463
	5000-5500	0,157
Location	Australia / New Zealand	0,389
	USA East Coast	-1,028
	Caribbean	0,639
Activity	Relaxing	-0,231
	Sport	0,398
	Culture	-0,167

Figure 1.6: Results 4

1.4.5 Simulation

Besides providing reliable information about partial benefits of certain attribute levels, results of a conjoint analysis can further be used to create whole market models based on probabilities of choice and simulate how different products would affect consumer behavior. Once the partworths of the attribute levels are determined, even stimuli that consist of combinations of attributes which were not included in the original analysis can be tested. This opportunity to simulate a virtually unlimited number of scenarios featuring both exist-

ing and newly designed products without actually having to conduct market research every time is a huge advantage of conjoint analysis

Market simulation can either be used within a company's own product range or including competitor's products. Considering more than one of its own products, the simulation enables a company to calculate effects of cannibalization within its own product portfolio. Assuming characteristics of competitors are constant (Steiner/Hruschka, 2000), the company can also run its own product versus a competitor's product, thus calculating the success within the market (Skierra 2002).

Three different models can be used to forecast a product's effect on the market.

"In the maximum utility model, probability of choice is a binary step function of utility" (Kuhfeld, 2003). This method defines the probability as the number of respondents predicted to choose the stimuli divided by the total number of respondents. For each respondent, the predicted choice is simply the profile with the largest total utility (IBM, 2010).

"In the BTL (Bradley-Terry-Luce) model, probability of choice is a linear function of predicted utility" (Kuhfeld, 2003). This model determines the probability as the ratio of a profile's utility to that for all simulation profiles, averaged across all respondents (IBM, 2010).This method ensures that the respondent will choose one product with a specific probability (Skiera, 2002).

"In the logit model, probability of choice is an increasing nonlinear logit function of predicted utility" (Kuhfeld, 2003).This model is similar to BTL but uses the natural log of the utilities instead of the utilities themselves.

Studies found that the maximum utility model, also known as first-choice-rule, does not deliver reliable results (Elrod/Kumar 1989). Therefore the BTL model (Bradley and Terry 1952; Luce 1959) and the logit model (McFadden 1976; Punj and Staelin 1978) are more popular. Both BTL and logit models are widely accepted and do even provide further market adjustments (Baier, 2009). In order to design products offering maximum consumer value while still being profitable for the cruise industry and test them in the market model, accurate cost data has to be included into the analysis. This data is obviously not published but we will still present a simulation in order to explain the concept. We assume that only one product exists in our market with the characteristics of card 11 (relaxing activities, USA east coast, 4,500-5,000 EUR). This product obviously has a market share of 100%. As already mentioned above, the results of our conjoint analysis show that our target group assigns the highest partial benefits to the attribute levels Caribbean, sports activities and lowest price. Assuming that it would be profitable for the cruise industry to offer such a product design, we use SPSS to introduce this new product (defined as card 10) into the market and simulate consumer behavior.

ID	Max. Utility	Bradely-Terry-Luce	Logit
10	84,2%	70,7%	83,3%
11	15,8%	29,3%	16,7%

Figure 1.7: Results 5

Results show that based on the BTL model 70.7% of all consumers would now choose the new product card 11 instead of card 10. This equals a market share for card 11 of 70.7% in a market consisting of consumers with the characteristics of our target group.

Given the relevant data the results of the simulation can now be used to calculate revenue and profit for each product in the new array. Assuming that our market consists of 500,000 consumers, total revenue for product card 10 would be 1,421,625,000 EUR. Further assuming a profit margin of 5%, total profit for product card 11 would be 71,081,250 EUR.

One important drawback needs to be considered though when simulating various scenarios. The results provide realistic information about consumer behavior based on the assumption that consumers have all relevant information about existing as well as new products and that the motive to choose one product over the other is purely based on product design, which is rarely the case in the real world.

Still both conjoint analysis and market simulation provide valuable information, but even the perfectly designed product still needs to be sold to the customer. This especially seems to be true in the cruise industry since the products desired by our target group actually already exist.

1.4.6 Application

As mentioned above, we would need the relevant cost data to further investigate product design and decide which combinations of attribute levels can be offered at what price to maximize both customer benefit and cruise operator's profit.

On the other hand, a cruise vacation is not a fixed product. The customer actually has the chance to select several different attribute levels to create his or her own individually preferred service. This means, product design is not the most critical issue in the cruise industry. The real problem seems to be communicating to potential customers that cruise operators can offer exactly what they are looking for. Consequently, to improve advertising is probably the best application for our analysis' results. The creation and implementation of a whole marketing strategy would require further specific research and exceeds the scope of this paper, but an example how advertising could be improved is given in section 1.6.1.

1.5 Lessons Learned

As already mentioned, traditional conjoint analysis has several limitations. Since a cruise is a very complex product with various flexible attributes, it makes sense to use a further developed method as adaptive or hybrid conjoint analysis and invest in more sophisticated software as for example Sawtooth. This way, a higher number of attributes could be included into the products without overwhelming the test person.

We found that it is extremely important to execute the preliminary survey carefully. One should not try to save time and money in this stage of the project. Although we used an electronic survey in our practical example we recommend to rather invite test persons to a personal interview. The answers we received especially to our open questions were very interesting, but we had to make some assumptions with regard to our attribute levels because we did not have the chance to ask further questions to specify certain answers.

The internet proved to be a good way to distribute the survey. Of course in this case the design of the survey is more important than in a face-to-face or telephone interview. People belonging to our target group are expected to receive lots of email on a daily basis and will probably not respond if the task does not look interesting, fast and simple at the same time. But our return rate proves that this can be done.

1.6 Potential for the Cruise Industry

1.6.1 Marketing

Implementing the results of our conjoint analysis regarding product design and advertising will increase revenue generated by our target group. But it is also important to consider those who currently cannot imagine booking a cruise vacation. In our questionnaires we asked for the main reason if the test person stated the he could not imagine to take a cruise. The following reasons were given:

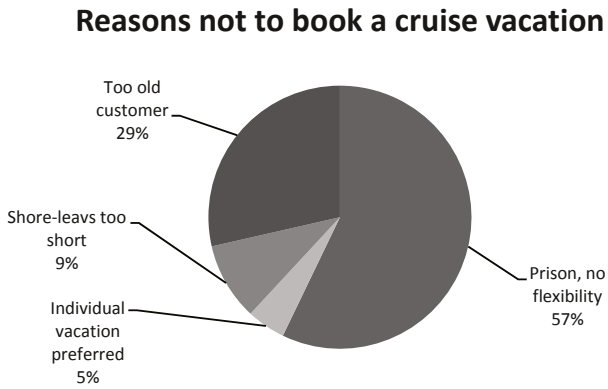


Figure 1.8: Reasons not to book a cruise vacation (Authors, based on study)

57% of our respondents said, the ship is like a prison. There is no flexibility. Another 29% of interviewees stated that the expected average age of the other cruise passengers is too high. Considering the potential of cruise vacations and the fact that the average age of cruise customers has been declining especially in recent years, we assume cruising still has an image problem.

In the following this study is going to discuss a marketing concept aiming to improve the image perception of cruise vacation focusing on potential customers between 25 and 35 years old:

Advertising:

- Current situation: Many posters and brochures show the cruise ship on the first page. Frequently the ship takes up the whole page. Although the intention of the cruise operator is probably to stress how impressive and elegant cruise liners are, potential customers often get the impression of a boring prison with one small cabin next to the other, and no flexibility.

- Improved situation: Based on “correct misconception” (Jobber, 2010) advertising should highlight the positive facts and impressions to make the product interesting.
- Application: The feedback on our second questionnaire was enthusiastic. Comments included “Thank you for making me dream”, “Now I am ready for vacation” etc. Hence it is important that advertising highlights the attributes most important to the customer. To target our customer group, advertising should therefore focus on destination and activities, selling the whole cruise experience instead of the ship.

Promotion Channels: Products and services of cruise vacation must be presented to the target group efficiently. On the one hand the target group uses the internet, cell phones and so on consistently. On the other hand digital marketing and especially digital promotion provides the opportunity to “send permission based bulletins containing information about…latest product features…promotional offers…” (Jobber, 2010). Combining those facts digital marketing presents a great possibility so serve this market and also to monitor it.

1.6.2 Further Applications of Conjoint Analysis

Conjoint analysis is traditionally used as a market research tool to analyze consumer behavior but it can also help to understand different markets as well, for example the labor market. To find enough and sufficiently qualified personnel is a critical issue for the cruise industry, especially in the areas of service and medicine (Kalbfleisch, 2009). It is therefore important to know what potential employees are looking for. If realizable, those attributes can then be included into job designs and highlighted in job descriptions and interviews.

In our preliminary survey, 22 out of 26 persons named a variation of design of the ship when asked to think of 5 attributes they would consider when booking a cruise, although it did not make rank 1 once. This attribute was topped only by destination which was named 24 times, 17 thereof on rank 1. We did not include ship design into our conjoint analysis because the attribute has too many levels which our test persons would have needed to define further. But since the ship is probably the most important part of the cruise experience and several new ships will have to be built if market growth continues as projected it makes sense to include the customers into the design process and use conjoint analysis to determine which attributes of a cruise ship they value most.

Our conjoint analysis was conducted within the cruise industry. The stimuli presented were all cruise products and we simulated how the market would react to the introduction of a new cruise concept compared to the existing products. But the main problem of the cruise industry is not to increase revenue and profit by getting customers to buy a different cruise product but to buy a cruise product in the first place instead of a land-based vacation. For this reason a more complex conjoint analysis has to be conducted. Finding out in general what tourists are looking for in a promising vacation, the cruise industry has a better chance to design services accordingly and to develop an aggressive marketing strategy that attracts first-time cruisers.

Discussions and presentations during the eCruising Student Conference (ECC) of the Cruise Research Society (9^{th}-11^{th} Dec 2010) also highlighted further applications of conjoint analysis in the cruise industry. Regarding the concept of Open Innovation, conjoint analysis could be used to decide which product attribute variations to include in a toolkit or to verify actual additional product benefits of designs created during a brainstorm session. Equally, consum-

er preferences identified by conjoint analysis could be integrated into mobile infotainment applications to provide target groups with specific information about activities, shops, restaurants etc. aboard the ship. Considering revenue management, conjoint analysis can help to define the right price for different groups of customers and products. And finally, cruise operators have recognized the potential of the internet as a marketing platform and distribution channel but do not seem to make full use of this potential so far. Conjoint analysis could be used to evaluate websites and marketing strategies thus helping cruise operators to successfully fight the battle for market share and brand awareness.

1.7 Summary/Outlook

Conjoint analysis is a very systematic approach to discover market potential and improve product design. A good product or service design providing maximal customer value is the basis to be successful in any market, but we also found that in itself it is not a guarantee for success. The service design has to be part of a consistent marketing strategy which should also focus on the attributes valued most by customers. For this reason we recommend to conduct a more complex conjoint analysis including real market and cost data as basic research to create and implement a profound new marketing strategy.

The cruise industry has managed to spread into a new market segment by attracting middle aged customers, especially families with children. But huge market potential still waits to be unleashed and diversifying service design while launching advertising campaigns specifically targeting young adults could be the key.

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2 Employee Scheduling On Board

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2.1 Introduction

The capacity of ocean cruise going vessels is rising steadily and the 'Oasis' or 'Allure of the Seas' were definitely not the last big projects the shipyards had to build. Even despite the economic turmoil of 2009, the cruise industry is continuing to grow, with a growth rate of in average 6.5% per year. And the industry is not predicted to mature soon; analysts and professionals see healthy growth through 2012 and especially when looking at the order book of ships for delivery until 2014, it can be seen that until now the term "growth" is not just a trendy word used lately in this industry, but a positive and secular determinant for our economy. (Jordan, 2010)

But will there actually be an equillibrium of demand and supply if cruise operators continue ordering that many ships every single year? Klas Brogren, publisher of ShipPax Information, explained that there are fundamental reasons why people decide to take a cruise and that demographic statistics also indicate continuous growth for the upcoming years. He also says that due to the credit crunch in the past, less capacity was actually ordered, so that in about two years the demand generated by these people will exceed the capacity input. As can be seen in Figure 2.16, the number of passengers taking a cruise increased from 12,232.702 persons in year 2000 to 19,463.403 cruise passengers in 2008; this is an increase of 59.1% in just eight years.

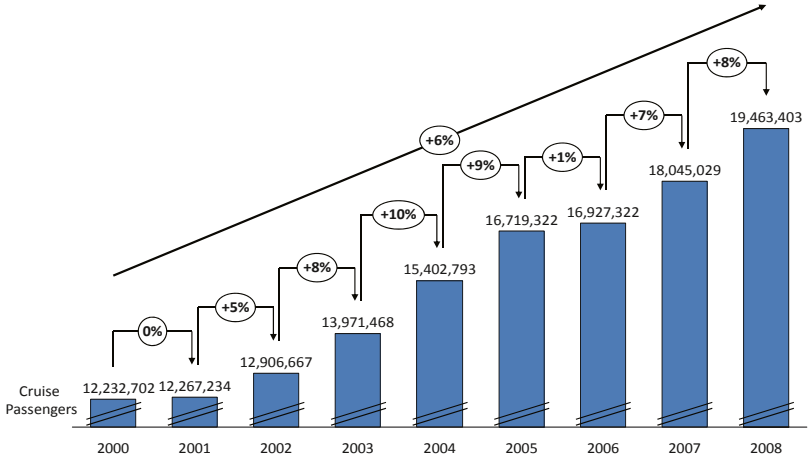

Figure 2.9: Increase of Cruise Passengers from 2000 to 2008, data from Røe, M. A. & Brogren K. (2010)

Cruise industry professionals see the demand to further grow as table 2.5 indicates, by showing the global cruise supply and demand projections to 2025.

Year	Berth	%increase	Passengers	%growth
2009	470,000	6.4	17,840,000	4.3
2010	500,000	6.4	18,760,000	5.2
2011	518,000	3.6	19,416,000	3.5
2012	540,000	4.3	20,193,000	4
2013	560,000	3.7	20,900,000	3.5
2014	580,000	3.6	21,628,000	3.5
2015	605,000	4.3	22,709,000	5
2016	630,000	4.1	23,844,000	5
2017	660,000	4.8	24,917,000	4.5
2018	685,000	3.8	25,913,000	4
2019	710,000	3.6	26,690,000	3
2020	730,000	2.8	27,304,000	2.3
2021	750,000	2.7	28,123,000	3
2022	770,000	2.7	28,967,000	3.2
2023	795,000	3.2	30,038,000	3.7
2024	820,000	3.1	30,789,000	2.5
2025	845,000	3	31,559,000	2.8

Table 2.2: Global Cruise Supply/Demand Projections to 2015, data from Peisley, T. (2010)

Cruise ships are going to be bigger, carrying an even higher number of passengers. As can be seen in table 2.6, the amount of capacity offered in 2012 will increase to an average of 3715 berths per ship.

Year	Berths
2000	1,773
2001	1,687
2002	2,570
2003	2,203
2004	2,895
2005	2,907

2006	3,313
2007	3,244
2008	3,067
2009	2,838
2010	2,391
2011	2,340
2012	3,715

Table 2.3: Capacity offered until 2012, data from Peisley, T. (2010)

Having more capacity does not only mean having more passengers but also to be able to manage a crew of often more than 2,000 employees. The cruise industry is not only the fastest growing sector in the tourism industry, but also the fastest growing job sector which supports almost 400,000 jobs annually with a payout of nearly 6 billion dollars in wages. The estimated growth model for cruise ships in the following years will require more than 26,000 new jobs on top of the existing jobs that will need to be filled due to normal turnover. (Cruise Ship Job Network, 2008-2010)

Managing and organizing this many crew members is a highly complex task for the hotel director, especially when planning the duty plan for every single employee. As many people describe those cruise ships as little villages, it is very probable that colleagues do not see each other in four month, even if they are working together on the same ship. The large distances make it impossible to communicate spontaneous changes and to create room for desires and preferences of crewmembers. Having control over every person working on a cruise ship is highly demanding, resulting in the required skill of the cruise director to delegate and hand over responsibilities and rely on his workforce.

To overcome this complexity a very limited number of cruise companies are already implementing an employee scheduling software which allows the automation of the creation of duty plans, as well as the electronic insight for every employee of their schedule. This implemented software on cruise ships is still very limited in its functionality but at least approaches the problem of high complexity and work overload. The employee scheduling software is from now on referred to as 'ESS'.

Until today there do not exist any studies on the advantages and disadvantages of an implementation of this ESS on board cruise ships. The objective of this paper is thus to analyze under which factors the implementation of this software on board of a cruise ship could be beneficial, especially for the crew and under which circumstances its usage would not generate added value or even slow down or complicate workflows.

On the following pages the functionality of one specific ESS is explained and its usage in industries other than the tourism industry analyzed. Later on, the underlying methodology for the generation of potential factors influencing the implementation of this software on board a cruise ships is explained followed by the data collection, coding and analysis. Related hypo-

theses and the evaluation of the need for improvement regarding the duty plan management system will be examined and discussed.

2.2 Employee Scheduling Software

An employee scheduling software is a program that helps and supports an organization to simplify or even to improve the process of scheduling, managing and communicating with staff. It increases the manager's efficiency to collect and manage work data and facilitates to plan, create and maintain a schedule. The existing information about the workforce and the working models are entered in an eclectic data base, which then manages the work tasks and data files on its own. Additionally, the software allows tracking vacation time, sick time, over time, compensation time, overbooking and even takes into consideration meetings or conferences. With all the information about monthly working hours, data for payroll can be calculated and statistics of all the past activities can be drawn up immediately. The system not only displays the existing working tasks but also simultaneously points out the requirements on when, how and by whom it has to be carried out. Once the data is entered, it can calculate the availability of employees, business hours, business needs, shift changes and some even include the wishes and needs of the organization's employees. Based on this data, the software can create a schedule which fits everybody's needs and further provides valuable information for managers when planning meetings or other events.

There are many different ESS programs available, which basically provide the same characteristics and only differ in a few functions. This software can be tailored to address each business scheduling demand, its requirements, and multiple working positions.

Managing these administrative tasks mentioned before can be very expensive considering the modern workforce, which consists of fulltime workers and of part time workers with a different quantity of hours and days to accomplish the task. They might have to attend school classes or university lectures or even have another job they are committed to. Therefore, a scheduling software can help an organization to reduce costs by providing a flexible management and an automated scheduling process. A software also differentiates between operation areas based on the required qualifications, competences and medical certificate of the crew and classifies them into work levels.

This software is already being applied in industries or areas, where many employees are needed. Small businesses have to outweigh the costs of implementation with the benefits, in order to find out if this might be a considerable solution.

However, it always has to be kept in mind that this software manages the tasks, but it does not make decisions nor directly influences the performance of the workforce. It is still necessary to appoint a person who is in charge of inserting the required information about staff and working positions, who introduces and communicates the software instructions to the workforce and who coordinates and controls the data.

2.2.1 Functionality

Designing and Building

There are many different software programs offered from several vendors, but most of them are based on the same principles. Therefore, a specific software provider, namely the firm

Dietrich Daten Technik and its scheduling software called “DD Personalplaner”, has been chosen to demonstrate how such software works. This software can be put online, using an interface, so that both, the manager and the employee have access. The following steps are necessary for the scheduling process to be successful.

1. Appoint working hours of all working areas

2. Group tasks

3. Fill tasks with labour

4. Allocate each employee to one main working area

5. Capture personal data of the employees

6. Appoint regulations

7. Create standard schedule

8. Publish schedule

9. Announce employee schedule coordinator

The first step is to appoint the working hours (part-time and full-time workers) of all working areas of the organization. With a specific function, the balance per hour can be calculated and demonstrated for each employee. Preparing and post processing tasks should be included when calculating the working hours, to prevent overtime.

The second step is to classify the different tasks (e.g. decorating tables, serving guests and cleaning tables) in one working area into different work positions (waiter, dishwasher, chef). Meanwhile, the working hours, which are essential to complete the tasks, are calculated and simultaneously serve as a control tool. The workforce can be employed equally and further it can be monitored that the organization’s requirements, such as minimal or maximal working hours, are met. Holidays, sick days, meetings or other irregular events can be highlighted and seen quickly.

The third step is to fill these tasks with adequate labour. To ensure a smooth process and to increase the planning dependability, replacement workers are appointed, when the responsible worker is absent (e.g. illness).

The fourth step is to allocate each employee to one main working area, so that he is subordinated to only one team leader as a communication contact. Beyond that, each employee is allocated to another working area to achieve planning reliability. This way, the employee is also visible in the databases of the other department and can be included in this schedule too.

The fifth step is capturing all personal data of the employees (e.g. name, address, telephone numbers, etc.) including important agreements about maximum fixed working days, holidays, and preferences.

The sixth step is the appointment of regulations. How many days and hours each employee has to work and when and how many employees are allowed to take vacations parallel. Union regulations and labour laws can also be included to reduce the margin of error.

The sevenths step is to create the standard schedule. Based on the agreements, regulations and employees' wishes, a standard schedule for each main work area is created. This serves as a matrix for the weekly employee schedule.

The eighth step is to publish the schedule after it has been copied and updated. It is published in the department office, in the intranet and handed out to each employee. Normally, it is completed 10 to 12 days in advance and published every 7th day.

The ninth and last step is to announce the employee schedule coordinator. This person is responsible for the equal employment of the workforce, to look for mistakes and for adopting and publishing the schedule. (Weidemann, 2007)

Implementation and Maintenance

After having conducted these steps, the schedule coordinator has to be trained and legal issues have to be clarified. Having successfully achieved these tasks, the software can be implemented. If the company has used another software program before, the old one has to be replaced by the new one and incorporated in the organization.

The standard plan can be copied for each week, has to be rechecked each day and if necessary adapted to changes. After the schedule has been checked for plausibility and fairness, it can be published.

Even though the software manages the schedule, it always has to be ensured that it is up to date and accurate. (Weidemann, 2007)

Benefits of Employee Scheduling Software

An ESS can support the management of business process scheduling and even though it does not directly improve the performance of employees, it certainly automates the time consuming business of administration in an organization.

Automating schedules creates many benefits that can be directly linked with saving costs and or time. Some benefits created by ESS are listed below (Shiftplanning, 2010; Kappix, 2010):

- Reduce overtime expenses
- Create schedules in less time
- Control system
    - Communicate schedule information more effective
- Ensure shift coverage
- Statistics
- Employees' involvement
- Better achievement of contracted service level agreements
    - Communication platform,
    - Capturing and using Data more efficiently
- Reduce overtime expenses

    - Elimination of overtime costs by instantly seeing shift coverage and hours scheduled. Having this information at hand, it is easy to optimize staff, prevent overbooking and reduce overtime.
- Create schedules in less time
    - Time can be saved by a flexible, unlimited schedule plan and by scheduling groups of employees simultaneously. It is based on a standard schedule plan for one week, which can be reused for each following week and hence reduces the creation time and allows flexibility. This leads to minimizing job administration costs by using the time otherwise.
- Control system & Transparency
    - The ESS indirectly creates a control tool for the manager. He can control who is checking in late, who is missing most shifts, who works less or more than required, who has viewed and confirmed shifts, etc. Also, the labour expenses can be monitored and controlled, as well as the tracking and correcting of performance. Based on this information, control reports on planned time and actual time can be generated. Transparency is achieved by forcing coordinators to publish and align their schedules to the other department levels.
    - Communicate schedule information more effective
- The ESS also improves reporting capabilities by automatically notifying employees about new shifts, broadcasting open shifts, important events, or meetings, etc. Additionally, it eliminates the need to call each employee individually to distribute the schedule. This accelerates the distribution of the schedule.
- Ensure shift coverage
- Unassigned shifts can be easily identified. It is visible who is not scheduled yet and might be used to fill a vacant shift. The optimal usage of assets, but also the equal usage of labour, is ensured.
- Statistics
    - Since all the data has already been captured and organized in the databases, statistical examinations can be easily done. This information can be used to create a bonus system based on scores (e.g. attendance, punctuality, etc.), which in turn increases performance.
    - Employees involvement
- The employees can make wishes (holidays, shifts, preferred days off, etc), which are captured and taken into consideration when scheduling. It also enables employees to exchange shifts electronically. However, this is limited due to required skills of the shift. Employee turnover can be reduced and satisfaction increased by including their preferences.
- Better achievement of contracted service level agreements
    - The requirements of the organization and its employees is written down beforehand and therefore automatically set in when scheduling the timetables. This also improves the equal application of the rules for all staff members.
    - Communication platform
    - An ESS also offers the opportunity to create a virtual “office”. Employees can check their schedules whenever they want and mangers can make spontaneous changes without calling every employee individually. This improves the communication flow between staff and management. The file sharing on the platform enables everyone involved to have access to the data when and from where

he/she wishes. This function has an indirect advantage by increasing the communication among staff and managers. Since all employees' profiles are partly published in the databases, people get to know their co-workers.
- Capturing and using Data more efficiently
- The software enables to capture all necessary tasks of the employees and some programs even have additional functions, which include the different skills, such as certain language skills, or a certain expertise to work.
- The software can be updated from the employees very easily so that precise information about personal data and availability is always at hand.

Despite all these benefits, it has to be taken into consideration that the employees need to be introduced to the software and trained to be able to work with it. If it takes too long, another solution might be more efficient. Another important factor is how easy it is to understand the software. Especially for smaller businesses it has to be considered if the benefits outweigh the costs, or whether a locally installed solution might be more effectively.

Difficulties and Costs

Even though the software creates numerous benefits, the costs and difficulties of introducing it have to be carefully taken into consideration. If the software cannot be created inhouse, it has to be purchased from outside. All the alternatives have to be evaluated to decide which the most suitable offer is. Only then it can be implemented if a suitable infrastructure is at hand. If not, it has to be purchased, which is quite costly and might decrease the benefits it would yield.

Furthermore, many difficulties are known when automating a schedule processes. If the software is not well introduced, difficulties in communicating changes in the schedule appear to be problematic. It is essential to replace the staff, to ensure good performance and planning reliability. This shows the necessity to train the employees well on how the system works and how important it is, to communicate shifts in the timetable. Therefore a process has to been included in the software which the employees use to electronically enter their missing days (Weidemann, 2007).

2.2.2 ESS-Presence

There are already many companies in different industries that apply automated scheduling programs. Two different employee schedule systems are explained below.

2.2.2.1 Lufthansa:

Lufthansa employs about 20,000 crew members around the world and operates in a very dynamic and instable environment where forecasting the future and planning the environment is a complex and difficult task. To simplify this challenge, Lufthansa recently introduced its online tool named "real time Preferential Bidding System and Automatic Rostering System". This software consists of two systems, the ACA and MPG. The ACA builds the rosters (monthly schedules of a crew member) automatically and the MPG, which is a real-time request system, is used by the crew members to communicate preferable rest days, working days and the destinations they would like to fly to. This online tool reduces the time planning of rosters from 5 weeks to 2 weeks and further simplifies the difficult task to build it. Moreover, it allows the crew to make requests and to have more control over their schedules. The

schedule can be handed over to the crew much earlier so that they are able to plan their personal life better.

Direct benefits are generated, namely the cost saving of the shareholders and the influence of crewmembers on their rosters. As this is almost always the case, indirect benefits are readily available, whereby Lufthansa is no exception. Lufthansa's ability to react to major disruptions has increased, as well as the improved robustness of a critical business process (Kernel, 2010).

To further understand how such a request system works, an interview with a Lufthansa pilot was conducted. He explained that he could create his own schedule based on the requirements on working days and hours (max. 19 days or 85 flight hours) and the available flights to choose from. On the first day of each month the pool of flights is published from which the pilots and flight attendants can choose. Until the 27th of each month the crew members can change their schedules. After this date the schedule is fixed. If one shift is overbooked, the system automatically decides who will be registered (this is dependent on the time the employee has worked for the company; the longer the time period, the better the chances to get the shift). If any changes appear (if the flight is cancelled etc.) the system automatically notifies the crew member, who can then choose from alternatives or let the system decide which shift to take. The system can be accessed and schedules can be created and changed from any location online.

A pilot for Lufthansa, R. Schmid, stated that he is very satisfied with the "real time Preferential Bidding System and Automatic Rostering System". It saves time and includes individual preferences, which increases the employee satisfaction. However he also stated that linking the crew members private email account with the work email account would add value (Schmid, 2010).

2.2.2.2 Red Bull:

Red Bull is a very young and dynamic organization, where the main activity is planning and performing events such as concerts, sports or art events. The style of carrying out these events is very spontaneous and independent and therefore requires flexible management and the availability of employees at potential locations at all time. In 2009, Red Bull employed over 6,900 employees around the world (Red Bull, 2010), which had to be immediately available if needed. These are the reasons why an online intranet and scheduling software was implemented. It is separated in different tools, "Redbullwiiings" and "Eyecan". Redbullwiiings is created for full time workers, like marketing managers, sales managers or field managers. Eyecan has been implemented especially for part time workers, which are students for promotion at universities and on the field and their supervisors who control their activities.

Access to this intranet is possible via the Internet. The intranet consists of a communication platform where important events and news regarding the company is posted. The page is divided in several windows such as news, calendar, info centre, administration and forum. The important window for the employee schedule is the calendar. Each month is displayed and divided in the geographical working areas (Germany-north, -east, -south, -west). The employees can independently sign in for shifts based on the requirements (minimum of 6 days of 8 hours each month). Shifts have to be registered in the first week of the month and

signed as planned. If realized, the colour has to be changed to green and a report with photos has to be uploaded onto the calendar. If not realized, the colour needs to be changed to grey. At the end of each month the supervisor confirms the shifts and then the planned and the actual time can be compared.

This tool for part time employees enables them to create their own schedules, to adapt to changes, such as sudden events coming up which they had not been aware of before and to efficiently use their days of work. Additionally, it supports the supervisor to monitor the activities of their subordinates without being on the spot every time. This solution saves time and costs for the company and empowers the part time workers to creatively and independently plan events (data from own working experience of authors).

It can be concluded that once again the ESS enables the company to save time and costs and to increase the employee satisfaction by considering their preferences.

2.3 Methodology

For our paper the authors chose to use the Grounded Theory approach because no theories seem to exist regarding factors that could influence the implementation of an employee scheduling software on board cruise ships. The Grounded Theory approach is a methodology which intends to develop theories out of data, systematically obtained and analyzed using a social research method.

The methodology is conducted by passing the three overlapping steps of Open Coding, Axial Coding and Selective Coding (Davidson, 2002). Coding is referred to "the analytical process through which data are fractured, conceptualized, and integrated to form theory." (Corbin, J. & Strauss, A., 2008)

Following this procedure, a theory about the behavior under study can be developed using the process of data collection, where the data should be constantly analyzed. Already at the time of data collection, speaking of unstructured interviews of a wide spectrum of people, the transcripts of those interviews should be analyzed in detail, in order to identify key words or phrases with specific statements. These perceived statements are then transformed into 'Open Codes'. These 'Open Codes' are then compared with other 'Open Codes' deriving from same or different interviews. The aim here is to encounter relationships of already existing ones and to summarize those that fit together into so-called 'Axial Codes'. From the process of 'Axial Coding', the researcher can again lessen the specificity of the code and reduce it into a 'Core Category' by applying the process of 'Selective Coding'. The 'Core Category' found shall give an explanation of the behavior under study and shall create the basis of the resulting theory. A 'Core Category' has certain criteria to fulfill in that it has to be theoretically significant, it has to be abstract, so that the underlying codes can be related and placed under it, it has to appear frequently and furthermore it has to be logical and consistent with the data previously collected. (Corbin & Strauss, 2008, p.105)

2.3.1 Selecting the interviewees

Relating this methodology to this research paper, the authors started to find potential interviewees who could provide them with sufficient information on their working experience on board a cruise ship. In order to come up with various factors that could positively or negatively influence the implementation of an employee scheduling software, the authors put

their focus on finding potential interviewees that worked in different positions on different cruise ships, of varying ship size, department size and the operating company. Since many of the authors' colleagues just passed an internship on board different cruise vessels, their primary source of interviewees came from these colleagues and employees the authors got to know during their own internship on board a cruise vessel.

The following table shows the interviewees that have been selected for this research paper. Interviewee number three had two different bosses on board, resulting in dissimilar perceptions. Hence the statement of interview number three is divided into a and b. Interviewee number four worked on two different ships, resulting in different answers to questions and thus are listed as two different interviews.

Table 2.4: Selection of interviewees

Interview	Gender	Age	Occupation	Family Status	Company	Cruise Ship	No. of passengers	No. of crew (total)	No. of crew (department)	Department
I1	male	24	student	single	Transocean Tours	MS Astor	550	280	5	Shore Excursion
I2	male	24	student	single	Hapag-Lloyd Kreuzfahrten GmbH	MS Bremen	150	100	25	Kitchen
I3a/b	female	26	student	single	Costa Crociere	Costa Pacifica	3700	1100	10	Children Animation
I4a	female	23	student	single	Royal Caribbean International	Liberty of the Seas	4000	1400	20	Reception
I4b	female	23	student	single	Royal Caribbean International	Rhapsody of the Seas	2500	700-800	15	Reception
I5	male	40	reception desk manager	single	Gsell & Partner	MS Mozart	206	50	3	Reception
I6	female	31	waitress	single	MSC Crociere	MSC Fantasia	3300	1300	30	Service

During the interview, the interviewees were asked about their normal work life on board of a cruise ship with special regard to their duty plans. The authors started the interviews with collecting information that would be necessary to evaluate if the factor size is a determinant for a potential implementation of a scheduling software. Questions regarding the ship's capacity, the number of crew working on board and the number of crew working in the department in which the interviewee were employed, are helpful determinants to evaluate the usefulness of a software implementation.

Although the authors' aim is to generate factors influencing the implementation, it was not possible to ask the interviewees directly about the factors they perceive. Since the interviewees do not have the ability to judge those factors and because these are not behavioral questions as needed for the grounded theory, these statements would be of insufficient validity.

The strategy implemented in turn was to analyze the satisfaction of each interviewee regarding the company duty plan management system.

The interviews were recorded and then typewritten.

2.3.2 Open Coding

When the authors started conducting the interviews, they simultaneously selected 'Open Codes'. They stopped having interviews at the time when no new 'Open Codes' where mentioned by the interviewees. It has been tried to only pick out important information regarding the duty plan the interviewees received on board. On the following pages all interviews with their quotes and Open Codes are listed.

Interview 1		
	Quote	Open Code
1	"I received the duty plan every day between 8 and 9pm, it always had been put in my shelf."	Frequency of duty plan creation
2	"The duty plan changed every day. [...] (…) then you have to get up really early, always at different hours (…)."	Consistency of duty plan
3	"The Hotel Manager Assistant together with the Cruise Director, she created it and then the Cruise Director approved it and then again the Hotel Director."	Amount of work for duty plan creation
4	"(...) the one did it like that, that she asked us what we like to do (...) then she memorized that and when we said "I don't like to do water gymnastics anymore then she allocated another one to water gymnastics the next day. And the next one did it like that, that the beginning she gave us a sheet at listing down all possible activities, where I had to mark, I think from one to five, what I like to do, what I absolutely do not like to do and that way we got allocated."	Influence of employee preference on duty plan
5	"No. Because the guests received exactly the same plan as we did. What we receive had been the normal daily program which the guests receive as well, if it then said "Shuffleboard at 3pm with your host (name of the interviewee) then guests braced themselves up for that , some just came because it had been with that special hosts."	Influence of employee preference on already created duty plan
6	"No, it never occurred to me as a problem. You are on the ship anyway, at what time you work doesn't matter."	Timespan between duty plan creation and handout
7	"(...) because many hosts entered it by hand, it had been rather randomly (...) there were two or three hosts that worked a lot more than some others(...) and some were allocated a lot more than others that was the problem then."	Degree of control over workload allocation
8	"A duty plan which you could look at in the intranet would not be possible because we had no computer onboard for hosts; in the cabin we hadn't had any line for computers or intranet (...)."	Infrastructure for proposed employee scheduling software
9	(…) then you would just print it out and put it in your pocket."	Accessibility to duty plan in case of implementation of proposed employee scheduling software

Interview 2		
	Quote	Open Code
1	"In the kitchen you could go and get a printed version which was located in your shelf. Furthermore the kitchen meets every day after dinner for a short meeting and there some things were discussed and sometimes we got our duty plans handed out again."	Frequency of duty plan handout
2	"Exactly, for every new cruise there was a new duty plan."	Frequency of duty plan creation
3	"The guys cleaning the dishes were always allocated to fixed shifts; these were always the same .They really worked seven days a week from 3pm to the morning."	Consistency of duty plan
4	"(...) I think it is important that is written down so that you can control how much you've worked. So that you can write down your overtime, sometimes they don't know how much they've worked overtime then they have to enter it and just have no idea. Maybe they've worked a lot more than they get paid."	Degree of control over workload allocation
5	„I also had a Notebook with me because there were no Computers. Many didn't have anything though."	Infrastructure for proposed employee scheduling software
6	"(...) although, on such a small ship, you see each other anyway, you know everyone and everybody knows you and then you can just agree upon it orally."	Influence of employee preference on duty plan
7	"Regarding the preferences, I think it would be strange to just breathe your wish into a computer, I think one would still go and let someone know or ask again, just to make sure or just because one is familiar to that procedure."	Acquired habit to the existing process
Interview 3a/b		
	Quote	Open Code
1	"At the beginning, well in total I had three bosses; I always received my duty plan for the next day at 11:30pm at night. [...] I didn't like that at all that I only received it one day before because I wanted to know when I have free time and when I could go off the ship."	Frequency of duty plan creation
2	"After about two month the bosses changed (...) he developed a new concept and wrote the duty plan for a whole cruise. This we received one day before the new cruise began. [...] (...) it had been good that it changed and that the duty plan was fix for one cruise because I was better able to plan and furthermore that I received it as a printed version."	
3	"The shifts changed every day, we were allocated to always different shifts, some days you had to begin in the morning, some days in the evening."	Consistency of duty plan
4	"But our working hours were written down separately in an table, because our duty plans just were written in 'word' that had to be controlled somehow that's why there were written down in an excel sheet."	Degree of control over workload allocation

5	"When I know we are going to be the last time in Rome and I really wanted to be there than I just talk to them as soon as possible, if it is still at the beginning of the cruise than I know that it will still be possible."	Influence of employee preference on already created duty plan
6	"And there it was discussed if everybody is happy with the plan and then you could only change something the evening it got handed out, meaning the day before the new cruise began, because later it would have been too complicated in terms of organizing it."	Flexibility
7	"(...) but for the people who didn't have a notebook, there had been an internet point located in the crew area (...) there had been also one computer in the crew bar and one where we ate which was called "Costa Planet" where you could read internal documents like rules (...) and, hygiene and so on (...).	Infrastructure for proposed employee scheduling software
8	"I don't know if I would use that because I am a haptic person, I need to have it in my hand (…)."	Accessibility to duty plan in case of implementation of proposed employee scheduling software
9	"(...) the working hours were entered in the excel sheet and then handed to the Cruise Director (...) because he had to approve that we worked full hours.[...] (...), they just looked how it has been done last week and then changed it a little bit but there were no rules given from the company and neither a special approach."	Amount of work for duty plan creation
Interview 4a		
	Quote	Open Code
1	"The early shift had been from 8 am to noon and from 4pm to 8pm. The late shift had been from noon to 4pm and 8pm to midnight. Then there were special days when there had been embarkation, it shifted a little bit because the early shift had to begin already at 7am. (...) It was the same on the Liberty."	Consistency of duty plan
2	"There was a duty plan for a whole cruise. For both ship, one cruise had the duration of seven days. (…) if you receive it for one week you can plan your week a lot better."	Frequency of duty plan creation
3	"It had been created in midweek and we received it the latest on Saturday evening at about 8pm."	Timespan between duty plan creation and handout
4	"Actually the duty plan has been pretty fixed. Only if someone had to take over another position then the plan changed spontaneously."	Flexibility
5	"(…) we could breathe wishes if we wanted to work a particular shift, you had to announce that and then you had to search for someone you was willing to switch. […] "We had to inform the supervisor on duty and it had been the same on both ships. But it was also depending on the reasons we had."	Influence of employee preference on already created duty plan
6	"I think the switch electronically will be very difficult since the system will not be able to recognize if the requirements will be fulfilled. [...] Because although you're having the same position, you can have other qualities. You don't would like to have all people with lower capabilities and all with high capabilities in one shift. It should be mixed and electronically that would not be possible."	Requirements of proposed employee scheduling software

7	"I also see the threat of not everybody having access to a computer, the infrastructure is missing."	Infrastructure for proposed employee scheduling software
8	"We all worked the same amount of hours. There had been a system in which we had to enter our worked hours exact to the minute. If you worked longer you also had to mention that and it got controlled."	Degree of control over workload allocation
Interview 4b		
	Quote	Open Code
1	"The early shift had been from 8 am to noon and from 4pm to 8pm. The late shift had been from noon to 4pm and 8pm to midnight. Then there were special days when there had been embarkation, it shifted a little bit because the early shift had to begin already at 7am. (...) It was the same on the Liberty."	Consistency of duty plan
2	"There was a duty plan for a whole cruise. For both ship, one cruise had the duration of seven days. (…) if you receive it for one week you can plan your week a lot better."	Frequency of duty plan creation
3	"It had been created in midweek and we received it the latest on Saturday evening at about 8pm."	Timespan between duty plan creation and handout
4	"Actually the duty plan has been pretty fixed. Only if someone had to take over another position then the plan changed spontaneously."	Flexibility
5	"We had to inform the supervisor on duty and it had been the same on both ships. But it was also depending on the reasons we had."	Influence of employee preference on already created duty plan
6	"On board the Rhapsody it would be easier because there has not been a Senior Guest Service Manager and on the ship there were less requirements. All have been on the same level (...)."	Requirements of proposed employee scheduling software
7	"I also see the threat of not everybody having access to a computer, the infrastructure is missing."	Infrastructure for proposed employee scheduling software
8	"We all worked the same amount of hours. There had been a system in which we had to enter our worked hours exact to the minute. If you worked longer you also had to mention that and it got controlled."	Degree of control over workload allocation
Interview 5		
	Quote	Open Code
1	"I received my duty plan every day in the evening (…)"	Frequency of Duty Plan Creation
2	"I worked every day at the same time, my boss worked two hours in the morning, then I for four then she six and I again four and then at 10pm came the nighty. That repeated the whole season like this, pretty monotonous."	Consistency of Duty Plan
3	"(…) when I wanted to visit them and sleep there, than I informed my boss and she considered that (...)."	Influence of employee preference on duty plan

4	"(...) there I had to inform my boss really early (...) On short notice something like that is not possible because we are so few people (...)."	Flexibility
5	"When the duty plan had been written than nothing could have been changed anymore (...)."	Influence of employee preference on already created duty plan
6	"My boss, after working the six hours in the afternoon, entered the duty plan and then I came and saw it right away, starting my shift."	Timespan between duty plan creation and handout
7	"But on small ship it is a little different, then the one person come a little too late, the other a little too early, then you are not yet done with your work and you have to continue, with then two persons working at the reception desk. (...) but if you had to work overtime (...) it hadn't been recorded (...)."	Degree of control over workload allocation
8	"Furthermore I think it would take a lot longer to look it up on the computer, I mean on the MS Mozart we don't have computers for the crew anyway"	Infr/ure for employee scheduling S/W
Interview 6		
	Quote	Open Code
1	"I always receive my duty plan for one cruise."	Frequency of Duty Plan Creation
2	"(…) my boss creates it when about half of the cruise is over and I receive it (…) one day before the next cruise begins."	Timespan between duty plan creation and handout
3	"Unfortunately my shifts are always the same, I always work at lunch time and then again at dinner time, usually from 11am to 3pm and again from 5:30pm to 10:30pm."	Consistency of Duty Plan
4	"The plan is fix and you are not asked if you are okay with that, it just is expected."	Influence of employee preference on duty plan
5	"(...) on my ship or rather in my department everything is very precisely planned that means before the plan gets created everything stands firm. (...) If someone gets sick then the whole system will break down. (…)"	Flexibility
6	"Making changes after the creation of the plan, I mean that one we received per cruise, that doesn't work anyway, if at all then long time ahead."	Influence of employee preference on existing duty plan
7	"It isn't that easy in the service sector, esp. at dinner if guests eventually sit together a bit longer, then you cannot just go and kick them out, there you have to stay. These extra hours weren't recorded"	Degree of control over workload allocation
8	"What I perceive as difficult is that if it would be for the whole ship and we are over1.300 crew than we do not have enough computers."	Infr/cure for scheduling SW

Table 2.5: Open Codes with corresponding quotes

In total, six interviews had to be conducted until saturation had been reached. In the table below a list of all Open Codes, with the interviewees mentioning them, can be found. In all, 13 Open Codes have been explored with 56 statements from all the interviews together. Although many Open Codes have been found regarding the duty plan, not all are relevant for selecting the Axial Codes. Within the Axial Codes, only Open Codes that deal with the satisfaction of employees regarding the company's duty plan management should be included. The interviewees, however, also mentioned Open Codes that deal with the potential implementation of the employee scheduling software and the satisfaction of employers regarding the actual or potential duty plan system. Those codes are not relevant for the following step, but will definitely be significant for the question whether to implement the employee scheduling software. Those codes will be eliminated of analysis for this stage but will appear again later on in the further research section.

Codes eliminated for Axial Coding

Satisfaction of employers	Threats regarding implementation of employee scheduling software
Amount of work for plan creation	Infrastructure for proposed employee scheduling software
Degree of control over workload	Accessibility to duty plan in case of implementation of proposed employee scheduling software
Flexibility	Requirements of proposed employee scheduling software
	Acquired habit to the existing process

Table 2.6: Open Codes relevant for further research

Furthermore, the authors decided to only include those Open Codes that represent up to 86% of all Open Codes mentioned. All Open Codes that are perceived to be less important, here under 7%, will not be included for Axial Coding.

Open Code	I1	I2	I3a/b	I4-a	I4-b	I5	I6	Total	Total Ac	% Ac	%
Frequency of duty plan creation	X	x	x	x	x	x	x	7	7	12.50	12.50
Consistency of duty plan	X	x	x	x	x	x	x	7	14	25.00	12.50
Degree of control over workload allocation	X	x	x	x	x	x	x	7	21	37.50	12.50
Infrastructure for proposed employee scheduling software	X	x	x	x	x	x	x	7	28	50.00	12.50
Influence of employee preference on already created duty plan	X		x	x	x	x	x	6	34	60.71	10.71

Time span between duty plan creation and handout	X			x	x	x	x	5	39	69.64	8.93
Flexibility			x	x	x	x	x	5	44	78.57	8.93
Influence of employee preference on duty plan	X	x				x	x	4	48	85.71	7.14
Amount of work for duty plan creation	X		x					2	50	89.29	3.57
Accessibility to duty plan in case of implementation of proposed employee scheduling software	X		x					2	52	92.86	3.57
Requirements of proposed employee scheduling software				x	x			2	54	96.43	3.57
Acquired habit to the existing process		x						1	55	98.21	1.79
Frequency of duty plan handout		x						1	56	100.00	1.79
								56			

Table 2.7: Open Codes with frequency of occurrence

As the Open Code of 'Flexibility' does not solely influence the satisfaction of employers, as mentioned above, it will still be relevant for the Axial Coding, especially because it has been mentioned five out of seven possible times.

2.3.3 Explanation and Assumptions of selected Open Codes

On the following pages all Open Codes that have been selected for the Axial Coding are explained and assumptions to their impact of employee satisfaction proceeded.

2.3.3.1 Frequency of duty plan creation

Explanation:

The frequency of duty plan creation implies the rate at which the duty plan gets created.

Assumption:

The assumption is that the longer the time span is for that the duty plan to be created, the better it is for the employee because he can plan free time and ask for changes.

2.3.3.2 Consistency of duty plan

Explanation:

The consistency of the duty plan implies the change of tasks and shifts the employee is allocated to. The duty plan can either be always the same or vary in regard to working hours and responsibilities.

Assumption:

The assumption is that the more inconsistent the duty plan is, the better it is for the employee because tasks and shifts vary. Having different responsibilities lowers the degree of boredom and creates the opportunity to go off board at different port at different times.

2.3.3.3 Degree of control over workload allocation

Explanation:

The degree of control over workload implies the possibility for employees to record their working hours and overtime.

Assumption:

The higher the degree of control is, the better it is for the employee. By recording working hours and overtime, the shifts can be allocated fairly and payment of overtime is appropriate.

2.3.3.4 Time span between duty plan creation and handout

Explanation:

The time span between the duty plan creation and handout is the time between the moment the plan gets created and the actual point in time it is handed over to the employee.

Assumption:

The shorter the time span is, the better it is for the employee. The employee wants to get the duty plan right away to be able to ask for changes and to better plan free time.

2.3.3.5 Frequency of duty plan handout

Explanation:

The frequency of the handout of the duty plan implies the rate at which the employee receives the duty plan.

Assumption:

The less often the employee receives it, the better it is. In this way the employee can plan his free time and ask for changes.

2.3.3.6 Influence of employee preference on already created duty plan

Explanation:

The influence on already created duty plans implies the degree of power an employee has to ask for changes after receiving it.

Assumption:

The more influence the employee has, the better it is. In this way the employee can require shift changes and consider his own preferences, circumstances creating a better working life.

2.3.3.7 Flexibility

Explanation:

The flexibility is the ability of the duty plan to adjust to unpredictable changes. These could be illness, itinerary changes or employee preferences.

Assumption:

The more flexible the duty plan is, meaning the more adaptable it is to changes, the better it is. In this way the employees can ask for short-noticed changes in shifts and responsibilities.

2.3.3.8 Influence of employee preference on duty plan

Explanation:

The influence of employee preference on duty plans is the degree of power the employee has to participate in the creation of the duty plan.

Assumption:

The more influence the employee has, the better it is. In that way employees get the chance to communicate their strengths and participate in the allocation of shifts and responsibilities.

2.3.4 Axial and Selective Coding

After selecting all Open Codes that seem to be relevant for further analysis, the authors started to structure and compare those Open Codes in order to be able to develop more general concepts and categories during the process of Axial Coding.

The authors perceived a relation between codes that have the similar basic statement regarding the creation process of the duty plan under which would fall the frequency of creation, the consistency and the degree of control over workload. The authors grouped these three Open Codes into the Axial Code of ‘Efficiency of Standard Duty Plan Creation Process’. Furthermore, they perceived a relation between the Open Codes of the time span between duty plan creation and handout and the frequency of duty plan handout.

Open Code	I1	I2	I3a/b	I4-a	I4-b	I5	I6	Total	Axial Codes	Selective Code
Frequency of duty plan creation	x	x	x	x	x	x	x	7	Efficiency of Standard Duty Plan Creation Process	Company Duty Plan Management System
Consistency of duty plan	x	x	x	x	x	x	x	7		
Degree of control over workload	x	x	x	x	x	x	x	7		
Time span between duty plan creation and handout	x			x	x	x	x	5	Efficiency of Standard Duty Plan Communication Process	
Frequency of duty plan handout		x						1		
Influence of employee preference on already created duty plan	x		x	x	x	x	x	6	Ability to Adjust Duty Plan to Unpredictable Changes	
Flexibility			x	x	x	x	x	5		
Influence of employee preference on duty plan	x	x				x	x	4	Employee's Participation in Duty Plan Creation	

Table 2.8: Selective & Axial Codes with corresponding Open Codes

They grouped those into the Axial Code of 'Efficiency of Standard Duty Plan Communication Process'. The Axial Code 'Ability to Adjust Duty Plan to Unpredictable Changes' came from the perceived relation between the codes of influence of employee on an already created duty plan and the code of flexibility, both implying a determinant of ability to adjust. The last Axial Code, 'Employee's Participation in Duty Plan Creation', comes from the Open Code of influence of employee preference on duty plan.

As a Selective Code, the term 'Company Duty Plan Management System' has been chosen.

2.3.5 Hypotheses and Dependencies

As can be seen in the Figure 2.17, the employee satisfaction of duty plans is dependent on four different factors and overall dependent on the company's duty plan management system. The employee satisfaction is thus dependent on the efficiency of how the standard duty plan is created. The assumption is that the more efficient the creation process is, the more satisfied the employee is. Another factor on which the degree of satisfaction depends, is the efficiency of the communication of the duty plan, assuming that the more efficient this communication process is, the more satisfied the employee is. The third factor is the ability to adjust that duty plan to unpredictable changes, following the assumption that the more able it is to adjust, the more satisfied the employee is. The last factor upon which the em-

ployee satisfaction is dependent is the possibility of employees to participate in the creation of the duty plan. The assumption is that the more an employee can participate, the more satisfied he is. These four factors together influence the company's system of managing duty plans.

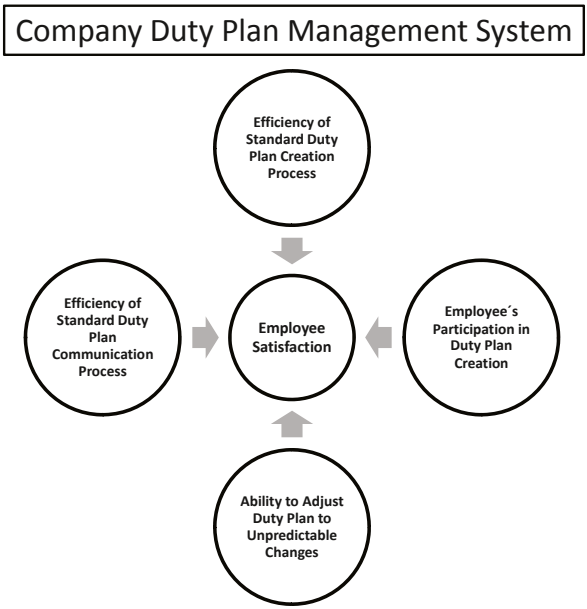

Figure 2.10: Dependency of Employee Satisfaction with Axial Codes

Following the coding phases, four hypotheses could be constructed:

Hypotheses

- The efficiency of a standard duty plan creation process positively influences the employee satisfaction with the company's duty plan management system.
- The efficiency of a standard duty plan communication process positively influences the employee satisfaction with the company's duty plan management system.
- The ability to adjust a duty plan to unpredictable changes positively influences the employee satisfaction with the company's duty plan management system.
- The employee's participation in the duty plan creation positively influences the employee satisfaction with the company's duty plan management system.

2.3.6 Partial Conclusion

With regard to the hypotheses listed above, the authors concluded that there are factors that influence the satisfaction of employees regarding the management of duty plans. Im-

portant for the ESS in this case would be to ensure the ability to improve those factors mentioned above to reach a higher degree of satisfaction and to create added value with its implementation. But as we can see in the section “Employee Scheduling Software”, where its benefits and functionalities are listed, the ability to overcome the threat of dissatisfaction resulting from inefficient management of duty plans is guaranteed. The ESS improves the Standard Duty Plan creation process by providing the management with a Standard Schedule Matrix. This Matrix is based on the company’s requirements and can be copied on a regular basis and adopted to changes, in order to create an unlimited employee schedule. Additionally, the ESS provides a communication platform, a “virtual office”, which has no limitations to business hours and enhances the communication process of the Standard Duty Plan. Employees can look up their up-to-date schedules at all times and are immediately informed via the intranet as soon as any changes take place. It also allows the smooth working process with no double booking or vacant shifts. Workers can plan their free time more efficiently, which positively influences the employee satisfaction. The ESS further helps to adjust to changes more easily, to adopt the schedule and to inform the employees immediately. This creates a less stressful working environment for the employees, which in turn increases their satisfaction. Finally, the ESS includes the employee’s participation in the creation process in the way that it communicates their preferences. Therefore, it can be concluded that incorporating an ESS in a company can overcome threats that do restrict the satisfaction of employees. Until now, only factors that influence the employee satisfaction have been analyzed. However, it is still not clear whether the need for an ESS is actually there and under which conditions it would be useful to be implemented. In order to evaluate the employee needs, the authors analyzed the Open Codes of every interview by evaluating whether the statements made by the interviewees have either a positive or a negative appraisal.In the following section the evaluation of the need for improvement will be analyzed and a possible correlation to the factor size examined.

2.3.7 Evaluation of the Need for Improvements

For the evaluation of the need for improvement, the ‘Open Codes’ with their related quotes were listed again. Following the assumptions about the codes which the authors analyzed earlier, the statements made by the interviewees were valued with either a negative or a positive appraisal. This evaluation was done for all the Open Codes that belong to some Axial Code. Furthermore, the number of crew working on the ship and the number of crew working in that particular department were listed in order to be able to examine whether the factor size is a determinant for satisfaction regarding the duty plan management.

Open Code								
Frequency of duty plan creation							Intervew	
							No. of crew (total)	
							No. ofcrew (deparment)	
							Department	
							Instance	
							Quote	
							Evaluation	
							Ship Size	
							Department Size	
I5	I4b	I4a	I3b	I3a	I2	I1		
50	700-800	1400	1100	1100	100	280		
3	15	20	10	10	25	5		
Reception	Reception	Reception	Children Animation	Children Animation	Kitchen	Shore Excursion		
Daily	Per Cruise	Per Cruise	Per Cruise	Daily	Per Cruise	Daily		
"I received my duty plan every day in the evening (...)"	"There was a duty plan for a whole cruise. For both ship, one cruise had the duration of seven days. (...) if you receive it for one week you can plan your week a lot better."		"After about two month the bosses changed (...) he developed a new concept and wrote the duty plan for a whole cruise. This we received one day before the new cruise began. [...] (...) it had been good that it changed and that the duty plan was fix for one cruise because I was better able to plan and furthermore that I received it as a printed version."	"At the beginning, well in total I had three bosses, I always received my duty plan for the next day at 11:30pm at night. [...] I didn't like that at all that I only received it one day before because I wanted to know when I have free time and when I could go off the ship."	"Exactly, for every new cruise there was a new duty plan."	"I received the duty plan every day between 8 and 9pm, it always had been put in my shelf."		
negative	positive	positive	positive	negative	positive	negative		
small	medium	big	big	big	small	medium		
small	medium	big	medium	medium	big	small		

Degree of control over workload	Consistency of duty plan										
I1	I6	I5	I4b	I4a	I3a/b	I2	I1				I6
280	1300	50	700-800	1400	1100	100	280				1300
5	30	3	15	20	10	25	5				30
Shore Excursion	Service	Reception	Reception	Reception	Children Animation	Kitchen	Shore Excursion				Service
low	Consistent	Consistent	Inconsistent	Inconsistent	Inconsistent	Consistent	Inconsistent				Per Cruise
"(...) because many hosts entered it by hand, it had been rather randomly (...) there were two or three hosts that worked a lot more than some others(...) and some were allocated a lot more than others that was the problem then."	"Unfortunately my shifts are always the same, I always work at lunch time and then again at dinner time, usually from 11am to 3pm and again from 5:30pm to 10:30pm."	"I worked every day at the same time, my boss worked two hours in the morning, then I for four then she six and I again four and then at 10pm came the nighty. That repeated the whole season like this, pretty monotonous."	"The early shift had been from 8 am to noon and from 4pm to 8pm. The late shift had been from noon to 4pm and 8pm to midnight. Then there were special days when there had been embarkation, it shifted a little bit because the early shift had to begin already at 7am. (...) It was the same on the Liberty."	"The early shift had been from 8 am to noon and from 4pm to 8pm. The late shift had been from noon to 4pm and 8pm to midnight. Then there were special days when there had been embarkation, it shifted a little bit because the early shift had to begin already at 7am. (...) It was the same on the Liberty."	"The shifts changed every day, we were allocated to always different shifts, some days you had to begin in the morning, some days in the evening."	"The guys cleaning the dishes were always allocated to fixed shifts, these were always the same. They really worked seven days a week from 3pm to the morning."	"The duty plan changed every day. [...] (…) then you have to get up really early, always at different hours (…)."	"I always receive my duty plan for one cruise."			
negative	negative	negative	positive	positive	positive	negative	positive	positive			
medium	big	small	medium	big	big	small	medium	big			
small	big	small	medium	big	medium	big	small	big			

	I2	100	25	Kitchen	low	"(...) I think it is important that is written down so that you can control how much you've worked. So that you can write down your overtime, sometimes they don't know how much they've worked overtime then they have to enter it and just have no idea. Maybe they've worked a lot more than they get paid."	negative	small	big
	I3 a/b	1100	10	Children Animation	high	"But our working hours were written down separately in an table, because our duty plans just were written in 'word' that had to be controlled somehow that's why they were written down in an excel sheet."	positive	big	medium
	I4a	1400	20	Reception	high	"We all worked the same amount of hours. There had been a system in which we had to enter our worked hours exact to the minute. If you worked longer you also had to mention that and it got controlled."	positive	big	big
	I4b	700-800	15	Reception	high	"We all worked the same amount of hours. There had been a system in which we had to enter our worked hours exact to the minute. If you worked longer you also had to mention that and it got controlled."	positive	medium	medium
	I5	50	3	Reception	low	"But on small ship it is a little different, then the one person come a little too late, the other a little too early, then you are not yet done with your work and you have to continue, with then two persons working at the reception desk. (...) but if you had to work overtime (...) it hadn't been recorded (...)."	negative	small	small
	I6	1300	30	Service	low	"It is not that easy in the service sector, especially at dinner if guest eventually sit together a bit longer, then you cannot just go and kick them out, there you have to stay. These extra hours weren't recorded (...)."	negative	big	big
Timespan between duty plan creation and handout	I1	280	5	Shore Excursion	short	"No, it never occurred to me as a problem. You are on the ship anyway, at what time you work doesn't matter."	positive	medium	small
	I4a	1400	20	Reception	long	"It had been created in midweek and we received it the latest on Saturday evening at about 8pm."	negative	big	big
	I4b	700-800	15	Reception	long	"It had been created in midweek and we received it the latest on Saturday evening at about 8pm."	negative	medium	medium

	I5	50	3	Reception	short	"My boss, after working the six hours in the afternoon, entered the duty plan and then I came and saw it right away, starting my shift."	positive	small	small
	I6	1300	30	Service	long	"(…) my boss creates it when about half of the cruise is over and I receive it (…) one day before the next cruise begins."	negative	big	big
Frequency of duty plan handout	I2	100	25	Kitchen	Daily	"In the kitchen you could go and get a printed version which was located in your shelf. Furthermore the kitchen meets every day after dinner for a short meeting and there some things were discussed and sometimes we got our duty plans handed out again."	negative	small	big
Influence of employee preference on already created duty plan	I1	280	5	Shore Excursion	no	"No. Because the guests received exactly the same plan as we did. What we receive had been the normal daily program which the guests receive as well, if it then said "Shuffleboard at 3pm with your host (name of the interviewee) then guests braced themselves up for that , some just came because it had been with that special hosts."	negative	medium	medium
	I3a/b	1100	10	Children Animation	yes	"When I know we are going to be the last time in Rome and I really wanted to be there than I just talk to them as soon as possible, if it is still at the beginning of the cruise than I know that it will still be possible."	positive	big	medium
	I4a	1400	20	Reception	yes	"(…) we could breathe wishes if we wanted to work a particular shift, you had to announce that and then you had to search for someone you was willing to switch. […] "We had to inform the supervisor on duty and it had been the same on both ships. But it was also depending on the reasons we had."	positive	big	big
	I4b	700-800	15	Reception	yes	"We had to inform the supervisor on duty and it had been the same on both ships. But it was also depending on the reasons we had."	positive	medium	medium
	I5	50	3	Reception	no	"When the duty plan had been written than nothing could have been changed anymore (…)."	negative	small	small
	I6	1300	30	Service	no	"Making changes after the creation of the plan, I mean that one we received per cruise, that doesn't work anyway, if at all then long time ahead."	negative	big	big

Flexibility	I3b	1100	10	Children Animation	inflexible	"And there it was discussed if everybody is happy with the plan and then you could only change something the evening it got handed out, meaning the day before the new cruise began, because later it would have been too complicated in terms of organizing it."	negative	big	medium
	I4a	1400	20	Reception	flexible	"Actually the duty plan has been pretty fixed .Only if some-one had to take over another position then the plan changed spontaneously."	positive	big	big
	I4b	700-800	15	Reception	flexible	"Actually the duty plan has been pretty fixed. Only if some-one had to take over another position then the plan changed spontaneously."	positive	medium	medium
	I5	50	3	Reception	inflexible	"(...) there I had to inform my boss really early (...) On short notice something like that is not possible because we are so few people (...)."	negative	small	small
	I6	1300	30	Service	inflexible	"(...) on my ship or rather in my department everything is very precisely planned that means before the plan gets created everything stands firm. (...) If someone gets sick then the whole system will break down. (...)"	negative	big	big
Influence of employee preference on duty plan	I1	280	5	Shore Excursion	yes	"(...) the one did it like that, that she asked us what we like to do (...) then she memorized that and when we said "I don't like to do water gymnastics anymore then she allocated another one to water gymnastics the next day. And the next one did it like that, that the beginning she gave us a sheet at listing down all possible activities, where I had to mark, I think from one to five, what I like to do, what I absolutely do not like to do and that way we got allocated."	positive	medium	small
	I2	100	25	Kitchen	yes	"(...) although, on such a small ship, you see each other any-way, you know everyone and everybody knows you and then you can just agree upon it orally."	positive	small	big
	I5	50	3	Reception	yes	"(...) when I wanted to visit them and sleep there, than I in-formed my boss and she considered that (...)."	positive	small	small
	I6	1300	30	Service	no	"The plan is fix and you are not asked if you are okay with that, it just is expected."	negative	big	big

Table 2.9: Evaluation of quotes

Moreover, the size of the ships and the size of the departments were categorized in small, medium and big, following this classification:

Ship Size		Department Size	
Small:	up to 250 passengers	Small:	1 to 9 employees
Medium:	250 to 2500 passengers	Medium:	10 to 19 employees
Big:	starting from 2500 passengers	Big:	starting from 20 employees

The authors decided on this classification with regard to the ships the interviewees have been on and the general capacities of existing cruise vessels. The authors are well aware that a cruise ship which can carry more than 2000 passengers is already very big, but having in mind that in this research paper also interviewees from river cruise vessel had been ask, the categorization has to be well spread.

Following the table 2.12, the authors selected all negative appraisals of one Axial Code with the intention to find a correlation with the either the factor ship size or department size. The authors only tried to find this correlation within one Axial Code and not one Open Code, since otherwise the results would not be meaningful, since the number of interviews is not sufficient enough to create a link.

The authors also just picked the negative appraisals, since the aim of this section is to determine the need, and thus the dissatisfaction, with certain aspects. When an Open Code is not mentioned by an interviewee, the authors assume that it would have had a positive appraisal.

In the following section every Axial Code is examined with a determination of probable correlations between size and dissatisfaction. The determination of relevance is based on assumptions.

Efficiency of Standard Duty Plan Creation Process

Looking at the Figure 2.18, the authors identified a correlation between the ship size and the negative evaluations made by the employees regarding the inefficiency of a Standard Duty Plan Creation Process. Within this Axial Code, interviewees from small ships are more dissatisfied with the efficiency of the creation of a duty plan than interviewees from bigger ships. A correlation between negative evaluations per ship and the department size the interviewees worked in is rather difficult to perceive. Here more negative evaluations come from small and big ships, leaving the authors with no clear interdependencies.

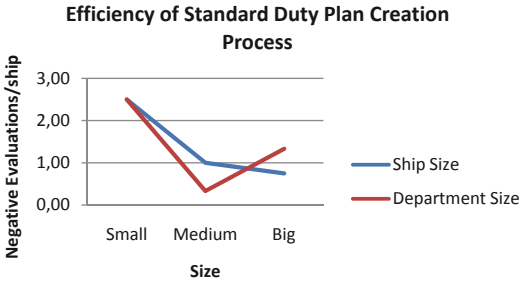

Figure 2.11: Correlation of negative evaluations and the factor size (Axial Code 1)

In the next figure, Figure 2.19, the authors show the absolute number of negative evaluations mentioned out of all possible complaints the interviewees could lodge. Here it can be seen that five out of six possible statements from small ships were negative evaluations. It can thus be concluded that on small ships the creation of the duty plan is very insufficient and thus needs to be improved.

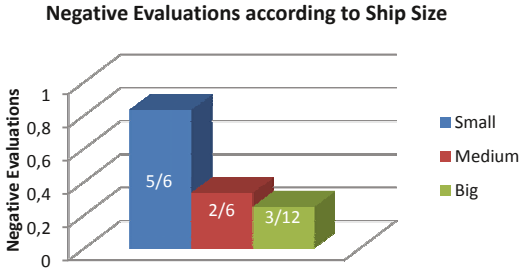

Figure 2.12: Negative evaluations according to ship size (Axial Code 1)

As for the department size, five out of six possible answers regarding the creation process in small departments were negative. In conclusion, it can be assumed that the duty plan creation process needs to be improved for small departments. Four out of nine interviewees who worked in big departments mentioned statements with a negative appraisal. The authors perceive that this as well is a high amount and that in big departments there is a need for improvement.

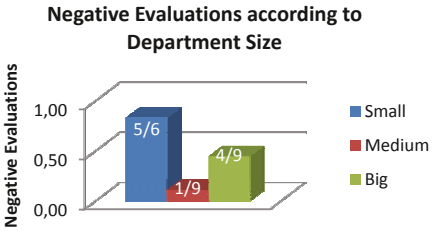

Figure 2.13: Negative evaluations according to department size (Axial Code 1)

Efficiency of Standard Duty Plan Communication Process

In the Figure 2.21, a correlation between the ship size and the negative evaluations made by the employees regarding the efficiency of a Standard Duty Plan Communication Process can be identified. Within this Axial Code, interviewees from big ships are more dissatisfied with the efficiency of the creation of a duty plan than interviewees from small and medium ships. An even stronger correlation can be perceived between negative evaluations and the size of a department. Those interviewees who worked in big departments seem to be more dissatisfied than those who worked in small departments.

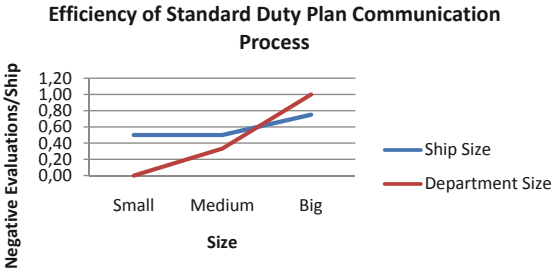

Figure 2.14: Correlation of negative evaluations and the factor size (Axial Code 2)

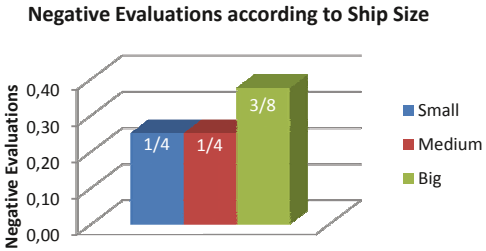

Figure 2.15: Negative Evaluations according to ship size (Axial Code 2)

For the ship size, three out of eight statements from interviewees working on big ships were negative, calling for the need of improvement regarding the communication process of the duty plan.

Three out of six possible statements were negative for big departments regarding the communication process and thus stress the need for improvement.

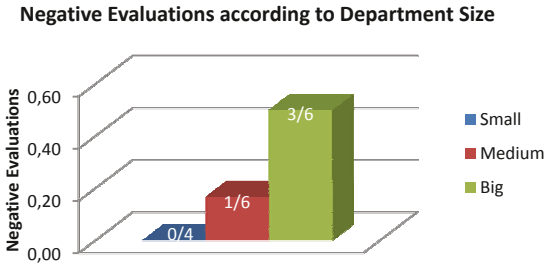

Figure 2.16: Negative Evaluations according to department size

Ability to Adjust Duty Plan to Unpredictable Changes

In the Axial Code of the Ability to Adjust the Duty Plan to Unpredictable Changes, Figure 2.24, the authors could not identify a correlation between the negative evaluations made and the size of the ship the interviewees have been on. Between the variables department size and negative evaluations, however, interdependencies could be perceived.

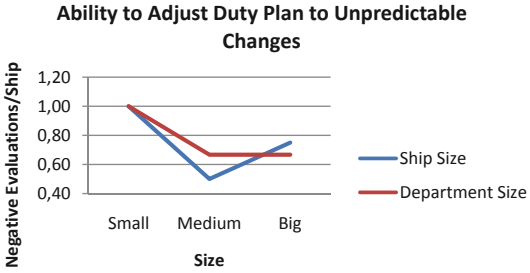

Figure 2.17: Correlation of negative evaluations and the factor size (Axial Code 3)

Two out of four possible statements were negative for small ships and three out of eight negative for big ships. Thus in both cases there is a need for improvement.

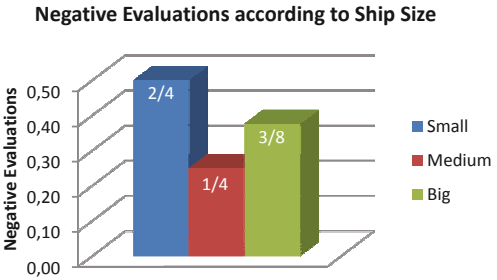

Figure 2.18: Negative evaluations according to ship size (Axial Code 3)

Two out of four possible statements were negative for small departments and only two out of six for medium and big ships, thus there is a need for improvement in small departments.

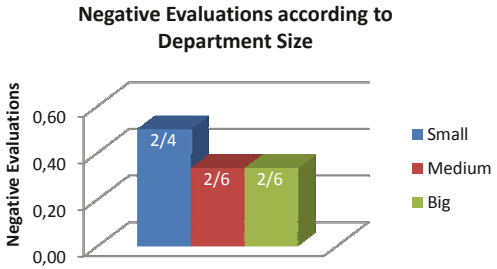

Figure 2.19: Negative evaluations according to department size (Axial Code 3)

Employee's Participation in Duty Plan Creation

In the Axial Code of the Employee's Participation in the Duty Plan Creation, a correlation between the ship size, the department size and the negative evaluations per ship could be identified.

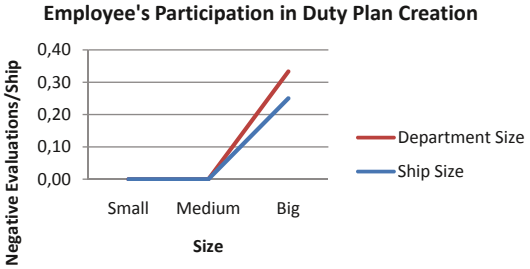

Figure 2.20: Correlation of negative evaluations and the factor size (Axial Code 4)

The negative evaluations, however, do not represent high amounts. On small and medium sized ships there were no negative appraisals, on big ships one out of four possible statements were negative. This could mean that in general the employees are satisfied with their degree of participation in the duty plan creation.

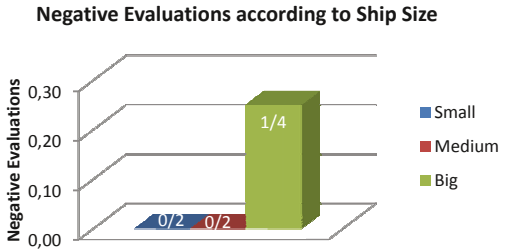

Figure 2.21: Negative evaluations according to ship size (Axial Code 4)

Regarding the department size, the same figures as for the ship size could have been examined. The authors come to the conclusion that there is no need for improvement in this Axial Code.

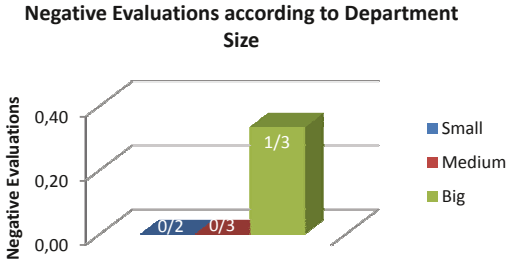

Figure 2.22: Negative evaluations according to department size (Axial Code 4)

2.4 Conclusion

The authors came to the conclusion that a general correlation between the size of a ship or the size of a department and the dissatisfaction of employees regarding the duty plan management system does exist. Thus, it cannot be concluded that the bigger the ship or the department is, the higher the employee dissatisfaction is. However it can be seen that within certain Axial Codes a meaningful correlation regarding the factor size is perceivable.

Regarding the analysis under study, the following hypotheses could be constructed:

Correlations:

- The smaller the ship is, the more inefficient the creation process of a duty plan is.

- The bigger the department is, the more inefficient the communication process of a duty plan is.

Ship Size:

- The smaller the ship is, the higher the need for improvement regarding the creation process of duty plans.
- The bigger the ship is, the higher the need for improvement regarding the communication process of duty plans.
- The bigger and the smaller the ship is, the higher the need for improvement regarding the ability of duty plans to adjust to unpredictable changes is.

Department Size:

- The bigger the department is, the higher the need for improvement regarding the communication process of duty plans is.
- The smaller the department is, the higher the need for improvement regarding the ability to adjust the duty plan to unpredictable changes is.
- The bigger and the smaller the department is, the higher the need for improvement regarding the creation process of duty plans is.

Based on the fact that the results found do not represent sufficient validity, this model implemented in the research paper should merely illustrate an approach on how companies can strive for employee satisfaction and how the actual need for improvement could be evaluated. The “Company Duty Plan Management System” model shows that employee satisfaction can be achieved by:

- Increased Efficiency of Standard Duty Plan Creation Process
- Increased Efficiency of Standard Duty Plan Communication Process
- Increased Ability to Adjust Duty Plan to Unpredictable Changes
- Increased Employee Participation in Duty Plan Creation

Cruise companies should then evaluate on their own whether there exists the need for improvement and whether the benefits of an ESS outweigh the cost of implementing and maintaining it. It has to be said that although some interviewees were dissatisfied with the duty plan management system on board small ships, the implementation of an ESS on those ships, usually not having the required infrastructure, would be too costly and perceivably too complex for the relatively simple duty plan situation regarding the ship size and number of employees to manage. In this case the approach may help to analyze failure points without the conclusion that an ESS should be implemented, but that the existing system should be improved.

In the case that cruise companies using big ships conclude that the implementation of an ESS would be beneficial, they should take into consideration implementing this software on the whole fleet they are operating so that employees can be easily transferred from one ship to another other.

2.5 Limitations and further research

Since for the analysis only six interviews were held, the number of interviews is insufficient to create validity of the information given and assumptions made lessen the significance. The section of the evaluation of the need for improvement should merely be seen as an approach which gives an example on how the analysis could be continued. For more validity, a quantitative analysis with a meaningful determination of the need would be necessary. Here surveys should be established with questions deriving from the Open Codes. Many different employees from various cruise vessels should then fill out these surveys.

In this research paper the authors only interviewed employees. The analysis of employee satisfaction is insufficient to determine a need for improvement since the duty plan management is conducted by the employers representing an important interest group regarding the satisfaction with the effectiveness and efficiency of duty plans. As the authors realized during the Open Coding process, employers could be interested in the amount of work that is associated with the duty plan creation process, the degree of control over workload and its flexibility.

Furthermore it has to be considered that there could also be threats in implementing an ESS on board a cruise vessel. Conducting the qualitative interviews, the authors realized that there could also be difficulties regarding, for example, the infrastructure, the accessibility of the duty plan, the willingness of employees or employers to adapt to a new system and the requirements that are needed to use it or to be able to use it.

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3 Factors Influencing the Degree of On-Board Content Engagement – A Qualitative Study

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The management of an efficient and effective information flow on cruise ships is essential for the success of a cruise vacation. The more complex the offered cruise product gets and the more extensive the on-board content becomes the more difficult it is to provide the individual customer with the demanded information. In addition, the high amount of cruise content elements is distributed by many different sources through various channels. This cruise content complexity hampers the guests' simple and straightforward usage. Interviews with cruise passengers have been conducted in order to identify the factors influencing the customers' engagement with the information provided on board. From the findings a qualitative model has been derived that illustrates the critical factors. The model is created in order to give implications on how to facilitate the flow of information by delivering conditions to improve the cruise content usefulness and ease of use to the individual guest.

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3.1 Introduction

The current trend of built mega cruise ships continues. The cruise product becomes increasingly complex and focuses on the growth of innovative entertainment facilities on board. These are developed for different age groups and target segments. Currently the "Oasis of the Seas" of Royal Caribbean International is known to have the highest passenger capacity with room for 5,400 travellers. Other cruise lines are following and are trying to surpass themselves with stunning features like water parks, massive spa areas and celebrity showcases (America's Vacation Center, 2010).

The authors have each worked one contract on board of well-known cruise ships of "Royal Caribbean International" and "Costa Cruises" as a part of the guest relations service and the children animation team. This experience has raised the interest for the on-board content and implied problems for cruise passengers. The ships had a doubled occupancy capacity of 3,634 (Royal Caribbean, 2010) and 3,008 (Costa Crociere, 2010).

Due to the variety of offerings and the mix of different nationalities on board those cruise ships the authors were involved in assisting passengers and finding quick problem solutions regarding raised questions. Both share the opinion that passengers' uncertainties and need for assistance could have been reduced by having a better provision of on-board content.

The focus of this study lies exclusively on the on-board content complexity. Onboard content is provided at different locations, derived from various sources and offered at varying points in time of the cruise vacation.

The authors have the impression that nowadays on cruise ships, there is an overload of on-board content due to the complexity of the product offer. Bigger ships imply an increased amount of information flow that will guide passengers through their stay aboard. The variety of nationalities and spoken languages create a higher necessity of translation and care for customer needs.

This is assumed to apply particularly for first-time cruisers while experienced cruise guests benefit from gained cruise knowledge. They are enabled to understand cruise procedures more easily and tend to ask direct questions because they know what content to look for. Thus, the authors assume that passengers engage differently in on-board content, depending on several factors.

To identify these factors that influence the degree of on-board content engagement the authors have conducted a limited amount of interviews with cruise vacationers of different experiences, age groups and travel interests. Those factors will be illustrated in a model that has been derived from the findings.

In conclusion, the findings could give implications how to be able to improve the on-board content provision to passengers in the future. Cruise lines which are still in the progress of building so-called "mega ships" should consider the found factors in order to create an added value to their product offer.

3.2 Literature Review

The cruise industry as a sub-category of the tourism industry is fairly unexplored in regard to research (Papathanassis & Beckmann, 2009). That is why no relevant literature can be identified that either discusses information management on board cruise ships or examines the on-board complexity of information. Nevertheless, in this part it is worth to give a short overview of information management theory in general and to introduce the basics of the concepts of "usefulness" and "ease-of-use" (EOU). All the three theories, information management and the concepts of usefulness and EOU, are underlying elements to content engagement and therefore are being presented in the following.

3.2.1 Information Management (IM)

Information management is defined as "the management of processes and systems that create, acquire, organize, store, distribute, and use information" (Detlor, 2010). This definition implies that there exist different information-related processes or activities that need to be managed. Choo (2002) suggests that the information lifecycle encompasses:

- the identification of information needs,
- the acquisition of information to address those needs,
- the organization and storage of information,
- the design and development of information products,
- the distribution of information and
- the information use.

Detlor (2010) emphasises that even though some information management frameworks ignore the first and the sixth stage of the information lifecycle the processes of "eliciting information requirements and matching those information needs in the design and delivery of information systems to promote effective and efficient information use" (Choo, 2002; Detlor, 2004; Karim & Hussein, 2008; in Detlor, 2010) are of critical importance to information managers.

If the processes and systems that deal with information are managed well throughout the information lifecycle, the access, the processing and the usage of information by people or organizations enhance efficiency and effectiveness (Detlor, 2010). Furthermore, it facilitates the provision of "the right information to the right people in the right forms at the right times […]." (Choo, 2002; Robertson, 2005; in Detlor, 2010).

3.2.2 The Concepts of "Usefulness" and "Ease-of-Use" (EOU)

In most literature, the terminology "ease-of-use" is extended by the term "perceived" because it occurs within the context of user acceptance and user application of information systems and is highly linked to the concept of "perceived usefulness". Whereas usefulness "is seen as a function of task/tool fit […], EOU is viewed as a task-independent construct reflecting intrinsic properties of the user interface" (Keil et al., 1995).

Davis (1989) defines perceived EOU as "the degree to which a person believes that using a particular system would be free from effort". In other words, when elaborating a system's EOU it is being tried to measure how user-friendly a system is constructed and to assess an individual's perception on how easy it is to use.

Within the context of system developments (i.e. technological innovations) and their acceptance by the user, Davis et al. (1989) claim that EOU is inversely related to the concept of "complexity". The complexity of an innovation is defined as "the degree to which an innovation is perceived as relatively difficult to understand and to use" (Rogers & Shoemaker, 1971; in Keil et al. 1995). Keil et al. (1995) summarise that while complexity is negatively related to the adoption of an innovation, EOU and the acceptance and use of an innovation appear to be positively correlated.

It is further claimed that not only EOU and usefulness are highly correlated, but also system use is related to the latter (Davis, 1989; Davis et al., 1989). Both, the beliefs a user holds about the perceived usefulness and the perceived EOU of an information system determines its usage (Davis, 1989). Davis et al. found in 1989 that the effect of EOU on use decreases over time as the user becomes familiar with the system in use.

3.3 Methodology

In order to achieve the goal of identifying factors that influence the cruise customers' perception of the usefulness and ease-of-use of content provided on board cruise ships, the authors chose to conduct open-ended, semi-structured interviews as qualitative research method. According to the authors, the methodology consists of three stages:

- Stage one: Interview preparation
- Stage two: Conducting the interviews
- Stage three: Data organization & interpretation

3.3.1 Stage 1: Interview Preparation

Having chosen to conduct in-depth interviews, the authors intended to find out the unconscious, hidden, inner, but for the research relevant motives, attitudes and opinions. Therefore, the authors were in need to thoroughly prepare the interviews.

Firstly, the authors established a questionnaire containing questions about fifteen spheres of interest. The drafted list of questions was supposed to function as a rough guideline through the interviews. Nevertheless, the authors were aware of the fact that during the course of the interview it would be necessary to adapt the questions to the interviewee's individuality, depending on where a general question could lead to in the different cases.

Secondly, the authors trained each other for the interviews by selecting certain questions from the list and conducting a simulation of an interview. By simulating interviews, the authors were able to acquire a fundamental knowledge about the interviewing techniques that are required to attain the goal.

Thirdly, six interview partners have been selected by the following criteria:

- Gender
- Age
- Cruise experience (number of cruises)
- Cruise companies/operators

The authors strived to achieve a well-blended composition of interview partners in order to cover the attitudes and opinions of different customer segments. The following table shows the interviewees' demographics and cruise experience:

Interviewee	Gender	Age	Cruise Experience	Cruise Companies/ Operators
1	Female	47	6	MSC, NCL, Festival, Transocean
2	Male	22	8	Costa, RCI, MSC, Festival, Delphin
3	Female	71	3	Aida, Celebrity
4	Male	60	1	Hurtigruten
5	Female	27	1	TUI Cruises
6	Male	70	5	Phoenix, Neckermann

Table 3.10: Interviewees' Demographics & Cruise Experience

3.3.2 Stage 2: Conducting the Interviews

The six interviews were conducted by the two authors between the 29th of October and the 6th of November 2010. As all interview partners are German citizens, the interviews were conducted in German language. The interview lengths varied between 14 minutes and 29 seconds (shortest) and 24 minutes and 35 seconds (longest).

For the achievement of in-depth opinions and attitudes and thus, useful results, the authors arranged the interviews as personal conversations rather than putting the emphasis on a question-answer structure. By doing so, the authors intended to create a trustful atmosphere and as a consequence to increase the willingness of the interviewees to provide the authors with an inside view about the object of investigation.

3.3.3 Stage 3: Data Organization & Interpretation

After the interviews were conducted, the authors transcribed them. During the interviews, introducing questions to the fields of interest and their answers that later led to the projected deep opinions and perceptions accounted for approximately half of the generated data. That is why the authors needed to cautiously distinguish the relevant from the non-relevant data.

Both authors individually selected those quotes from the interviews that seemed to be of high relevance for the research and collected them by establishing a listing. Thereby, the data was coded. Applying a Grounded Theory research approach which is exceptionally suitable for studying behaviour (Goulding, 1999), the coding process consisted of three steps: 1. Open Coding, 2. Axial Coding and 3. Selective Coding (Davidson, 2002).

In order to get an overview of the collected data and to basically organise it, within the first step each code was allocated one, or if indispensable, several variables that summarise the notion of the code. Thus, open, unfocused key words were identified and by merging the results of both authors 40 open codes were created (from a total of 87 open codes 80 were merged and 7 rejected).

In the next step, the Axial Coding, the open codes were grouped according to their relationship and, consequently, 8 axial codes were identified. On this level, the research already became more abstract as the authors interpreted the open codes by grouping them and therefore reached a theoretical level.

In the third step, the Selective Coding, the eight axial codes were subordinated to 2 abstract core categories, the selective codes. The core categories are supposed to be the basis of the developed theory and must be consistent with the collected data and the sub-categories or axial codes (Goulding, 1999). In the following paragraph, the model that was derived from the data will be explained.

3.4 Interpretation & Discussion

From the findings of the interviews different codes were derived.

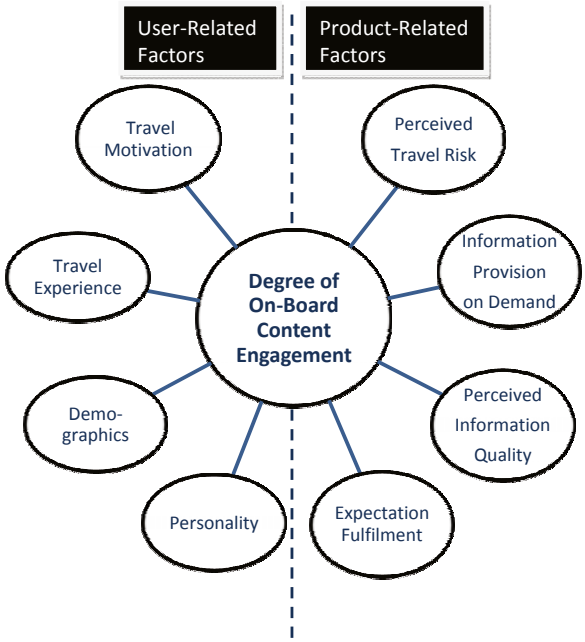

Figure 3.23: Relationship of Core Categories and Axial Codes Regarding the Degree of On-Board Content Engagement

By separating those codes firstly into axial and later into selective codes, a model has been constructed in order to visualise the interrelations of the axial codes.

In this model the authors demonstrate the two categories that influence the degree of on-board content engagement.

The user-related factors are shown on the left hand side of the separation line in Figure 3.30, whereas the product-related factors are listed on the right hand side. The model creates 8 implicit hypotheses which will now be explained in detail.

Model Summary:

The degree of on-board content engagement is influenced by two factors which are described in the following hypotheses:

- User-related factors (H1-H4)
- Product-related factors (H5-H8)

Hypotheses:

- H1: The travel motivation influences the degree of on-board content engagement
- H2: The degree of travel experience influences the degree of on-board content engagement
- H3: Demographics influence the degree of on-board content engagement
- H4: The customers' personality influences the degree of on-board content engagement
- H5: The perceived travel risk influences the degree of on-board content engagement
- H6: The information provision on demand influences the degree of on-board content engagement
- H7: The degree of perceived information quality influences the degree of onboard content engagement
- H8: The degree of expectation fulfilment influences the degree of on-board content engagement

3.4.1 H1: The Travel Motivation Influences the Degree of On-Board Content Engagement

Initial Codes: Adventurousness, Striving for independence, Relaxation, Travel motivation, personal interest

Interview Quotes:

"We were happy that we could discover a lot ourselves."

"We had the information where we could choose between the different excursions […]. Then, we got informed where we might be able to do things on our own."

"The entire cruise was very calm, with a lot of recreation. Also, we had a lot of time to look [out of the window] without big undertakings."

"It was not a luxury cruise, but it was an adventure cruise in order to see the nature. And with regards to that all my expectations were positively fulfilled."

"We visited all sights of interest ourselves. We received flyers about the cities on board and then, we head off."

As assumed by the authors that the travel motivation influences the on-board content engagement, the quotes indicate that it depends on the guests' travel motivation to which degree they have to be provided with information. If one looks forward to find relaxation during the cruise vacation, then one tends to be rather laid back and manage the information as it comes along. Guests do not necessarily look forward to be informed about everything in order to have a relaxed cruise.

There are also guests that attend cruises who are adventurous in their travel behaviour. They tend to absorb all kinds of information that seem of use to them and try to process it for their undertakings. Their engagement in on-board content is more active than the one of guests who seek relaxation.

The adventurousness also implies that they like the independence and the chance of finding things out on their own. Thus, the authors assume that those guests do not mind the absence of certain information because they look for it themselves, anyway. They probably do not expect to be catered with all kinds of information which is therefore, more convenient for the cruise line.

Additionally, the authors assume that the travellers who seek relaxation during their trip do not have problems processing the provided information. They are probably also not eager to take part in everything and therefore, are rather satisfied with the information that is passed on to them.

3.4.2 H2: The Degree of Travel Experience Influences the Degree of On-Board Content Engagement

Initial Codes: Previous travel experience, Knowledge

Interview Quotes:

"What is the first thing you do on board the ship?" "In general, we take a tour around the ship together."

"In some way it is a bit similar, even if they all look different and are built differently, one has a kind of feeling where something could be located."

"On the first cruises they always told us to take it [the daily programme] with us [...]. In case something happens you can always talk to the port agent."

"Which information do you expect to find in your cabin?" "The general information folders. But I do not really look at them. Those are usually provided in the cabin."

"Do you sometimes watch TV to watch something about the excursions?" "Not really. If we do something, then we mostly go to the lectures of the German Host who presents the excursions."

The travel experience of some of the interviewees was noticeable during the conversations. It was very significant that experienced cruisers took information for granted during their cruise and it was challenging for the authors to find out the important on-board content that the interviewees had perceived on their journeys. First-time cruisers are assumed to be more affected by the new environment of a cruise ship during their first cruise experience.

This is why the authors assume that the guests are overwhelmed by the information they receive or are forced to look for.

Because experienced cruisers demonstrated a more extensive knowledge concerning on-board content the authors decided to only use quotes from their perspective for this part of the discussion.

Past experiences of the interviewees have improved their handling of on-board content and lowered the degree of engagement at the same time. They tend to take advices and use them for their next trip in order to benefit from it.

The experienced travellers know what to look for and where they are able to find it in order to manage their vacation accordingly. Additionally, they seem to have developed a pattern of exploring the ship and its offerings. They even identified important contact persons that are present in order to communicate information.

Without the travel experience which they have gained over their previous trips on board, the authors suggest that the passengers would not tend to know what kind of information is the most important that they have to look for.

3.4.3 H3: Demographic Characteristics Influence the Degree of On-Board Content Engagement

Initial Codes: Age, Language Barrier, Physical Condition, Gender, Flexibility

Interview Quotes:

“The lectures had to be phrased differently than for younger people. Also the excursions had to be organised differently. That was my experience, because older people tend to be slower. And often times neither spoke English nor the national language.”

“At that time we were 40. Thus, we were slightly more flexible in regards to information [than the other guests].”

“I [male passenger] do not need the vouchers regarding sales that they put inside the daily programme.”

“And would you use the internet for that [looking up information]?” “Not really, that is not my thing.”

“Do you know your way around the ship because you did a tour or do you also get lost?” “Yes, even if you did a tour. […] But that is maybe due to the female sense of direction.”

During the interviews the authors noticed that demographics are an important factor when it comes to handling information.

This is shown by the before-mentioned quotes, as well. The gender for example influences the process of information during the cruise. It seemed that vouchers for discounts at the shops would rather reach female than male guests, due to the implicit attitude towards this kind of content. The authors assume that the cruise line knows who they want to attract with these vouchers.

Moreover, age is a relevant demographic factor. People of an advanced age are assumed to use different media and ways of handling and engaging in information than a younger segment. It also depends on demographic characteristics if someone uses the internet prior to the vacation. Due to their age or profession it is more convenient for them to look for information on the internet than in catalogues or elsewhere.

The way of how on-board content is communicated and whether the involved user understands everything also depends on the used language. Guests with advanced foreign language skills probably benefit from their extensive knowledge in order to be able to engage more easily in information than others.

All these demographic characteristics imply the influence on the degree of onboard content engagement from the authors' perspectives.

3.4.4 H4: The Customers' Personality Influences the Degree of On-Board Content Engagement

Initial Codes: Preference, Individuality, Self-Determination, Curiosity, Demand of Information, Convenience, Tranquility, Inquisitiveness

Interview Quotes:

"Would you go to the guest relation's desk in another type of situation?" "Regarding information, I would have to say no."

"[...] I definitely turned off the cabin radio, so that I do not hear the announcements anymore while I am sleeping [...]."

"Do you look it up on the internet or do you read catalogues?" "I usually handle everything via internet. The booking itself, then I look up information on the provider's website. But mostly it is not sufficient for me."

"Do you look at the brochure with the single excursions that exists on board?" "Exactly, price-performance, what one gets for it, how long it takes and if it is strenuous."

"They always announce a lot as well." "Does it bother you if they announce things?" "No, not at all. I appreciate it."

"The information in your cabin, did you go through all of it?" "Yes, we read everything, little by little. It was for the entire journey."

The authors believe that a certain behaviour and perception is related to the personality of a guest. Therefore the above mentioned quotes are listed to show how guests could be influenced by their personality regarding the degree of on-board content engagement. They are confronted with on-board content on a daily basis in all kinds of situations during their trip. Some try to avoid the information by shutting it out, whereas others find it convenient and try to get even more involved. This is all a matter of preference. As mentioned previously in the hypothesis of travel motivation the degree of engagement seems to be significant, depending on the customer's attitude towards the vacation. Tranquillity offers the possibility for the customer to use the time wisely to inform oneself about ongoing activities and the

like. On the other hand, there are always guests who like the advantage of self-determination regarding on-board content.

Customers will act according to their personality when the provided information and/or style are not sufficient for them. The authors assume that the guests have preferred contact persons on the ship, e.g. guest relations service, hosts, etc. when they want to engage in on-board content.

3.4.5 H5: The Perceived Travel Risk Influences the Degree of On-Board Content Engagement

Initial Codes: Autonomy, Striving for Planning and Control, Uncertainty, Security

Interview Quotes:

"It was important to gather information and to plan certain things on our own, to plan what we are doing."

"[Before the cruise] Did you already gather information about potential excursions in the cities?" "Yes, we did. We had plans for both cities."

"The lectures were very well-prepared. Before we got on land, we had an introduction lasting at least one and a half to two hours about where we were going, what we were allowed to see, what was suggested to wear etc."

"Basically, we knew the important facts in advance […] from the travel planning."

"I always take the daily programme with me when I go on shore. If something happens, then it tells you the responsible agency who you can call."

Cruise passengers seem to realise a certain risk which their vacation implies. The risk is even realised prior to the vacation. To outbalance it they seek information to feel more secure. The guests collect information before taking part in activities by attending information talks on board and they find out information on their own that is not provided to them. Therefore, the degree of engagement can be very high.

This indicates the importance of correctly provided on-board content to the passenger. The authors assume that the risk will be perceived higher when there is a lack of information.

Cruise lines need to put an emphasis on the right provision of on-board content in order to reduce the perceived travel risk. The scope of information is intertwined with the cruise product. The bigger the ship and the higher the amount of offers and activities becomes the more it is needed to have an adequate information provision.

3.4.6 H6: The Information Provision on Demand Influences the Degree of On-Board Content Engagement

Initial Codes: Time, Complexity of Information, Convenience, Friendliness of Staff, Language, Own Initiative, Curiosity

Interview Quotes:

"It was a little bit more family-like. It was not necessary to hand out a big note for every information. Perhaps, they waited for the people to come and ask, and those people got the additional information then."

"[…] if a ready-made route would be offered with suggestions or recommendations what to visit as a tourist. Otherwise, you have to look it all up yourself. And we did not know if the castle was beautiful or not, if it is worth to visit."

"And the crew members always helped you if needed?" "Yes. They were always very kind."

"And no matter who you talk to, hardly anyone understands you."

"One talked to the animators about what we could do around the area, because they know it due to the same itinerary."

The perfect timing for the provision of on-board content is essential to achieve high customer satisfaction. The optimum would be that the information is delivered when it is needed and that the guests would not have to look for the information themselves. This individual search implies delays and even missed opportunities of additional knowledge or participation.

The interviewed cruise guests had different experiences. Some of them had to ask many questions to crew members or look up information on the internet or in catalogues because the information was not available at the time when they needed it. Some guests tended to look up information before their cruise to avoid shortcomings of information but, certainly, in general not all information can be memorised until needed. The authors though assume that not all open questions could always be covered by passed out information. That is why it is important to also have a qualified guest relations service in order to guarantee the possibility of contacting knowledgeable staff.

Some guests were impressed by the outrageous friendliness of staff that was helpful in particular situations. This behaviour is important to the customers because in their perception the personal contact adds value.

Difficulties occur when the guest contacts staff members who do not speak their language. Such a disappointing experience could be projected on further staff members, who they might not address anymore because of that.

Thus, one can assume that the risk for customer dissatisfaction is higher when information is not available immediately.

3.4.7 H7: The Perceived Information Quality Influences the Degree of On-Board Content Engagement

Initial Codes: Trust, Reliability, Preference, Customization, Elaborateness of Information, Style of Information Distribution, Lack of Information

Interview Quotes:

"But you rely rather on the daily programme than on other sources?" "Yes, that is the main information source for me."

"I liked that for example. They have announcements particularly for the welcome presentation regarding the German guests."

"We went there directly, to the Atrium where they showed the next excursions. And we watched it there because it is a nicer and bigger slide show with explanations."

"I would have a look at the deck map. But the catastrophic thing is that the hallways all look the same."

The authors believe that the degree of on-board content engagement is also influenced by the quality of the content. Not all information that was passed on to the interviewed guests has been accepted as sufficient or elaborate.

The design of the ship has a big influence on whether or not the passengers will easily find their way around. Additionally, it is not about how many brochures they receive but about what information is passed on to them through this particular channel. Brochures need to be easy to read, have a compact format and need to contain all information that will guide the guests through their day on board the ship. In the optimal case, no questions need to be asked anymore after having read the daily programme.

It is visible by the first quote that a lot of emphasis is put on the daily programme without which the on-board stay would not be as explanatory as it is. Some guests carry it around during the day and take it to their excursions on land as well. It is difficult for the cruise line to sum up all the important information and to supply the guest with thorough content at the same time in a 4-page format. But from the findings of the interviews the authors recommend that this information source should be focused on in the future as well. It is highly unlikely to leave this source out.

3.4.8 H8: The Degree of Expectation Fulfilment Influences the Degree of On-Board Content Engagement

Initial Codes: Expectations, Day Planning Activities

Interview Quotes:

"If you do not have the experience, then you tend to read it of course. Like I said, I expect to find the daily programme, my cabin card, but other than that nothing really."

"Yes, if it says German-speaking, it is booked by; there were a lot of elderly guests, so I assume that there is always a German contact person."

"So you have a look what you could do, reading the daily programme to know what is up? Do you plan your activities?" "Yes, yes and no. Sometimes I have a look at it to see if they offer something funny, what one could participate in, a poker match or something else they offer. If they do have something funny, then I would go, but usually rather spontaneously."

It is assumed that the better the expectations regarding information content are met the better the cruise guests can engage with it.

The authors believe that the customers are more satisfied when they get the information which they are looking for. It was already stated that the degree of onboard content engagement is also influenced by the point of time regarding the information provision and by

the quality of the information. Every customer has certain expectations regarding on-board content. This might correlate with the customers' demographics and personality characteristics because those form the basis for expectations one has for particular situations. Thus, expectations towards on-board content can be either high or low and therefore influences the degree of involvement.

In some parts of the interviews the authors noticed an irritation of the guests when they were promised information in advance which they did not receive after all. This dissatisfaction implies that the guests needed to get more involved than they wanted to.

Whereas other situations in which their expectations were exceeded indicate that there is a strong positive effect because the guests did not have to get as involved as they thought before. Some also appreciate the input of information which they can extend to their needs depending on the wished outcome. This relates to day planning activities for example. If the customer has a certain day planning in his mind about which he wants to find out more details he sometimes might be surprised of other information that will lead him to an extensive day planning. Thus, this leads to a positive need to get involved.

On-board content expectations are also perceived to be interrelated to the customers' previous travel experience. If someone has been on several cruises he knows what information he needs in order to enjoy his vacation to the fullest extent. Therefore, the authors suggest that the customers' degree of on-board content expectations decreases after having been on an undefined amount of cruises. This could have the long-term effect that guests do not have to engage as much as they did on their first cruise.

3.5 Implications

Based on the hypotheses that were developed and explained above, the authors derived some implications for the practice that will be explained in this part of the paper.

The authors identified the travel motivation as one factor that influences how the cruise guests deal with provided information. As mega ships provide the customers with hundreds of options how to spend the day on board or on land and as people from different customer segments seek for different experiences, the authors suggest to identify those in advance in order to serve the specific needs. In practice, it is suggested e.g. to ask the prospective passengers with what kind of information they would like to be served and with which ones not, like a newsletter that you either can sign up for, or unsubscribe from.

Furthermore, the research has shown that experienced cruisers are in need of different information than first-time-cruisers. It would be recommendable to identify those who have never been on board before and deliver the required information in order for the guests to feel comfortable from the first moment on.

Cruise guests of an advanced age are more likely to feel unsafe in an unknown surrounding. They also demand different kinds of information with regard to activities offered compared to guests e.g. in the age of 25-30 or families. Furthermore, women often tend to have different interests during a cruise than men e.g. with regard to spa treatments, sports contests etc. That is why the authors suggest to make a distinction between the customer segments according to their demographics and, therefore, to be able to meet the need of the individual cruise customer.

Another implication from the research is the suggestion to recognise the differing, personality-dependent preferences. Whether a cruise guest wants to be informed about spa treatments, Bingo or the evening show through the public address system or their cabin TV does not only depend on the age and the gender of a guest, but also on the personal preferences which the authors recommend to recognise in order to tailor-make the cruise product for each guest.

The quality of the information material distributed to the guests should be well-balanced. The research showed that overall the interviewees were satisfied with the quality of information, but in some incidents, depending on how open the interviewed persons were or how much they were looking for specific information, the quality was not sufficient.

The delivery of consistent, high-quality information is a problem that the authors already noticed when working on board and research proofs its significance. In order to lower the perceived risks that the cruise guests might feel confronted with the cruise lines must assure consistency and quality of information. By implementing on-board information systems that keep the staff as well as the guests “up-to-date” about everything the perceived travel risk definitely could be reduced.

Cruise companies further should be able to guarantee that prospected information (sources) e.g. the existence of a German host on American cruise ships should be available in order to fulfil the expectations that were created in advance to the cruise e.g. by the German travel agent.

By recognising the different factors that influence the on-board content engagement of the cruise guests the authors believe that the information delivery on demand in terms of serving the individual customer with the right information at the right time and in the right place can be improved by the cruise companies and, hence, a higher customer satisfaction will be achieved.

3.6 Conclusion

In this research paper, by using the Grounded Theory approach, a model has been developed that reveals factors that influence cruise customers when engaging with on-board information.

As the field of cruise tourism in general is fairly unexplored and as there could not be found any theoretical work about the management of on-board content or the engagement of cruise passengers with the provided information, qualitative data has been collected which serves as the basis of the developed theory.

The theory model suggests that the engagement with on-board content depends on user-related factors, as well as on product-related factors. These factors are described by the following hypotheses:

- H1: The travel motivation influences the degree of on-board content engagement
- H2: The degree of travel experience influences the degree of on-board content engagement
- H3: Demographics influence the degree of on-board content engagement
- H4: The customers’ personality influences the degree of on-board content engagement

- H5: The perceived travel risk influences the degree of on-board content engagement
- H6: The information provision on demand influences the degree of on-board content engagement
- H7: The degree of perceived information quality influences the degree of onboard content engagement
- H8: The degree of expectation fulfilment influences the degree of on-board content engagement

Another important finding, which is worth mentioning, is that the authors' anticipation of a potential content overload could not be verified during the research process. The interviewed participants overall were satisfied with the amount of information provided. This does not influence the result of the research as the focus laid on the engagement of the cruise guests with the provided content on board and not on the amount of information.

The authors are convinced that the developed theory model delivers factors that are important for cruise companies to identify in order to serve the customers with the right information, at the right time and in the right place in order to enhance customer satisfaction – especially as there does not seem to be a limit to cruise ship size and, hence, to product complexity yet.

3.7 Limitations & Further Research

Due to the fact that the authors chose to use a qualitative research approach, hence, to not base their hypotheses on numerical data, but to study human behaviour by collecting data, interpreting it and developing a theoretical model in order to make a trial to explain the behaviour in a certain setting, the research outcome is biased by two kinds of limitations.

Firstly, the experience that the authors acquired during their contracts of employment on board cruise ships and the pre-understanding of the topic of research that the authors held might have influenced or even limit the understanding of the true meaning of the collected data (Connell & Lowe, 1997). During the coding process the authors themselves needed to identify the relevant data, relate it to each other and categorise it. The existing experience and the pre-understanding might have led to a bias that influenced the choice of codes, the interpretation and, thus, the objectivity of the research outcome.

The second limitation is concerned with the sample size. As the time for the research was limited, the authors decided that each one of them would be practically able to interview three persons only. A total of six interviewees by far does not deliver a representative result. During the selection process, the authors paid attention to finding interviewees of different gender, age and cruise experience. Nevertheless, the sample size and the constitution of the interviewees are subject to the lack of opinions of other customer segments and a generalised view on the topic. Furthermore, some of the interviewees were personally well-known by the authors and this fact might have influenced the articulation of the responses during the interviews.

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4 IFRS in der Kreuzfahrtindustrie Problematik der Ertragserfassung, Abschreibung, Rückstellung und Zweckgesellschaften

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4.1 Bedeutung internationaler Rechnungslegungsstandards für die Kreuzfahrtindustrie

4.1.1 Relevanz, Problemstellung und Ziel der Arbeit

Kein anderes Segment des Tourismusmarktes wächst weltweit so stark und beständig wie die Kreuzfahrtindustrie. Hierbei ist der deutsche Kreuzfahrtmarkt der drittgrößte Markt nach den USA und Großbritannien (vgl. Schulz et al. 2010, S. 194 f). Kreuzfahrten bildeten in den vergangenen Jahren mit einem durchschnittlichen Wachstum der Passagierzahlen von rund acht Prozent den schnellsten wachsenden Sektor innerhalb des Tourismusbereichs (vgl. Schäfer 1998, S. 1 f). Diese Entwicklung betrifft nicht nur die Kreuzfahrtmärkte, sondern hat auch zu einem steigenden Wettbewerb auf den internationalen Kapitalmärkten geführt. Um in diesem Wettbewerb bestehen zu können, haben Unternehmen zunehmend die steigenden Anforderungen internationaler Kapitalgeber zu erfüllen. Da Investoren unabhängig von Ländergrenzen Transparenz, Publizität und Vergleichbarkeit der Finanzinformationen erwarten, wurde mit der Schaffung der International Financial Reporting Standards (IFRS) dem Bestreben nach einem einheitlichen Regelwerk in der Europäischen Union (EU) Rechnung getragen (vgl. Dr. Röver & Partner KG o.J., S. 3). Gemäß einer Verordnung der EU ist die Anwendung der IFRS im Konzernabschluss ab dem Jahr 2005 bzw. 2007 für alle kapitalmarktorientierten Unternehmen verpflichtend (vgl. Art. 4 der Verordnung (EG) 1606/2002). Für alle anderen Unternehmen, die Transparenz und Vergleichbarkeit im Hinblick auf ihre finanzielle Performance herstellen möchten, wurde die Möglichkeit geschaffen, einen befreienden Konzernabschluss nach IFRS zu erstellen (vgl. § 315 a Absatz 2 HGB). Allerdings wirft die Übernahme der IFRS für die Kreuzfahrtindustrie ganz spezielle Fragen auf, da die IFRS nicht branchenspezifisch definiert sind. Aufgrund dessen verfolgt diese Arbeit das Ziel, eine umfassende Analyse hinsichtlich der Problematik der Ertragserfassung, Abschreibung, Rückstellung und Zweckgesellschaften nach IFRS in der Kreuzfahrtindustrie zu liefern. Daneben stellen die Problematik der erstmaligen Umstellung von HGB nach IFRS in der Kreuzfahrtindustrie sowie Handlungsempfehlungen weitere Ziele dieser Arbeit dar.

4.1.2 Gang der Untersuchung

Um diese Ziele zu erreichen, ist die vorliegende Arbeit wie folgt aufgebaut:

Im folgenden Kapitel 2 werden die allgemeinen Grundlagen vermittelt, die für ein Verständnis der IFRS und der Kreuzfahrtindustrie unverzichtbar sind. Neben der geschichtlichen Entwicklung der Kreuzfahrten in Kapitel 2.1.1, erschließt das Kapitel 2.1.2 die Definition und Struktur der Kreuzfahrtindustrie. Während in Kapitel 2.2.1 der Blick auf den Zielen und der Anwendungspflicht der internationalen Rechnungslegungsvorschriften liegt, erläutert 2.2.2 das Rahmenkonzept der IFRS. Im nächsten Kapitel 3 erfolgt eine detaillierte Untersuchung der Erträge, Abschreibung, Rückstellungen und Zweckgesellschaften in der Kreuzfahrtindustrie. Dabei werden die Besonderheiten dieser vier Sachverhalte hinsichtlich ihrer jeweiligen IFRS-Rechnungslegungsvorschriften erläutert und ggf. ein Bezug auf die Praxis eines Kreuzfahrtunternehmens genommen. Zusätzlich wird das Kapitel durch kleine Vergleiche dieser Bilanzposten mit dem deutschen Handelsgesetzbuch (HGB) begleitet. Schließlich folgt der letzte Unterpunkt dieses Kapitels, in dem die Problematik der Ertragserfassung, Abschreibung, Rückstellung und Zweckgesellschaften vorgestellt wird. Dabei wird auch vereinzelt auf die Schwierigkeiten bei der erstmaligen Umstellung der Rechnungslegung von HGB auf IFRS eines Kreuzfahrtunternehmens eingegangen und Handlungsempfehlungen gegeben. Mit

einer Zusammenfassung der grundlegenden Erkenntnisse, einem Ausblick sowie der Darstellung der Limitationen bildet Kapitel 4 den Abschluss dieser Arbeit.

4.2 Grundlagen der Kreuzfahrtindustrie und der IFRS

4.2.1 Kreuzfahrtindustrie

4.2.1.1 Geschichte der Kreuzfahrt

Die Anfänge der Kreuzfahrten als Vergnügungsreisen und als massentouristisches Produkt lassen sich auf zwei wesentliche Entwicklungen in der Vergangenheit zurückführen: zum Einen auf den Rückgang der Transportfunktion der Schiffe in der Passagierschifffahrt und zum anderen auf die steigende touristische Nachfrage durch den zunehmenden Wohlstand der Gesellschafft. (vgl. Schäfer 1998, S. 19 f)

Die Seefahrt erlebte im 19. Jahrhundert eine ihrer wichtigsten technischen Innovationen: Die bis dahin eingesetzten Segelschiffe wurden allmählich durch Dampfschiffe ersetzt, welche den Reedereien einen regelmäßigen Liniendienst sowie enorme Wettbewerbsvorteile aufgrund der verkürzten Reisezeit ermöglichten. Der erste Dampfliniendienst von Europa nach Amerika wurde 1840 eröffnet und blieb zunächst elitären und vermögenden Kreisen vorbehalten. Jedoch wurde bald auch das Potenzial der Auswanderer erkannt, welche die Schiffe nutzten um ihre Heimat zu verlassen, so dass Zwischendeckplätze eingerichtet wurden (vgl. Schäfer 1998, S. 26 ff). Im Jahre 1891 erkannte der Geschäftsmann Albert Ballin, Direktor der Hapag, dass sich in den Wintermonaten mit der Atlantiküberquerung nur wenig Geld verdienen ließ. Daraufhin hatte er als Erster den innovativen Einfall Vergnügungsreisen anzubieten, anstatt die Schiffe in der kalte Jahreszeit ungenutzt im Hafen liegen zu lassen. Das erste für die Kreuzfahrt umfunktionierte Linienschiff war die „Auguste Victoria“. Diese verließ ihren Heimathafen mit ungefähr 250 Passagieren, die aus reinem Vergnügen und Selbstzweck eine luxuriöse Seefahrt unternahmen. Diese Reise war ein großer Erfolg und führte aufgrund der steigenden Nachfrage zu einer Weiterentwicklung der Kreuzfahrtindustrie. In kürzester Zeit wurden größere und schnellere Schiffe, wie zum Beispiel die „Prinzessin Victoria Luise“, gebaut (vgl. Hamburg Cruise Center 2010). „Die Schnelldampfer der 90er Jahre [des 19.Jahrhunderts] verfügten über eine Atmosphäre wie in einem Grand Hotel. (…) Diese Zeit begründet den bis heute nicht verzogenen Mythos der ‘schwimmenden Paläste auf See‘ ohne den die Gestaltung des modernen Kreuzfahrtprodukts undenkbar wäre und der es immer wieder neu inspiriert.“ (Schäfer 1998, S. 26 ff). Der wachsende Wohlstand der Gesellschaft und die zunehmende Freizeit verliehen der Kreuzfahrtindustrie in den 1960er Jahren ihre Blütezeit. Waren die Schiffe der 1960er und 70er Jahre mit 700 bis 1200 Plätzen noch mittelgroß, so begann in den 1980er Jahren ein regelrechter internationaler Bauboom von Großschiffen, die bis zu 2000 Passagieren Platz boten (vgl. Steinbach 2003, S. 287 f). In den Jahren 1998 bis 2003 befürchtete die Kreuzfahrtindustrie eine Überkapazität der bis dahin in Fahrt gebrachten Schiffe, so dass es zum Stillstand von Neubestellungen kam. Da die weltweite Einführung der bis dahin fertig gestellten Schiffe auf dem Kreuzfahrtmarkt positiv verlief, konnten die Reedereien weitere Kreuzfahrtschiffe in Europa in Auftrag geben, so dass die Werften mittlerweile mit der Konzipierung der aktuellen Generation, der superlativen Kreuzfahrtschiffe bis zum Jahr 2008 ausgelastet waren. Die europäische Kreuzfahrtindustrie wuchs in den letzten 15 Jahren stetig. Seit 2001 lässt sich eine jährliche Wachstumsrate von über 10 Prozent verbuchen. Allein im Jahre 2004 buchten mehr als 2,8 Millionen Europäer

eine Kreuzfahrt, in Nordamerika waren es 9,8 Millionen Kreuzfahrtpassagiere. (vgl. Hamburg Cruise Center 2010)

Das große Wachstum des Kreuzfahrtmarktes lässt sich auf einige Faktoren zurückführen: In den frühen 1970er Jahren gründeten die 25 größten US- Kreuzfahrtunternehmen die Cruise Lines International Association (CLIA) und schufen damit ein Netzwerk, das Öffentlichkeitsarbeit, Marktforschung, sowie Marktaktivitäten betreibt. Ferner wurde durch den steigenden Vertrieb durch Reisebüros ein leistungsfähiges Vermarktungsnetzwerk geschaffen (vgl. Steinbach 2003, S. 287 f). Ein weiterer Grund für die rasante Entwicklung ist zum Einen bedingt „(…) durch die immer größer werdenden Kreuzfahrtschiffe, deren Passagierkapazität sich in den vergangenen fünf Jahren um 30 Prozent erhöht hat und zum anderen durch die Erweiterung der Zielgruppen: Sowohl das Durchschnittseinkommen der Passagiere an Bord als auch das Durchschnittsalter verringerten sich. Neben einer Vielfalt an unterschiedlichen Kreuzfahrtschiffen existieren eine variationsreiche Auswahl von Fahrtrouten sowie viele Themenreisen, wie z.B. Golf- oder Wellness-Kreuzfahrten, Expeditionskreuzfahrten, Studienkreuzfahrten und Lesereisen.“ (Hamburg Cruise Center 2010). Weiterhin bietet die Einführung von „Fly & Cruise“- Paketen, die Hin- und Rückflug bereits im Kreuzfahrtpreis enthalten, einem größeren Zielpublikum die Möglichkeit, diese Urlaubsform zu nutzen (vgl. Steinbach 2003, S. 287 f).

4.2.1.2 Definition sowie Struktur der Kreuzfahrtindustrie

In Anlehnung an Schäfer werden Kreuzfahrten definiert als Pauschalreisen auf einem Schiff (Hochsee- oder Flussschiff), die Verpflegung, Übernachtung, Animation, Entertainment und die Nutzung der meisten Schiffseinrichtungen einschließen und folgende Merkmale aufweisen: Die Reise erfolgt auf einer zuvor festgelegten Route, auf der verschiedene Häfen als Zwischenstationen angelaufen werden, um den Passagieren bzw. Gästen die Möglichkeit von Landausflügen zu bieten. Allerdings handelt es sich nur um eine Kreuzfahrt, sofern sie mindestens eine Bordübernachtung beinhaltet und zusätzlich zum Ein- und Ausstiegshafen einen weiteren Hafen anlaufen. In Abgrenzung zu kleineren Schiffen und Frachtschiffen, die i.d.R. eine niedrige Passagierkapazität besitzen, wird erst ab einer Teilnehmeranzahl von 50 Passagieren von einer Kreuzfahrt gesprochen (vgl. Schäfer 1998, S. 7 f). Da Kreuzfahrtunternehmen ihre Pendants vom Festland mit Restaurants, Bars, Sporteinrichtungen, Einkaufszentren, Unterhaltungsveranstaltungen, Kommunikationszentren etc. nachahmen, gleicht der Aufenthalt auf einem Kreuzfahrtschiff dem eines mobilen Urlaubs-, Ferien- oder Erholungsortes. Dabei werden die Passagiere von einem Ort zu einem anderen befördert, so dass Kreuzfahrtschiffe nicht als bloße Transportmittel sondern vielmehr als eigene Urlaubsdestination anzusehen sind (vgl. Dowling 2006, S. 3). Typischerweise machen Unterbringung und die dazugehörigen Funktionsbereiche etwa 75% eines Kreuzfahrtschiffes aus. Die restlichen Kapazitäten dienen dem Betrieb. Die Kreuzfahrtindustrie stellt einen kleinen, aber wachsenden Teil der Tourismusindustrie dar. So beträgt die globale Bettenkapazität aller Kreuzfahrtschiffe nur 0,6% aller Hotels (vgl. WTO 2003). Infolge des steigenden Konkurrenzdrucks positionieren und werben Unternehmen der Kreuzfahrtindustrie zunehmend für ihre Markennamen, um Konsumenten die Identifizierung ihrer Produkte zu ermöglichen. Beispielweise verbinden Carnival Cruises Liner “fun ships“ mit ihren Markennamen, bei der Queen Elisabeth 2 wird ein exklusives Image bevorzugt und eine einmalige Erfahrung mit dem Slogan: ”for once in your life” versprochen. Disney Kreuzfahrten sprechen Kinder als Zielgruppe an. Mit dem Wachstum in der Kreuzfahrtindustrie gewinnt die Relevanz der Markenentwicklung zunehmend an Bedeutung. (vgl. Dowling 2006, S. 3 f)

Eine genaue Definition für die Kreuzfahrtindustrie zu formulieren gestaltet sich als schwierig. Um am Markt erfolgreich sein zu können, ist es für Kreuzfahrtunternehmen in der Regel nicht ausreichend eine Reederei zu unterhalten. Die Marketing-Konzepte machen es erforderlich vor- und nachgelagerte Aktivitäten, insbesondere den Vertriebsweg, einzuschließen. Beispielsweise spielen bei Kreuzfahrtenangeboten auch die Transportleistungen von und zu den Schiffen sowie die Hotelaufenthalte im Anschluss der Kreuzfahrt eine große Rolle. Daher beteiligen sich Kreuzfahrtgesellschaften auch an Reiseveranstaltern, Hotels oder Luftfahrtgesellschaften zur Diversifikation und Generierung von Wettbewerbsvorteilen. Neben den vor- und nachgelagerten Leistungsträgern sind ebenso die Hilfs- und Nebenleistungen sowie unterstützende Einrichtungen und Institutionen von hoher Bedeutung. Hierbei lassen sich als Beispiele die Hafen-, Ausflugsagenturen vor Ort, aber auch Versorgungs- und Catering-Unternehmen aufführen (vgl. Schäfer 1998, S. 19 f). Die genannten Zusammenhänge werden in Abbildung 4.31 zusammengefasst.

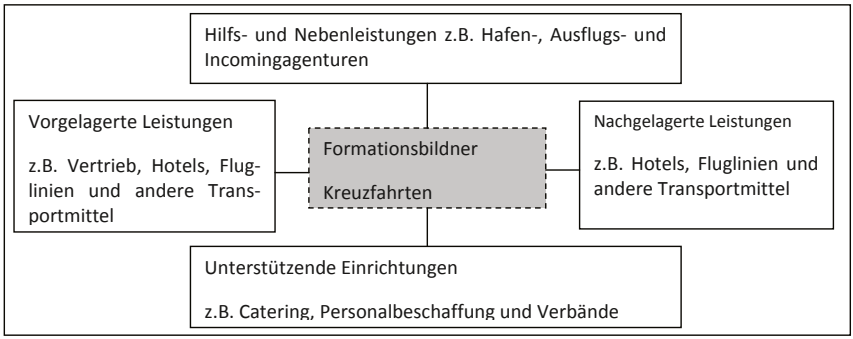

Abbildung 4.24: Normensystem des IASB
(Quelle: Eigene Darstellung in Anlehnung an Wagenhofer 2005, S. 97)

Die Ausführungen verdeutlichen, dass aufgrund der Komplexität und Vernetzung von einzelnen Bereichen im Tourismus, die Kreuzfahrtindustrie zunehmend mit anderen Tourismusbereichen verschmilzt. Da der Schwerpunkt dieser Arbeit die Beleuchtung ausgewählter bedeutender Themen der internationalen Bilanzierungsstandards in einer bestimmten Branchen bildet, wird im Folgenden zur Vereinfachung unter dem Begriff „Kreuzfahrtindustrie“ nur Kreuzfahrtunternehmen subsumiert, wohlwissend, dass Kreuzfahrtunternehmen nur eine Teilmenge in der Kreuzfahrtindustrie darstellen.

4.2.2 International Financial Reporting Standards

4.2.2.1 Ziele und Anwendungspflicht

Das Bedürfnis nach internationaler Vergleichbarkeit der Rechnungslegung führte 1973 zur Gründung des International Accounting Standards Committee (IASC), einer privatrechtlichen Organisation nationaler Verbände von Rechnungslegern und Wirtschaftsprüfern. Diese verfolgte das Ziel internationale Rechnungslegungsstandards zu entwickeln (vgl. Dr. Röver & Partner KG o.J., S. 4). Seit der Neustrukturierung im Jahre 2001 werden diese, nun vom International Accounting Standards Board (IASB) entwickelten Standards, International Fi-

nancial Reporting Standards (IFRS) genannt und bezeichnen Fachnormen zur externen Rechnungslegung (vgl. Kremin-Buch 2002, S. 3 f). Das IASC verfolgt primär zwei Ziele:

Das erste Ziel ist die Bereitstellung entscheidungsrelevanter Informationen. Dieses ergibt sich aus der Notwendigkeit, den Informationsbedarf aller Interessengruppen gerecht zu werden. So sind die wesentlichen Adressaten der Rechnungslegung nach IFRS neben den Kapitalgebern alle Interessenten, wie z.B. Kunden, Lieferanten, Geschäftsleitung, Arbeitnehmer und die Öffentlichkeit. (vgl. Kremin-Buch, Unger & Walz 2003, S. 25)

Das zweite relevante Ziel ist die internationale Harmonisierung der Rechnungslegung durch einen Satz an verständlich und global durchsetzbaren Standards (vgl. Wagenhofer 2005, S. 42).

Im Rahmen der Harmonisierung der nationalen Rechnungslegungsvorschriften, wie z.B. die des HGB, wurde durch eine Verordnung der Europäischen Union die Bedeutung der internationalen Rechnungslegung gestärkt. Die am 19. Juli 2002 erlassene EU-Verordnung Nr. 1606/2002 besagt, dass am Kapitalmarkt gelistete Unternehmen, die dem Recht eines EU-Landes unterliegen, ab 2005 (für Geschäftsjahre die nach dem 31. Dezember 2004 beginnen) ihren Konzernabschluss nach IFRS aufzustellen haben (vgl. Dr. Röver & Partner KG o.J., S. 7). Das Bilanzreformgesetz wurde Ende 2004 im Bundesgesetzblatt verkündet und somit die entsprechende gesetzliche Regelung geschaffen (vgl. Buchholz 2001, S. 11). Für nicht börsennotierte Unternehmen ergab sich die Möglichkeit, einen befreienden Konzernabschluss nach IFRS zu erstellen. Für Geschäftsjahre, die nach dem 31. Dezember 2006 beginnen, müssen allerdings kapitalmarktorientierte Unternehmen ihren Konzernabschluss nach IFRS aufstellen, sofern sie die Zulassung eines Wertpapiers zum Handel an einem organisierten Markt beantragt haben (vgl. § 315a Absatz 2 HGB). Mit dieser neuen Regelung hebt sich das deutsche Gesetz von der Verordnung 1606/2002 ab, welche noch keine Verpflichtung zu IFRS mit Antragstellung zum Börsenhandel vorsah (vgl. Dr. Röver & Partner KG o.J., S. 8).

4.2.2.2 Rahmenkonzept der IFRS

Das Regelwerk des IASB besteht aus den Rechnungslegungsstandards (IAS/IFRS) und den Interpretationen der Standards (SIC/IFRIC) (vgl. IAS 1.11). Die Standards regeln Einzelfragen, die sich sowohl aus Bilanzpositionen, Gestaltung ganzer Rechnungslegungsinstrumenten, einzelnen Problembereichen oder Sonderproblemen bestimmter Branchen beziehen können (vgl. Kremin-Buch 2002, S. 4). Die Interpretationen wurden beschlossen, um eventuelle Mängel, wie z.B. Unvollständigkeiten bzw. Unklarheiten in den Standards, auszugleichen (vgl. Buchholz 2002, S. 15). Da sowohl die Standards als auch die Interpretationen in der Normenhierarchie auf der gleichen Stufe stehen, sind sie bei der Abschlussentstehung gleichermaßen heranzuziehen (vgl. ADS International 2005, Abschnitt 6 RZ12, S. 13). Im Gegensatz dazu bildet das Framework (Rahmenkonzept) den theoretischen Unterbau der Rechnungslegung nach IFRS, welcher bei der Entwicklung neuer Standards als Grundlage dient (vgl. Kremin-Buch 2002, S. 4). Neben dem Framework bilden die Interpretationen, die illustrierenden Beispiele, wie auch die Grundlagen zur Beschlussfassung keine Bestandteile der IFRS, da sie im Normensystem des IASB von untergeordneter Bedeutung sind.

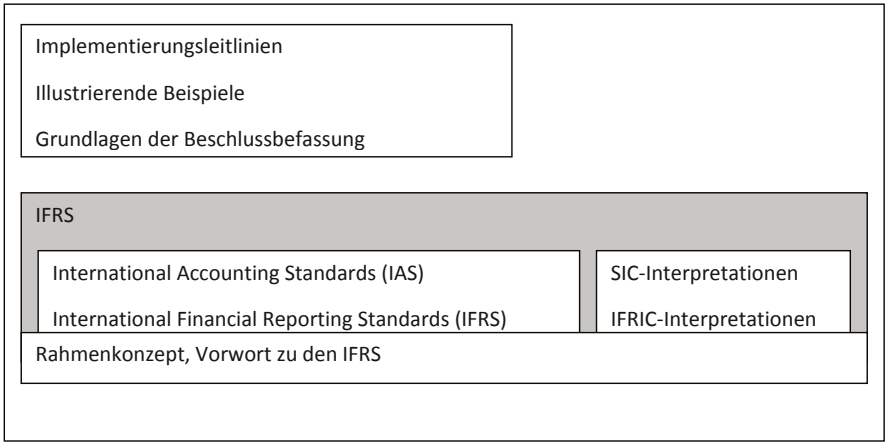

Abbildung 4.25: Normensystem des IASB.
(Quelle: Eigene Darstellung in Anlehnung an Wagenhofer 2005, S. 97)

Im Framework werden als Grundannahmen (underlying assumption) die periodengerechte Erfolgsermittlung (accrual basis) und die Unternehmensfortführung (going concern) genannt (vgl. Coenenberg 2003, S. 56 f). Die Qualität der Daten des Jahresabschlusses zeichnen sich durch die Relevanz (relevance), die Verständlichkeit (understandability), die Verlässlichkeit (reliability) sowie die Vergleichbarkeit (comparability) für die Adressaten aus (vgl. Kremin-Buch, Unger & Walz 2003, S. 26). Der Jahresabschluss nach IFRS enthält neben Bilanz (balance sheet), Gewinn- und Verlustrechnung (income statement) und Anhang (notes) auch eine Eigenkapitalveränderungsrechnung (statement of change in equity) und eine Kapitalflussrechnung (cash flow statement).

Damit weist das IFRS-Regelwerk im Vergleich zum HGB geringere Wahlrechte beim Bilanzansatz und bei der Bewertung und größere Wahlrechte bei der Gliederung und Darstellung auf. (vgl. Lüdenbach 2005, S. 69)

4.3 Kreuzfahrtspezifische Besonderheiten bei der Anwendung von IFRS

4.3.1 Ertragserfassung

4.3.1.1 Definition- und Ansatzkriterien der Ertragsrealisierung

Umsatzerlöse stellen in jedem Unternehmen eine Kerngröße dar. Herausragende Bedeutung kommt den Umsatzerlösen im Rahmen des internen und externen Rechnungswesens zu (vgl. Küting, Weber & Pilhofer 2002, S. 318). So verwenden beispielsweise die verschiedensten Bilanzadressaten die Kennzahl „Umsatzerlöse“ als Maßstab zur Messung der Leistungsfähigkeit des Unternehmens, welcher einen tief greifenden Einblick in die Ertragslage und Struktur des Unternehmens erlaubt (vgl. IASB Framework, Par.9).

In der Kreuzfahrtindustrie werden Erträge üblicherweise durch Ticketverkäufe evtl. im Zusammenhang mit An- und Abreisepaketen, Onboardgeschäften, Gastronomie sowie Landausflügen erzielt. Nach der Completed-Contract-Methode sind daraus resultierende Gewin-

ne erst zum Zeitpunkt der vollständig erbrachten Leistung, also am Ende der Kreuzfahrt, zu erfassen. Diese Art des Vorgehens ergibt sich aus dem HGB. Allerdings unterscheiden sich die IFRS-Definition von Ertrag und die daraus resultierende Ertragsrealisation von der üblichen nationalen Praxis. So wirft IFRS die Frage auf, wann Erträge erfasst werden: Erfasst ein Kreuzfahrtunternehmen z.B. einen Ertrag dann, wenn die Leistung erbracht wurde oder während der Erbringung der Dienstleistung? Von hoher Relevanz ist diese Frage dann, wenn aktuelle Systeme und Verfahren dahingehend modifiziert werden müssen, um Erträge nach IFRS korrekt erfassen zu können (vgl. PWC 2005, S. 5 f). Um diese Fragen beantworten zu können, werden im Folgenden eine Definition sowie Ansatzkriterien von Erträgen vorgestellt.

Eine grundsätzliche Begriffsdefinition der Erträge liefert der IAS 18, Erträge. Demnach ist ein Ertrag „(…) der aus der gewöhnlichen Tätigkeit eines Unternehmens resultierende Bruttozufluss wirtschaftlichen Nutzens während der Berichtsperiode, der zu einer Erhöhung des Eigenkapitals führt, soweit er nicht aus Einlagen der Anteilseigner stammt." (IAS 18.7). Weiterhin regelt der IAS 18 sämtliche Vorschriften zur Ertragsrealisierung, wobei nur Erlöse (sogenannte Erträge mit Erlöscharakter) und nicht andere Erträge von diesem Standard behandelt werden (vgl. Lüdenbach & Hoffmann 2006, S. 1016). Die Ertragserfassung erfolgt in der Gewinn- und Verlustrechnung (GuV) des IFRS-Abschlusses nur dann, wenn es „(…) zu einer Zunahme des künftigen wirtschaftlichen Nutzens in Verbindung mit einer Zunahme bei einem Vermögenswertes oder einer Abnahme bei einer Schuld gekommen ist, die verlässlich ermittelt werden kann." (IASB Framework, Par.92).

Anzuwenden ist der IAS 18 auf folgende Geschäftsvorfälle:

Umsatzerlöse durch den Verkauf von Gütern,

Erträge aus dem Erbringen von Dienstleistungen und

Erträge aus der Überlassung von Vermögenswerten gegen Zinsen, Dividenden und Lizenzgebühren. (IAS 18.1)

Da es sich bei einer Kreuzfahrt um eine Dienstleistung handelt und Erträge aus dem Erbringen von Dienstleistungen, wie z.B. Servicetätigkeiten, Friseurdienstleistungen oder Landausflüge, generiert werden, wird der Fokus dieser Arbeit auf dem zweiten Geschäftsvorfall liegen. Der erste und dritte Punkt der hier angeführten Geschäftsvorfälle wird der Vollständigkeit halber lediglich kurz erläutert:

Eine Reihe von Kriterien für einen Ansatz als Umsatzerlöse erhält der IAS 18. Demnach ist ein Erlös aus dem Verkauf von Gütern erst dann realisiert, wenn folgende Bedingungen erfüllt sind:

Übergang der mit dem Eigentum verbundenen Risiken und Chancen auf den Käufer,

Verlust der Verfügungsmacht beim Veräußerer,

verlässliche Bestimmbarkeit der Höhe der Erlöse und er mit dem Verkauf angefallenen und noch anfallenden Kosten und

ausreichend hohe Wahrscheinlichkeit, dass dem Unternehmen der wirtschaftliche Nutzen aus dem Verkauf zufließen wird. (vgl. IAS 18.14)

Sind diese Kriterien erfüllt, kommt es zur Realisierung der Erträge in der betreffenden Periode. Andernfalls darf kein Ertrag realisiert werden und allenfalls erhaltene Zahlungen sind als Verbindlichkeiten zu behandeln (vgl. IAS 18.19). Die Erfassung von Umsatzerlösen erfolgt z.B. bei der TUI-AG grundsätzlich nach Erbringung der Leistung bzw. Lieferung der Vermögenswerte und damit mit dem Gefahrenübergang.

Die Ertragsrealisierungsvorschriften aus der Überlassung von Vermögenswerten gegen Zinsen, Dividenden und Lizenzgebühren sehen wie folgt aus:

Zinsen sind zeitproportional mit Hilfe der Effektivverzinsung,

Nutzungsentgelte, wie beispielsweise Software sind periodengerecht, d.h. linear über die jeweilige Vertragslaufzeit , zu erfassen und

Dividenden werden in den IFRS erst mit Entstehung des Rechtsanspruches auf Zahlung berücksichtigt (vgl. IAS 18.30a-c).

Die Bewertung der Erträge aller hier angeführten Geschäftsvorfälle erfolgt zum beizulegenden Zeitwert, der empfangenen oder zu beanspruchenden Gegenleistung, bereinigt um Preisnachlässe, Verkehrssteuern und Rabatte. Als beizulegender Zeitwert ist jener Betrag zu verstehen, „(…) zu dem zwischen sachverständigen, vertragswilligen und voneinander unabhängigen Geschäftspartnern ein Vermögenswert getauscht oder eine Schuld beglichen werden könnte." (IAS 18.7)

4.3.1.2 Realisation bei Erbringung von Dienstleistungen

Der Begriff der Dienstleistung lässt sich als „(…) die Ausführung vertraglich vereinbarter Aufgaben über einen vereinbarten Zeitraum durch das Unternehmen" (IAS 18.4) definieren. IAS 18.20 schreibt vor, dass Erträge aus Dienstleistungsgeschäften nach Maßgabe des Fertigstellungsgrades zu erfassen sind, wenn das Ergebnis des Dienstleistungsgeschäftes verlässlich geschätzt werden kann. Das Ergebnis derartiger Geschäfte kann dann verlässlich geschätzt werden, wenn die folgenden Bedingungen insgesamt erfüllt sind:

verlässliche Bestimmbarkeit der Höhe der Erträge und der mit der Erbringung der Dienstleistung angefallenen und noch anfallenden Kosten,

ausreichend hohe Wahrscheinlichkeit, dass dem Unternehmen der wirtschaftliche Nutzen aus dem Verkauf zufließen wird und

der Fertigstellungsgrad des Geschäftes am Bilanzstichtag verlässlich bestimmt werden kann. (vgl. IAS 18.20)

Häufig wird die Ertragserfassung nach Maßgabe des Fertigstellungsgrades eines Geschäftes als Methode der Gewinnrealisierung nach dem Fertigstellungsgrad bezeichnet. „Die Ertragserfassung auf dieser Grundlage liefert nützliche Informationen über den Umfang der Dienstleistungsaktivitäten und der Ertragskraft während einer Periode. IAS 11, Fertigungsaufträge, fordert ebenfalls die Ertragserfassung auf dieser Grundlage. Die Anforderungen dieses Standards sind im Allgemeinen auch auf die Erfassung von Erträgen und die Erfassung zugehöriger Aufwendungen aus Dienstleistungsgeschäften anwendbar." (IAS 18.21). Ist das Ergebnis des Fertigungsauftrages zuverlässig schätzbar, erfolgt damit die Ertragsrealisierung grundsätzlich gemäß der in IAS 11.22, an sich für langfristige Auftragsfertigung, vorgesehenen Per-

centage-Of-Completion-Methode (POC-Methode). „Nach dieser Methode werden die Erträge in den Berichtsperioden erfasst, in denen die jeweiligen Dienstleistungen erbracht werden." (IAS 18.21). Damit kommt es bereits vor Fertigstellung des Fertigungsauftrages zur Erfassung von Erträgen und folglich zu einer Teilgewinnrealisierung in der GuV. Kann der Fertigstellungsgrad nicht verlässlich geschätzt werden, sind die anteiligen Umsatzerlöse lediglich in Höhe der in der Periode angefallenen und erfolgswirksam erfassten Kosten zu berücksichtigen.

Daraus ergibt sich für die Praxis, dass nach IFRS bilanzierende Kreuzfahrtunternehmen eine Kreuzfahrt nach der POC-Methode des IAS 11 zu bilanzieren haben. Folglich sind im Rahmen von Kreuzfahrten realisierte Erträge der Periode zuzuordnen, in der sie entstanden sind, so dass eine anteilige Ertragserfassung vor der vollständigen Erbringung der Leistung vorliegt. Erlöse für noch nicht beendete Kreuzfahrten werden anteilig gemäß Fertigstellungsgrad am Bilanzstichtag realisiert. Dabei bestimmt sich der Fertigstellungsgrad aus dem Verhältnis der bis zum Bilanzstichtag vergangenen Reisetage zu den Gesamtreisetagen (vgl. TUI AG 2009, S. 68). Ein kleines Beispiel soll den Sachverhalt verdeutlichen: Eine Kreuzfahrt dauert zehn Tage an, wobei sieben Tage im Oktober und die restlichen Tage im November stattfinden. Während unter Berücksichtigung des HGB die Erträge erst am Ende der Kreuzfahrt als realisiert gelten und somit dem Novembermonat zuzuordnen sind, hat eine Befolgung der IFRS zur Folge, dass die Erträge der ersten sieben Tage dem Oktober und die der letzten drei Tage dem Folgemonat zugerechnet werden. Des Weiteren weisen Kreuzfahrtunternehmen im Gegensatz zu Schifffahrtsunternehmen, die reine Speditionsgeschäfte tätigen, keine Leerkapazitäten auf ihren Rückfahrten auf, so dass die Erfassung von Aufwendungen analog zu den Erträgen geschehen kann.

Schließlich ist noch anzumerken, dass neben Erträgen aus Kreuzfahrtreisen noch weitere Umsatzrealisationsmöglichkeiten vorzufinden sind. So sind Kreuzfahrtunternehmen oft in Konzerne eingebunden, die verschiedene Geschäftsbereiche enthalten. So werden z.B. bei der TUI AG die von Reisebüros erzielten Provisionserlöse für die Vermittlung von Pauschalreisen bei Zahlung des Kunden, spätestens jedoch bei Abreise, realisiert. Da Organisation und Koordination einer Pauschalreise die wesentlichen Leistungen des Reiseveranstalters ausmachen, werden Umsatzerlöse aus der Veranstaltung von Pauschalreisen vollständig bei Reiseantritt realisiert. Dagegen erfolgt die Realisierung von Umsatzerlösen aus einzelnen Reisebausteinen, die durch Kunden direkt bei Flug- oder Hotelgesellschaften oder bei Zielgebietsagenturen gebucht werden, zum Zeitpunkt der Inanspruchnahme der Leistung durch den Reisenden (vgl. TUI AG 2009, S. 68). Die Leistung für Rücktrittsversicherungen für eine Kreuzfahrtreise gilt bei Vertragsabschluss als erbracht, unabhängig davon ob die Versicherung noch in Anspruch genommen wird, so dass die Umsatzerlöse daraus sofort erfasst werden.

4.3.2 Abschreibung

4.3.2.1 Ansatz und Bewertung

Sachanlagen stellen oft hinsichtlich der Höhe nach einen der bedeutendsten Teile in der Bilanz dar und die damit verbundenen Abschreibungen und Wertminderungen haben zudem erhebliche Auswirkungen auf den auszuweisenden Periodenerfolg. In der Kreuzfahrtindustrie sind die Sachanlagen durch die hohen Anschaffungs- und Herstellungskosten von Schiffen und Terminals geprägt, dessen bilanzielle Behandlung im Folgenden es herauszuarbeiten gilt.

Gemäß dem IAS 16, Sachanlagen, sind Sachanlagen definiert als: „(…) materielle Vermögenswerte,

die für Zwecke der Herstellung oder der Lieferung von Gütern und Dienstleistungen, zur Vermietung an Dritte oder für Verwaltungszwecke gehalten werden; und die

erwartungsgemäß länger als eine Periode genutzt werden." (IAS 16.6)

Anzusetzen sind die Anschaffungs- oder Herstellungskosten einer Sachanlage, „ (…) ausschließlich wenn:

es wahrscheinlich ist, dass ein mit der Sachanlage verbundener künftiger wirtschaftlicher Nutzen dem Unternehmen zufließen wird, und wenn

die Anschaffungs- oder Herstellungskosten der Sachanlage verlässlich ermittelt werden können." (IAS 16.7)

Kreuzfahrtschiffe bzw. die dazugehörigen Terminals werden für gewöhnlich über mehrere Perioden zur Erbringung der Dienstleistung mit einer Gewinnerzielungsabsicht unterhalten. Zudem sind auch dessen Kosten beim Erwerb bestimmbar (oder können von Experten geschätzt werden). Folglich fallen sie in der Regel unter der Definition von Sachanlagen und erfüllen die Ansatzkriterien des IAS 16. Aufgrund dieser Tatsache und des hohen Komplexitätsgrades von Schiffen haben Manager stets vor jedem Erwerb eines Schiffes detaillierte Kalkulationen über die zu erwartenden Investitionsrenditen durchzuführen. (vgl. PWC 2005, S. 8)

Ferner sind Folgekosten für den Ersatz von Sachanlagenanteilen zu aktivieren, sofern sie auch die Ansatzkriterien „wahrscheinlicher Nutzenzufluss" und „verlässliche Ermittlung" erfüllen (vgl. IAS 16.13; Wagenhofer 2009, S. 199). Werden Ersatzkosten von Sachanlagenteilen aktiviert, sind die Buchwerte der ersetzten Teile auszubuchen. Laufende Wartungskosten, sogenannte „Reparaturen und Instandhaltungen" werden bei Anfall erfolgswirksam als Aufwand erfasst (vgl. IAS 16.12).

4.3.2.2 Planmäßige Abschreibung

Bei der Methode der Folgebewertung von Sachanlagen besteht gem. IAS 16 ein explizites Wahlrecht, das jeweils auf eine ganze Gruppe von Sachanlagen einheitlich auszuüben ist (vgl. IAS 16.29). Danach kann neben dem HGB-konformen Anschaffungs- oder Herstellungskostenmodell ebenso das sogenannte Neubewertungsmodell für die Folgebewertung angewendet werden. Beim Anschaffungs- oder Herstellungsmodell wird der Vermögenswert zu Anschaffungs- oder Herstellungskosten abzüglich kumulierter planmäßiger Abschreibungen und Abschreibungen bei Wertminderungen angesetzt. Bei der Wahl des Neubewertungsmodells ist der Vermögenswert zum Neubewertungsbetrag anzusetzen, welcher seinem beizulegenden Zeitwert zum Zeitpunkt der Neubewertung abzüglich Wertminderungsaufwendungen entspricht, vorausgesetzt der beizulegende Zeitwert kann verlässlich bewertet werden (vgl. IAS 16.30-31).

Um eine genauere Bewertung eines Vermögenswertes vorzunehmen, ist im IAS 16 die Folgebewertung von Sachanlagen durch den sogenannten Komponentenansatz geregelt. Danach wird eine Sachanlage in seine wesentlichen Komponenten zerlegt und die Anschaffungs- oder Herstellungskosten werden diesen Komponenten zugeordnet, welche getrennt

über ihre jeweilige Nutzungsdauer abzuschreiben sind (IAS 16.43; vgl. Wagenhofer 2009, S. 200 f). Entsprechend besteht der erste Schritt in der Zerlegung von Schiffen, Terminals und anderen unbeweglichen Vermögenswerten in ihre wesentlichen Komponenten, die insbesondere unterschiedliche Nutzungsdauer aufweisen. Nach der Identifikation dieser Komponenten sind diese separat abzuschreiben (vgl. PWC 2005, S. 9). Beispielsweise können in einem kompletten Schiffspreis die Kosten für Rumpf, Motoren, Getriebe, Kommunikations- und Navigationsausstattung, den Lukendeckel und Trockendocking inbegriffen sein, welche alle eine unterschiedliche Nutzungsdauer haben. Anzumerken ist, dass bei einer Erneuerung oder Veränderung der identifizierten Komponenten die Buchwerte sich verringern oder erhöhen können (vgl. wagenhofer 2009, S. 200 f). Deswegen sind die Kosten für Ersatzmotoren dem Buchwert des Terminals hinzuzurechnen und der verbleibende, nicht abgeschriebene Betrag des alten Motors auszubuchen, wenn die Motoren während der Nutzungsdauer des Terminals ausgetauscht werden. Des Weiteren ist zu erwähnen, dass der Komponentenansatz nicht dazu führt, dass die Komponenten als eigene Vermögenswerte bilanziert werden.

4.3.2.3 Wertminderungen

Die Geschäfte von Kreuzfahrtunternehmen unterliegen sowohl konjunkturellen Zyklen als auch volatilen Märkten (vgl. PWC 2005, S. 24). Daher ist es nicht unüblich, dass Überkapazitäten im Unternehmen entstehen, wenn sich die Erwartungen über das Wirtschaftswachstum nicht realisieren. Unter solchen Umständen besteht die Gefahr, dass mit den Kreuzfahrten nicht ausreichende Cashflows generiert werden können um die Investitionen in die Vermögenswerte zu amortisieren.

Ob eine derartige Wertminderung vorliegt, soll gemäß IAS 36, Wertminderungen von Vermögenswerten, das Ergebnis des sogenannten Impairment-Tests liefern. Wird festgestellt, dass eine Wertminderung bei den Sachanlagen vorliegt, so ist eine außerplanmäßige Abschreibung zwingend erfolgswirksam durchzuführen, andernfalls bleibt der Buchwert der Sachanlage unverändert bestehen (vgl. IAS 36.1). Dieser wird auf einzelne Vermögenswerte oder zahlungsmittelgenerierende Einheiten (auch als cash-generating units bzw. CGUs bezeichnet) angewendet. Dabei bezeichnet eine zahlungsmittelgenerierende Einheit, „(...) die kleinste, identifizierbare Gruppe von Vermögenswerten, die Mittelzuflüsse erzeugen, die weitgehend unabhängig von den Mittelzuflüssen anderer Vermögenswerte oder anderer Gruppen von Vermögenswertem sind.“ (IAS 36.6). Beim Impairment-Test wird der erzielbare Betrag (recoverable amount) bestimmt und mit dem Buchwert des Vermögenswertes gegenübergestellt. IAS 36 definiert den erzielbaren Betrag aus den höheren Beträgen des Nettoveräußerungswerts (fair value less cost to sell) und Nutzungswerts (fair value in use) des Vermögenswertes (vgl. IAS 36.6). Während der Nettoveräußerungswert dem beizulegenden Zeitwert des Vermögenswertes abzüglich Veräußerungskosten gleicht, berechnet sich der Nutzungswert aus dem Nettobarwert der künftig erwarteten Cashflows, die sich aus dem weiteren Nutzen des Gegenstandes ergeben, zuzüglich der voraussichtlichen Verkaufserlöse (vgl. IAS 36.30-31). Die Schlüsselelemente zur Kalkulation eines Nutzungswertes sind somit die Cashflows und der Diskontierungszins. Dabei sind Finanzierungskosten, z.B. Zinszahlungen aus, Steuern, ungebundenen geplanten Umstrukturierungs- und jegliche geplanten Investitionsausgaben, welche die Performance des Vermögenswertes verbessern, aus Berechnung der Cashflows ausgeschlossen. Die Entsorgungskosten oder der am Ende der Nutzungsdauer erwartete Veräußerungserlös der Kreuzfahrtschiffe werden in die Cashflows einbezogen (vgl. PWC 2005, S. 25). Wertminderungen können nur bis zur völligen Abwertung

des Vermögenswertes durchgeführt werden. Ist der erzielbare Betrag negativ, sollte überprüft werden, ob nicht eine Rückstellung gebildet werden könnte.

Der Impairment-Test braucht nicht regelmäßig vorgenommen werden, sondern nur wenn Indikatoren am Bilanzstichtag einen möglichen Wertverlust andeuten (vgl. IAS 36.10). Erst bei Vorliegen eines Indikators, welcher eine stattgefundene Wertminderung bei einem Vermögenswert andeutet, wird ein Impairment-Test durchgeführt. Dabei können sich diese Indikatoren sowohl auf externe als auch auf interne Informationsquellen beziehen (vgl. IAS 36.12). In der Regel bildet jedes Schiff bei Kreuzfahrtunternehmen ein einzelnes CGU (vgl. PWC 2005, S. 24 f). Für Kreuzfahrtunternehmen stellen beispielsweise verstärkter Konkurrenzdruck, Überkapazitäten, fallende Preise und steigende Zinsen solche besonderen Indikatoren für die Notwendigkeit zur Durchführung eines Impairment-Tests dar. Überkapazitäten können aus einem Missverhältnis zwischen der erwarteten Nachfrage, von neuen Marktteilnehmern im Auftrag gegebenen Schiffen, Veränderungen in der Nachfrage nach Frachtdienstleistung oder einer wirtschaftswachstumsbedingten geringeren Nachfrage resultieren. Diese führen dazu, dass Terminals und Kreuzfahrten suboptimal ausgelastet werden. Steigende Zinssätze sind ebenfalls Indikatoren, da mit zunehmendem Diskontsatz der Nutzungswert des Vermögenswertes abnimmt, der zur Berechnung des erzielbaren Betrags dient.

4.3.3 Rückstellungen

4.3.3.1 Definition und Abgrenzung

Für jedes Unternehmen ist es von hoher Relevanz, die am Abschlussstichtag bestehenden Lasten darzustellen und die daraus resultierenden künftigen Ausgaben abzubilden (vgl. Euler & Engel-Ciric 2004, S. 140). Hierbei hat die Bewertung von Rückstellungen eine zentrale Bedeutung, da das in den Rückstellungen gebundene Kapital für Innenfinanzierungen zur Verfügung steht (vgl. Offert & Reichel 2005, S. 363 ff).

In der Kreuzfahrtindustrie ist das nicht anders. Denn Schiffe, Redereien, Terminals und andere Vermögenswerte müssen gewartet werden um den Leistungsstandard über ihre Nutzungsdauer aufrechtzuerhalten. Die Instandhaltung von technischen Systemen, Bauelementen, Geräten und Betriebsmitteln sollen sicherstellen, dass der funktionsfähige Zustand erhalten bleibt oder bei Ausfall schnell wieder hergestellt wird. Gewisse nationale Rechnungslegungsstandards erlauben die Bildung von Rückstellungen für notwendige Inspektionen oder planmäßige Instandhaltungen, wie beispielsweise Trockendocking von Redereien, bevor eine Verpflichtung entstanden ist. Derartige Rückstellungen dürfen nach IFRS ohne das Vorliegen einer Verpflichtung nicht gebildet werden (vgl. PWC 2005, S. 6). Für ein besseres Verständnis wird im Folgenden ein Überblick über die Definition von Rückstellungen sowie die Abgrenzung zu anderen Schulden gegeben.

Rückstellungen wurden in den IFRS zunächst immer als besondere Art von Verbindlichkeiten gesehen, die in ihrer Höhe und ihrem Eintritt unsicher waren. Die Regelungen im alten IAS 10, Eventualschulden und Ereignisse nach dem Bilanzstichtag, ließen große Spielräume zu, weshalb 1998 der IAS 37, Rückstellungen, Eventualschulden und Eventualforderungen, beschlossen wurde. Im IFRS-Abschluss werden Rückstellungen zusammen mit den Verbindlichkeiten unter dem Begriff „liabilities“ erfasst. Sowohl Rückstellungen als auch Verbindlichkeiten sind bilanzierungsfähige Schulden, wobei es sich bei Verbindlichkeiten grundsätzlich um

Verpflichtungen eines Unternehmens handelt, die am Bilanzstichtag hinsichtlich ihrer Höhe und Fälligkeit feststehen (vgl. Wagenhofer 2005, S. 252).

Demgegenüber definiert IAS 37 eine Rückstellung als „eine Schuld, die bezüglich ihrer Fälligkeit und Höhe ungewiss ist." (IAS 37.10). Rückstellungen sind von sonstigen Schulden auseinander zu halten. So bilden abgegrenzte Schulden (accruals) für gelieferte oder erhaltene Leistungen, die noch nicht bezahlt wurden, oder Steuerrückstellungen in der Regel keine Rückstellungen nach IAS 37. Diese fallen unter die sonstigen Verbindlichkeiten, weil die Unsicherheit bezüglich der Höhe und des Zeitpunktes der Erfüllung wesentlich geringer ist als bei den eigentlichen Rückstellungen (vgl. Wagenhofer 2005, S. 253).

4.3.3.2 Ansatz- und Bewertungskriterien

Nach IAS 37 ist eine Rückstellung ansatzpflichtig, wenn die folgenden drei Bedingungen kumulativ zutreffen:

Es muss eine rechtliche oder faktische Verpflichtung gegenüber Dritten bestehen und die bestehende Verpflichtung muss aus einem vergangenen Ereignis resultieren.

Es ist wahrscheinlich, dass die Verpflichtung zu einem Ressourcenabfluss führt.

Die Verpflichtung muss zuverlässig geschätzt werden können. (vgl. IAS 37.14)

Das erste Kriterium zur Bilanzierung einer Rückstellung fordert die Existenz einer gegenwärtigen Verpflichtung aus einem Ereignis der Vergangenheit. Solch eine Verpflichtung kann rechtlicher oder faktischer Art sein. Während Verträge oder gesetzliche Bestimmungen Grundlage von Rechtverpflichtungen sein können, entstehen faktische Verpflichtungen aus den Aktivitäten eines Unternehmens. Der Betrieb muss dabei die Übernahme bestimmter Verpflichtungen bereits angedeutet haben und dadurch bei anderen Parteien die gerechtfertigte Annahmen erweckt, diesen Verpflichtungen nachzukommen (vgl. IAS 17.10). Da die Verpflichtung aus einem vergangenen Ereignis bestehen muss, rechtfertigen erwartete oder geplante Ereignisse in der Zukunft auch keine Rückstellungsbildung (vgl. IAS 37.19). Damit sind Verpflichtungen nur rückstellungsfähig, die unabhängig von der künftigen Geschäftstätigkeit eines Unternehmens entstehen (vgl. Lüdenbach 2005, S. 209 ff). Liegt weder eine rechtliche noch eine faktische Verpflichtung gegenüber Dritten vor, so sind nur nach dem HGB in bestimmten Fällen (z.B. bei unterlassener Instandhaltung sowie genau bestimmten Aufwendungen) Rückstellungen zulässig oder geboten. Da die IFRS hingegen zwingend eine Außenverpflichtung voraussetzen, fehlt es im Falle der handelsrechtlichen Aufwandsrückstellungen an einer solchen Außenverpflichtung (vgl. Lüdenbach 2005, S. 231). Folglich sind Rückstellungen für Instandhaltung und Inspektion nach IFRS nicht zu bilden.

Das zweite Passivierungskriterium betrifft die Wahrscheinlichkeit eines Ressourcenabflusses zur Erfüllung der Verpflichtung. Die Wahrscheinlichkeit des Bestehens der Verpflichtung nach IAS 37.15 muss über 50% liegen (vgl. IAS 37.15). Desweiteren muss gemäß IAS 37.23 eine größer als 50%-ige Wahrscheinlichkeit eines Potenzialabflusses bestehen (vgl. IAS 37.23). Nur wenn beide „50%-Hürden" überschritten werden, erfolgt die Passivierung einer Rückstellung (vgl. Haaker 2005, S. 9). Sollte eine der drei Kriterien nicht erfüllt sein, besteht ein Ansatzverbot, obwohl in Abhängigkeit von der Eintrittswahrscheinlichkeit eine Erläuterungspflicht im Anhang bestehen kann. Darüber hinaus gelten die Regelungen nicht für die Rückstellungen, die durch einen eigenen IFRS explizit geregelt sind (vgl. Wagenhofer 2005, S.

253 f.). Sollte bezüglich dem Bestehen einer Verpflichtung am Bilanzstichtag Unsicherheit herrschen, ist eine Rückstellung anzusetzen, wenn die Wahrscheinlichkeit des Bestehens höher ist als die Wahrscheinlichkeit des Nichtbestehens (50%-Hürde).

Das dritte Ansatzkriterium zur Passivierung einer Rückstellung verlangt die Möglichkeit einer verlässlichen Schätzung der Verpflichtungshöhe. Falls eine verlässliche Schätzung nicht möglich sein sollte, was in äußerst seltenen Fällen eintritt, besteht keine passivierungsfähige Schuld, sondern lediglich die Angabe einer Eventualschuld im Anhang. (vgl. IAS 37.26)

Eine Rückstellung nach IFRS wird mit dem Betrag angesetzt, den das Unternehmen bei vernünftiger Betrachtung zur Erfüllung der Verpflichtung zum Bilanzstichtag benötigt oder zur Übertragung dieser auf einen Dritten aufwenden müsste (vgl. IAS 37.37). Dabei wird der Betrag angesetzt, der die höchste Eintrittswahrscheinlichkeit aufweist. Falls mehrere Beträge die gleiche Eintrittswahrscheinlichkeit aufweisen, wird ein Mittelwert aus den Beträgen dotiert. (vgl. IAS 37.39)

Bezogen auf die Kreuzfahrt sind z.B. für ausstehende Hafenkosten keine Rückstellungen zu bilden, sondern die Kosten werden in der Bilanz unter den sonstigen Verbindlichkeiten passiviert. Da in der Kreuzfahrtindustrie Treibstoffe einen erheblichen Anteil an Kosten ausmachen, kommt der Abmilderung der Auswirkungen von Treibstoffpreisvolatilitäten durch Sicherungsgeschäfte eine bedeutsame Rolle zu. Nach dem HGB wird für solch einen Sachverhalt eine Rückstellung für drohende Verluste gebildet, sofern diese zu erwarten ist. Die IFRS hingegen schreiben für solch ein Ereignis den IAS 39, Finanzinstrumente, vor. Danach dürfen die Auswirkungen der Hedgegeschäfte, unter bestimmten Bedingungen (u.a. nahezu vollständige Übereinstimmung des Sicherungsgeschäftes mit dem Grundgeschäft), zum Bilanzstichtag nahezu erfolgsneutral in der Bilanz als Forderung/Verbindlichkeit gegenüber Banken gezeigt werden.

4.3.4 Zweckgesellschaften

4.3.4.1 Definition und Merkmale

In der Kreuzfahrtindustrie können Unternehmen durch Leasing-Zweckgesellschaften Off-Balance-Finanzierung betreiben (vgl. PWC 2005, S. 14), worunter allgemein Transaktionen zu verstehen sind, bei denen die damit verbundenen Verbindlichkeiten nicht in der Bilanz ausgewiesen werden müssen (vgl. Kieso et al. 2004). Durch die Ausgliederung von Schiffen und sonstigen Vermögenswerten sowie den damit verbundenen Verbindlichkeiten aus der Bilanz verringern sich das ausgewiesene Fremdkapital bzw. die Verschuldungsquote, welche als Basis fürs Rating dienen, was zur Verbesserung der Bonität führt (vgl. Kustner 2004, S. 39 f). Dadurch können Führungskräfte die Unternehmenskennzahlen entlasten und ihre Kapitalkosten senken.

Allgemein sind Zweckgesellschaften oder Special Purpose Entities (SPEs) definiert als Gesellschaften oder Konstrukte, die für präzise definierte und eng abgesteckte Ziele gegründet werden (vgl. Kustner 2004, S. 308 f). Sie stellen autonome, klar von anderen Organisationen abgegrenzte Einheiten dar, die über eigene Ressourcen und eine eigene Kontrollstruktur verfügen. Das heißt, die ihnen zugeordneten Vermögenswerte und Schulden sind nicht Vermögenswerte und Schulden eines anderen Unternehmens. Die Festlegung des Einsatzzwecks wird häufig mittels umfangreicher Vertragsvereinbarungen, möglicher Gesellschaftsverträge oder Satzungen gewährleistet. Wurden die Ziele bereits im Gründungszeitpunkt in einem

solchem Umfang vorherbestimmt, dass die Geschäftsführung der SPE über keine eigenen geschäftspolitischen und strategischen Entscheidungsbefugnisse mehr verfügt, spricht man von einer im Autopilot gesteuerten SPE (vgl. SIC 12.1). Welche konkreten Aufgaben der Initiator für die SPE vorsieht, sind in der Praxis keine Grenzen gesetzt, so dass SPEs in sehr unterschiedlichen Erscheinungsformen auftreten können. Denkbar sind beispielsweise Zweckgesellschaften zur Durchführung von Leasing-Transaktionen oder Forschungsprojekten oder auch zum Kaufen und Halten von Lagerbeständen.

In der Schifffahrtsindustrie und vermutlich auch in der Kreuzfahrtindustrie haben Leasing-SPEs die Aufgabe, Schiffe zu erwerben und an das Kreuzfahrtunternehmen zu leasen. Sinn ergibt dies nur, wenn der Vermögenswert in Form eines Operate-Leasingvertrags vermittelt wird, bei dem im Gegensatz zum Finanzierungs-Lease der Vermögenswert bilanzneutral auf den Aktiva beim Leasingnehmer behandelt wird. Finanzierungs-Leasingverhältnisse liegen einer bestimmten Grundmietzeit zugrunde, nach dessen Ablauf dem Leasingnehmer meistens eine Kauf- oder Verlängerungsoption eingeräumt wird (vgl. Schäfer 2002, S. 353). Dadurch liegt das Investitionsrisiko beim Leasingnehmer, so dass Finanzierungs-Leasingverhältnisse Mietkäufen gleichen. Aufgrund dessen, dass bei einem Operate-Lease eine Kündigung des Vertrages in der Regel bei Einhaltung der vertraglichen Fristen möglich ist, trägt der Leasinggeber das Investitionsrisiko, so dass das Leasingverhältnis den Charakter eines Mietvertrages hat. Bei der Gestaltung der Leasing-SPE wird darauf geachtet, dass diese nicht konsolidiert werden muss. Dadurch hat das Kreuzfahrtunternehmen die Vermögenswerte bzw. die Verbindlichkeiten, die durch den Erwerb des Schiffes evtl. entstanden sind, nicht in der eigenen Konzernbilanz auszuweisen, sondern lediglich einen periodischen Mietaufwand aufzeigen. Weitere Formen zur Auslagerung bilanzieller Werte finden sich auch bei Leasingtransformationen sowie bei der Sale-and-Lease-Back-Konstruktion. Im ersten Fall geht die SPE bei der Beschaffung der Vermögensgegenstände ein Finanzierungs-Leasingverhältnis ein, hat den Leasinggegenstand aber im Rahmen eines Operate-Lease-Vertrages dem Initiator zur Verfügung gestellt (vgl. Kustner 2004, S. 309). Im Rahmen von Sale-and-Lease-Back-Transaktionen verkauft das Kreuzfahrtunternehmen ein Schiff oder einen anderen Vermögenswert an die Zweckgesellschaft, die dann den Gegenstand an das Kreuzfahrtunternehmen mittels eines Operate-Lease überträgt.

4.3.4.2 Konsolidierungsvorschriften

Einen ersten Anhaltspunkt zur Frage der Konsolidierungspflicht findet sich im IAS 27, Konzern- und separate Einzelabschlüsse nach IFRS. Diesem Standard nach hat eine Gesellschaft einen Konzernabschluss zu erstellen, falls sie Muttergesellschaft von einer oder mehreren Unternehmen ist (vgl. IAS 27.9). Das schwerwiegendste Kriterium stellt hierbei das sogenannte Control-Prinzip dar. Demnach wird eine Gesellschaft genau dann von einer Muttergesellschaft beherrscht, wenn die kontrollierende Gesellschaft die Möglichkeit hat, die andere Gesellschaft finanziell und geschäftspolitisch zum eigenen Nutzen zu steuern (vgl. IAS 27.4). Eine Beherrschung wird vermutet, wenn das beteiligte Unternehmen über mehr als 50% der Stimmrechte an einem anderen Unternehmen (mittelbar oder unmittelbar) verfügt (vgl. IAS 27.13). Eine Muttergesellschaft kann auch eine Gesellschaft kontrollieren, wenn die Muttergesellschaft indirekt und direkt weniger als 50% der Stimmrechte an der Tochtergesellschaft verfügt. Dies könnte passieren:

- infolge eines Abkommens mit einem Drittinvestor oder mehreren Drittinvestoren, so dass die Muttergesellschaft über 50% der Stimmrechte besitzt,

- aufgrund einer Satzung oder eines Übereinkommens mit der anderen Gesellschaft die Möglichkeit hat, die operativen und finanziellen Entscheidungen zu beeinflussen,
- wenn die Muttergesellschaft das Recht besitzt, die Mehrheit der Geschäftsführung zu ernennen bzw. entlassen oder
- wenn die Muttergesellschaft über die Mehrheit der Stimmrechte im Vorstand bzw. in der Geschäftsführung hat. (vgl. IAS 27.13a-d ff)

Daraus kann gefolgert werden, dass die Konsolidierung einer SPE oft nicht durch IAS 27 begründet werden kann. Zudem erhalten die Initiatoren nach Gesellschaftsgründung keine finanziellen, operativen oder personellen Entscheidungsbefugnisse um die Zweckgesellschaft maßgeblich beeinflussen oder kontrollieren zu können (vgl. Kustner 2004, S. 309). Denn das Eigenkapital von Zweckgesellschaften wird in der Praxis oft vornehmlich von konzernexternen Dritten zur Verfügung gestellt.

Aus diesem Grund reagierte das Standing Interpretations Committee des IASB mit der Veröffentlichung SIC 12, Konsolidierung – Zweckgesellschaften, zur Klarstellung der Konsolidierungspflicht von Zweckgesellschaften. Darin wird vor allem Stellung zur Auslegung des Control-Prinzips des IAS 27 genommen, wonach ein Beherrschungsverhältnis ausschließlich anhand der wirtschaftlichen Substanz der Beziehung zwischen dem begünstigten Unternehmen und der SPE zu beurteilen ist (vgl. SIC 12.8). Zur Fragestellung, wann eine Kontrolle auf Grundlage einer wirtschaftlichen Betrachtung vorliegt, werden in SIC 12 vier Indizien genannt (vgl. SIC 12.10a-d).

Als erster Indikator für ein Kontrollverhältnis wird die Ausrichtung der Geschäftstätigkeit einer SPE zu Gunsten einer anderen Unternehmung angesehen, wobei das Unternehmen Nutzen aus der Geschäftstätigkeit der Zweckgesellschaft zieht. Des Weiteren wird nach SIC 12 eine Gesellschaft auch durch eine andere beherrscht, wenn ein Unternehmen berechtigt ist, die Mehrheit des Nutzens aus der Tätigkeit einer SPE für sich in Anspruch zu nehmen oder wenn das kontrollierende Unternehmen durch die Einrichtung eines Autopilotenmechanismus die Entscheidungsbefugnis delegiert. Auch kann die Beherrschung einer SPE mit dem Recht begründet werden, den überwiegenden Nutzen aus der Zweckgesellschaft ziehen zu können, wodurch das Unternehmen auch den Risiken der SPE ausgesetzt ist. Letztendlich liegt die Konsolidierungspflicht einer SPE ebenso vor, wenn ein Unternehmen bei wirtschaftlicher Betrachtung die Mehrheit der mit der SPE verbundenen Residual- oder Eigentumsrisiken oder Vermögenswerten trägt. Eine solche Verbindung muss mit der Absicht gekoppelt sein, Nutzen aus den Tätigkeiten der SPE zu ziehen. Demnach stellt SIC 12 nicht nur auf die Chancen und Risiken ab, die sich aus einer Eigenkapitalbeteiligung ergeben können, sondern auch auf Fremdkapitalgeber und Dritte ohne jegliche Kapitalbeteiligung, die aus je nach zugrundeliegender Transaktion beispielsweise aus Zinsänderungs-, Währungs-, Aktienkurs- oder Immobilienkursrisiken resultieren. (vgl. Barz et al. 2002, S. 785)

Die Formulierungen des SIC 12 stellen prinzipielle Entscheidungshilfen hinsichtlich der Konsolidierung von SPE dar und können bei den Einzelfallprüfungen herangezogen werden (vgl. Schäfer & Kuhnle 2006, S. 66). Eine derartige Prüfung ist insbesondere dann erforderlich, wenn allein aufgrund der Satzung oder eines Beherrschungsvertrages noch kein kontrollierendes Unternehmen identifiziert werden kann und es folglich bei der Anwendung des SIC 12 primär auf die Verteilung der Chancen und Risiken einer SPE ankommt. Zur Beurteilung der Verteilung der bestehenden Risiken und Chancen einer SPE auf die Beteiligten, ist es notwendig sich mit den einzelnen Vertragsgestaltungen und eventueller zusätzlicher Absprа-

chen auseinander zu setzen, was in der Praxis einen hohen Anwendungskomplexität mit sich bringt (vgl. Schruff & Rothenburger 2002, S. 762 f). Hinzu kommt, dass die Chancen und Risiken nur schwer quantifizierbar sind, so dass in der Praxis die zahlreichen Faktoren diese Größen beeinflussen (vgl. Barz et al. 2002, S. 786).

Nach der Darstellung der als maßgeblich erachteten Besonderheiten der IFRS in der Kreuzfahrtindustrie folgt im nächsten Abschnitt eine Analyse der sich daraus ergebenen Problematik sowie Handlungsempfehlungen. Zur besseren Übersicht werden nach jedem Unterkapitel die wesentlichen Ergebnisse tabellarisch zusammengefasst.

4.3.5 Problematik der IFRS in der Kreuzfahrtindustrie sowie Handlungsempfehlungen

4.3.5.1 Ertragserfassung

Um festzustellen, ob aus Transaktionen generierte Umsätze als Erträge zu erfassen sind, ist die Definition nach IAS 18 heranzuziehen. Aus bilanztheoretischer Sicht könnte die Definition der POC-Methode zur Ertragserfassung von Dienstleistungen in der Kreuzfahrtindustrie ein Problemfeld darstellen. Denn nach IAS 18 ist bei Dienstleistungsgeschäften, deren Ergebnis verlässlich geschätzt werden kann, der Ertrag nach Maßgabe des Fertigstellungsgrades zu erfassen. Gemäß dem IAS 18.21 sind die Anforderungen von IAS 11 „im Allgemeinen“ auch auf die Erfassung von Erträgen und den zugehörigen Aufwendungen aus Dienstleistungsgeschäften anwendbar. Die nachfolgenden Formulierungen im IAS 18 stimmen z.T. im Wortlaut mit dem Inhalt des IAS 11 überein. Insgesamt könnte daher von einer analogen Anwendbarkeit von IAS 11 auf Dienstleistungsfälle ausgegangen werden. Die Übertragbarkeit des „Fertigstellungsgrad“-Begriffs bereitet allerdings bei Dienstleistungen besondere Schwierigkeiten, da die Kriterien des Fertigstellungsgrades bei enger Interpretation nur auf Werkverträge zutreffen. Der Unternehmer schuldet beim Werkvertrag die Fertigstellung. Beim Dienstvertrag hingegen werden resultatsunabhängig Dienste geschuldet. Somit scheint eine Anwendung der POC-Methode auf den ersten Blick wenig sinnvoll. Jedoch wurde festgestellt, dass im Rahmen einer Kreuzfahrt erwirtschaftete Erträge nach IAS 11 und damit nach der POC-Methode realisiert werden. Folglich kann hier nur bei extensiver Auslegung des Begriffes Fertigstellung von einem Fertigstellungsgrad gesprochen werden.

Nach der POC-Methode sind realisierte Erträge der Periode zuzuordnen, in der sie entstanden sind, so dass eine anteilige Ertragserfassung vor der vollständigen Erbringung der Leistung vorliegt (Konzept der Teilgewinnrealisierung). Das Pendant der POC-Methode stellt die im HGB angewendete Completed-Contract-Methode dar, welche Erträge erst zum Zeitpunkt der vollständig erbrachten Leistung, also am Ende einer Kreuzfahrt erfasst. Die vorgeschriebene Vorgehensweise der IFRS hat gegenüber der Methode des HGBs den Vorteil, dass damit genauere Ergebnisse erzielt werden können und einer wirtschaftlichen Betrachtungsweise gefolgt wird. Als problematisch ist hierbei anzusehen, dass die POC-Methode die Verfügbarkeit von zeitnahen Informationen zum Bilanzstichtag erfordert. Zu diesem Zweck sind Systeme soweit zu modifizieren, dass Informationen über die Erträge zeitnah im System erfasst werden und damit die Möglichkeit geschaffen wird, dass Umsätze zum Bilanzstichtag abrufbar sind. Wenn z.B. bei einem Kreuzfahrtunternehmen am 31. Bilanzstichtag ist und Buchungsschluss erst am 2., so müssen die Systeme in der Lage sein, innerhalb von zwei Tagen Informationen über die Umsatzerlöse bereitstellen zu können. Ferner könnten benötigte Daten zwar verfügbar sein, aber nicht im richtigen Format. Da die Anforderungen an das Datenmaterial zur Erstellung eines IFRS-Abschlusses regelmäßig höher sind als nach denen

des HGBs, was besonders für die komplexen Anhangsangaben gilt, wird der dafür erforderliche Ermittlungsaufwand häufig unterschätzt, weil die notwendigen Informationsprozesse erst geschaffen werden müssen. Die Art und Menge der benötigten Daten könnten sich erheblich von den nationalen Rechnungslegungsgrundsätzen unterscheiden, da stichtagsübergreifende Erträge höher sind als die Erträge nach dem HGB.

Weiterhin wurde gezeigt, dass der Konsolidierungskreis von Kreuzfahrtgesellschaften i.d.R. Unternehmen aus anderen Geschäftebereichen, welche vor- und nachgelagerten Aktivitäten, Hilfs- und Nebenleistungen sowie unterstützende Einrichtungen und Institutionen erbringen, einschließt. Dabei ist zu beachten, dass die aus den einzelnen Geschäftsbereichen generierten Umsatzerlöse zu unterschiedlichen Zeitpunkten als realisiert anzusehen sind. Beispielsweise gelten die von Reisebüros erzielten Provisionserlöse für die Vermittlung von Pauschalreisen bei Zahlung des Kunden, spätestens jedoch bei Abreise, als realisiert. Generieren Reiseveranstalter Umsatzerlöse aus der Veranstaltung von Pauschalreisen, sind diese vollständig bei Reiseantritt zu erfassen. Dagegen erfolgt die Realisierung von Umsatzerlösen durch Flug- oder Hotelgesellschaften oder bei Zielgebietsagenturen, die vom Kunden direkt gebucht werden, zum Zeitpunkt der Inanspruchnahme der Leistung durch den Reisenden. Ein weiteres Beispiel stellt die Leistung für Rücktrittsversicherungen einer Kreuzfahrtreise dar. Diese wird bei Vertragsabschluss erbracht und die Umsätze wären damit sofort zu erfassen. Somit ist eine notwendige Differenzierung der generierten Umsatzerlöse aus den einzelnen Geschäftsbereichen erforderlich. Aus Sicht der Konzernstruktur ergibt sich daraus zwar kein Problembereich, jedoch sollen mit diesem Aspekt die möglichen Realisationszeitpunkte der Erträge aus den verschiedenen Geschäftsbereichen gezeigt werden.

Stellt ein Kreuzfahrunternehmen zum ersten Mal seine Rechnungslegung von HGB nach IFRS um, sollten u.a. folgende Aspekte berücksichtigt werden:

Häufig ist eine Umstellung mit Ergänzungen oder Neueinführungen von IT-Systemen verbunden. Die zugrundeliegenden Hardware, Software sowie Anwendungen sollten ausreichend Funktionalität, Kapazität und Skalierbarkeit ausweisen um die Finanzabteilung zu unterstützen. Das Datenmodel auf welchem die Systeme basieren, sollte so ausgestaltet sein, dass die Notwendigkeit der Überarbeitung durch Mitarbeiter begrenzt wird. Technologien, wie das Rechnungslegungssystem XBRL, könnten nützlich sein um die Kommunikationsschwierigkeiten und die Duplikation zwischen den Systemen zu eliminieren. Weiterhin setzt eine erfolgreiche Gestaltung des Umstellungsprozesses und die spätere Bilanzierung nach den IFRS entsprechendes fachliches Know-how der Mitarbeiter voraus. Die Umstellung soll in einem vernünftigen Kosten-Nutzen-Verhältnis stehen und das Unternehmen sowie dessen Mitarbeiter nicht überfordern. Damit sind sorgfältig geplante und maßgeschneiderte Lösungsansätze Voraussetzungen für eine erfolgreiche und kostenadäquate Umstellung.

Auch wenn die Umstellung von HGB auf IFRS eines Kreuzfahrtunternehmens einige Mühe und einigen Aufwand kostet, so könnte diese sehr positive Effekte bringen. Bei der Ertragserfassung ist damit zu erwarten, dass die Gewinne nach IFRS früher ausgewiesen werden als nach HGB, was im Interesse der Anleger sein sollte.

Bereich	Ertragserfassung
Relevante Vorschriften	IAS 11 Fertigungsaufträge, IAS 18 Erträge
Mögliche Problemfelder und Handlungsempfehlung	Aus bilanztheoretischer Sicht: Problematische Definition und Anwendung des Fertigstellungsgrad auf Dienstverträge → Vorgehensweise in der Praxis: weite Auslegung des Begriffs Hoher Informationsbedarf infolge der vorgeschriebenen POC-Methode und der Komplexität der Konzernstruktur, z.B. TUI AG → Systemmodifizierungen, Neueinführung von Soft- und Hardware in Anpassung an die neuen Erfordernissen, ggf. Schulung von Mitarbeitern

Tabelle 4.11: Mögliche Problematik sowie Handlungsempfehlungen zu Erträgen (Quelle: Eigene Darstellung)

4.3.5.2 Abschreibung

Wie bereits aufgezeigt wurde, sind bei Kreuzfahrtunternehmen die komplexen Vermögenswerte Schiffe und Terminals nach dem Komponentenansatz in ihre wesentlichen Bestandteile zu zerlegen, wobei die Tiefe der Differenzierung von der Bedeutsamkeit und den Unterschieden in der Folgebewertung abhängt. Im Vergleich zu den Ansatzvorschriften des HGBs, in denen keine vergleichbare Regel existiert, können durch diese Vorgehensweise die Zustände der einzelnen Sachanlagenanteile in der Finanzberichterstattung genauer abgebildet werden, was der Primäraufgabe der nach IFRS bilanzierten Geschäftsberichts zugutekommt. Die aus Wartungsarbeiten entstandenen Ersatzkomponenten werden aktiviert und über ihre jeweilige Nutzungsdauer planmäßig abgeschrieben (unabhängig von der Gesamtkomponente). Somit liegt der Komponentenansatz auch darin begründet, dass der Aufwand von Sachanlagen nicht stoßweise, sondern auf die Nutzungsperioden verteilt entsteht, denn es sind während der Nutzung größere Wartungsarbeiten notwendig.

Bei der Abschreibung eines Schiffes könnte sich die Aufstellung des Abschreibungsplans als Herausforderung gestalten. Zur Aufstellung des Abschreibungsplans eines Vermögenswertes sind die Nutzungsdauer, der Abschreibungsbetrag und -methode zu bestimmen (vgl. Wagenhofer 2009, S. 201 f). Zur Ermittlung des abschreibungsfähigen Betrages eines Vermögenswertes sind daher Kenntnisse über die Höhe des Restwertes erforderlich. Änderungen des geschätzten Restwertes haben Auswirkungen auf den Abschreibungsbetrag und belasten somit die GuV über die verbleibende Nutzungsdauer des Vermögenswertes. In der Schifffahrtsindustrie werden für Schiffe die Abbruchwerte bzw. Restbuchwerte auf etwa 15% der ursprünglichen Kosten geschätzt. Jedoch ist diese Methode zur Bewertung der Restbuchwerte allerdings aufgrund des Ermessenspielraums nach den IFRS nicht zulässig. Kreuzfahrtunternehmen haben stattdessen für Schiffsrestwerte bzw. die Kalkulation von Abschreibungsbeträgen veröffentlichte Abbruchwerte des aktiven Abbruchmarkts zugrunde zu legen und an jedem Bilanzstichtag neu zu bewerten. Steigt beispielsweise der Wert des aktiven Abbruchmarktes unter gewissen Umständen auf einen Wert, der den Restbuchwert des Vermögenswertes übersteigt, so ist eine Abschreibung zu unterlassen. Abgeschrieben wird der

Vermögenswert wieder, wenn die geänderte Schätzung des Restwertes anschließend unter dem Restbuchwert des Vermögenswertes fällt. Künftig werden infolge verschärfter Sicherheits- und Umweltvorschriften fallende Abbruchpreise erwartet (vgl. PWC 2005, S. 9 f). In diesem Zusammenhang könnten sich die Bilanzierungsvorschriften der IFRS als nachteilig erweisen, da derartige Entwicklungen bei der Bestimmung von den Restwerten vernachlässigt werden und unter solchen Umständen die Schiffsrestwerte zu hoch angesetzt werden.

Bei der erstmaligen Anwendung der IFRS besteht das Problem der mangelnden Verfügbarkeit an Informationen über die Kosten der verschiedenen Komponenten am Tag der Umstellung, wenn der Gegenstand der Sachanlage als Ganzes erworben und nicht selbst hergestellt wurde. Die geschätzten zukünftigen Kosten für den Ersatz einer Komponente könnten als ein Indikator für die Komponentenkosten bei der Akquise herangezogen werden, weil der Vermögenswert ursprünglich erworben wurde. Allerdings ist diese Basis nicht angemessen um die Kosten der unterschiedlichen Komponenten in einem neu-akquirierten Gegenstand des Sachanlagevermögens zu identifizieren. Ein weiteres Problem bei der Berechnung des Nettoveräußerungswertes zur Ermittlung von Wertminderungen bei große Schiffen und Terminals ist, dass diese schwer zu liquidieren sind. Marktpreise könnten nicht verfügbar sein, insbesondere in Zeiten von Überkapazitäten.

Weiterhin ist festzustellen, dass die Umstellung von den nationalen Vorschriften auf die der IFRS einen hohen Aufwand mit sich bringt: So steigt zum Einen mit dem Komponentenansatz die Komplexität des Sachanlagenvermögens und der damit verbundene Kalkulationsaufwand und zum anderen haben Kreuzfahrtunternehmen regelmäßig zu beurteilen, ob Indikatoren für Impairment-Tests vorliegen. Daher sollten Kreuzfahrtunternehmen vermehrt Bewertungsexperten beauftragen um die beizulegenden Zeitwerte korrekt schätzen zu können. Das Erwerben von Schiffen durch Leasingverträge oder Lease-and-Lease-Back-Verträge würden diese Problematik natürlich umgehen. Durch Ausgestaltung eines Operate-Lease hat der Leasingnehmer das Leasingobjekt nicht in der Bilanz zu aktivieren, wodurch auch die angesprochenen Ansatzpflichten dem Kreuzfahrtunternehmen erspart bleiben. In der Praxis könnten jedoch wahrscheinlich andere ökonomische Gründe gegen die Inanspruchnahme derartiger Verträge sprechen, da beispielsweise die Summe der Mietaufwendungen den Erwerbspreis des Schiffes bei Weitem übersteigt.

Bereich	Abschreibung
Relevante Vorschriften	IAS 16 Sachanlagen, IAS 36 Wertminderung bei Vermögenswerte
Mögliche Problemfelder und Handlungsempfehlung	Die für die Abschreibungspläne notwendigen Restwerte für Schiffe richten sich nach den Werten am aktuellen aktiven Markt für Abbruchwerte, welche künftige Entwicklungen nicht berücksichtigen. Liegen Überkapazitäten in Verbindung mit einer gesunkenen Nachfrage als Indikator für eine Wertminderung eines Schiffes vor, könnte ein Marktpreis zur Bestimmung des Nettoveräußerungserlöses nicht verfügbar sein. → Der beizulegende Zeitwert des Schiffes ist durch einen Gutachter zu schätzen. Bei erstmaliger Umstellung auf IFRS könnten Probleme bei der Be-

	wertung einzelner Schiffkomponenten auftreten, wenn das Schiff als Ganzes erworben und nicht selbst erstellt wurde. → Wiederbeschaffungs- oder Ersatzkosten könnten als Richtwerte zur Schätzung dieser Komponenten dienen, sind aber i.d.R. ungeeignet, da die Schiffskomponenten bereits teilweise abgenutzt sind. Daher empfiehlt es sich von einem Sachverständigen den Vermögenswert begutachten zu lassen.

Tabelle 4.12: Mögliche Problematik sowie Handlungsempfehlungen zu Abschreibungen (Quelle: Eigene Darstellung)

4.3.5.3 Rückstellungen

Bei der Bewertung von Rückstellungen in der Kreuzfahrtindustrie ergeben sich keine Besonderheiten. Rückstellungen nach IAS 37 erfordern eine Außenverpflichtung, denen sich sowohl Kreuzfahrtunternehmen als auch z.B. die Automobilindustrie nicht entziehen können.

Allerdings konnte festgestellt werden, dass nur Verpflichtungen, die unabhängig von der künftigen Geschäftstätigkeit eines Unternehmens entstehen, rückstellungsfähig sind. Weiterhin formuliert der IAS 37.10 folgende Anforderungen für das Vorliegen einer faktischen Verpflichtung:

Das Unternehmen hat durch sein bisher übliches Geschäftsgebaren, öffentlich angekündigte Maßnahmen oder eine ausreichend spezifische, aktuelle Aussage anderen Parteien gegenüber die Übernahme gewisser Verpflichtungen angedeutet (…) und dadurch bei den anderen Parteien eine gerechtfertigte Erwartung geweckt, dass es diesen Verpflichtungen nachkommt. (vgl. IAS 37.10)

Diese Definitionsmerkmale sind unscharf und machen die Passivierung häufig zu einer Ermessensentscheidung. So fordert die Definition der faktischen Verpflichtung einen Vergangenheitsbezug. Kritisch ist aber anzumerken, dass faktische Verpflichtungen bei Einstellung oder grundlegender Änderung der Geschäftstätigkeit gegenstandslos werden und damit der geforderte Vergangenheitsbezug nicht gegeben ist. Problematisch an der Bilanzierung von Rückstellungen könnte auch die Grenzziehung zwischen „Innenverpflichtungen“ (im Handelsrecht auch als Aufwandsrückstellungen bezeichnet) und der passivierenden faktischen Außenverpflichtungen sein. Denn Aufwendungen für faktische Verpflichtungen (z.B. Wahrung von Image, Marke usw.) könnten unter Opportunitätskostengesichtspunkten ökonomisch sinnvoll sein. Demgegenüber könnte aber auch z.B. die alsbaldige Reparatur eines kurz vor bilanzstichtag undicht gewordenen Dachs (welche eine Aufwandsrückstellung ist) sinnvoll sein. Folglich fehlt es an theoretisch schlüssigen Begründungen zur Passivierung der faktischen Verpflichtung und Nichtpassivierung der Aufwandsrückstellung. Angesichts solcher Widersprüche sollte sich die Praxis weniger auf die problematische Definition in IAS 37 als auf die im Standard selbst und seinem Appendix enthaltenen Beispielen konzentrieren. (vgl. Lüdenbach 2005, S. 217 f)

Ferner sind bei der Bewertung von Rückstellungen nach IFRS diverse Eigenheiten zu beachten. Beispielhaft zu nennen ist die Berücksichtigung von Risiken und Unsicherheiten. Grund-

sätzlich ist dabei eine vorsichtige Bewertung anhand sämtlicher relevanter Faktoren zu empfehlen. Allerdings sollte diese nicht zu einer Überbewertung von Rückstellungen und Schulden führen, da stille Reserve durch Bildung zu hoher Rückstellungen nicht nach IFRS angelegt werden dürfen. Weiterhin ist bei der Identifizierung von verpflichtenden Ereignissen besondere Sorgfalt erforderlich. So könnten Fälle existieren, in denen unklar ist, ob eine gegenwärtige Verpflichtung existiert und damit Streit über Fragen entstehen, ob bestimmte Ereignisse eingetreten sind oder diese aus einer gegenwärtigen Verpflichtung resultieren. In diesem Fall sollte ein Unternehmen unter Berücksichtigung aller verfügbaren substanziellen Hinweise bestimmen, ob zum Bilanzstichtag eine gegenwärtige Verpflichtung besteht. Dabei könnten Einschätzungen des Managements, Erfahrungswerte aus ähnlichen Transaktionen sowie gelegentlich auch Meinungen von unabhängigen Sachgutachtern zur Problemlösung herangezogen werden.

Stellt nun ein Kreuzfahrtunternehmen seine Rechnungslegung von HGB nach IFRS um, sind Geschäftsvorfälle und Sachverhalte, für die nach dem HGB Rückstellungen gebildet worden sind, grundsätzlich neu zu bewerten. Regelmäßig kommt es im Rahmen der Umstellung zu Veränderungen im Ausweis und in der Struktur der Verpflichtungen sowie auch zu signifikanten Wertänderungen der Rückstellungen. In diesem Bereich lässt sich grundsätzlich feststellen, dass das HGB eine vorsichtigere Bilanzierung und somit eine höhere wertmäßige Dotierung der Rückstellung erlaubt. So müssen die nach HGB angesetzten Rückstellungen darauf hin untersucht werden, ob ihnen tatsächlich eine Außenverpflichtung zugrunde liegt. Ist dies nicht der Fall, sind diese Rückstellungen aufzulösen mit der Konsequenz, dass die Höhe der Rückstellungen, ebenso wie der verrechnete Aufwand abnimmt. Dagegen müsste das Periodenergebnis steigen, sofern es sich um eine in der Periode der Umstellung neu gebildete Rückstellung handelt. Gleichzeitig müssten sich die passiven latenten Steuern für die Steuerbilanz erhöhen. Damit ergibt sich bei einem Vergleich der Rechnungslegungsstandards, dass die Unternehmen im Rahmen ihrer HGB-Bilanzierung mehr Rückstellungen ansetzen und grundsätzlich eine höhere Bewertung vornehmen, als dies nach der Umstellung auf IFRS der Fall ist. So landen viele Sachverhalte, für die vorher eine Rückstellung gebildet wurde, nach Durchlaufen der Klassifizierung im Anhang oder werden ohne Berücksichtigung aufgelöst. Sämtliche Bewertungsunterschiede durch IFRS werden im Rahmen der Umstellung mit den Gewinnrücklagen verrechnet. Nicht unerwähnt bleiben sollte an dieser Stelle noch, dass die IFRS teilweise eine Umgruppierung verlangen. Beispiel dafür ist die Urlaubsrückstellung, die im HGB als Rückstellungen, nach IFRS aber als accruals zu behandeln ist und damit zwischen Verbindlichkeit und Rückstellung im IFRS steht. Einen zusätzlichen Vorteil hinsichtlich der Transparenz für den außen stehenden Betrachter ermöglichen die IFRS dadurch, dass sie eine Aufteilung der Rückstellungen wie auch der Verbindlichkeiten in kurz- (Laufzeit < 12 Monate) und langfristig (Laufzeit > 12 Monate) vorsehen. Hier ist anzumerken, dass sich diese Umstellungseffekte im Zeitablauf umdrehen werden.

Tendenziell ist zu erwarten, dass insbesondere wegen der fehlenden expliziten Ansatzwahlrechte bei Rückstellungen die Erfolgsziffern nach IFRS stärker schwanken als solche nach HGB und somit die Performance des Managements besser gezeigt werden könnte.

Bereich	Rückstellungen
Relevante Vorschriften	IAS 37 Rückstellungen
Mögliche Problemfelder und Handlungsempfehlung	Hoher Aufwand bei der Prüfung der Ansatzkriterien bei Umstellung von HGB nach IFRS, da Letztere keine Aufwandrückstellungen zulassen und nach Fristigkeit differenzieren Grenzziehung zwischen nicht IFRS-konformen Innenverpflichtungen und gebotener faktischer Außenverpflichtung → Bilanzierung nach den Beispielen im Standard und im Appendix Rückstellungen sind ihrer Definition nach risikobehaftet und unsicher → Vorsichtige Bewertung und Berücksichtigung aller verfügbaren substantiellen Hinweise

Tabelle 4.13: Mögliche Problematik sowie Handlungsempfehlungen zu Rückstellungen (Quelle: Eigene Darstellung)

4.3.5.4 Zweckgesellschaften

Mit der Perspektive ihre Verschuldungsquote und die sich daraus ergebenen Kapitalkosten zu verringern, gründen Unternehmen der Kreuzfahrtindustrie oft Leasing-Zweckgesellschaften. Zur Prüfung, ob eine Leasinggesellschaft in den Konzernabschluss eines Kreuzfahrtunternehmens zu konsolidieren ist, sind die Vorschriften des IAS 27 und SIC 12 zu beachten.

Während die mit der Bilanzierung betrauten Entscheidungsträger meist ein sehr feines Gespür dafür haben, ob ihr Unternehmen eine SPE effektiv kontrolliert, dürfte die praktische Anwendung von SIC 12 aus der Sicht von Wirtschaftsprüfern oftmals schwierig sein. (vgl. Schultz 2001, S. 716 f)

Das Kriterium „Ausrichtung auf das Interesse eines Unternehmens“ leitet zwar eine Kontrolle aus dem besonders engen wirtschaftlichen Verhältnis zwischen SPE und Initiator ab, jedoch dürfte es insbesondere für externe Dritte schwierig sein zu beurteilen, in welchen Situationen die Ausrichtung ausreichend intensiv ist, dass eine Konsolidierung legitim wird. Außerdem sind auch die SPEs vielfach auf die Interessen mehrerer Unternehmen ausgerichtet.

Bei Betrachtung des Kriteriums „der beherrschenden Einflussnahme zur Aneignung der Mehrheit des Nutzens“ fällt auf, dass auch dieses nur einen Teil der denkbaren Konstellationen abdeckt. Denn eine faktische Kontrolle, die Möglichkeit Beherrschung zu erlangen sowie die Delegation der Entscheidungsmacht an einen Autopiloten sind bis auf wenige Fälle selten auf den hauptsächlichen Nutznießer konzentriert. Weiterhin muss die Entscheidungsmacht des hauptsächlichen Nutznießers eingeschränkt werden, damit sich Kapitalgeber für die SPE finden. Die Anwendung der Kriterien „Anrecht auf Mehrheit des Nutzens“ und „Tragen der Mehrheit“ ist insbesondere dann schwierig, wenn eine SPE keine eindeutigen quantifizierba-

ren Vorteile generiert, die einer bestimmten Partei zugeordnet werden können, keine Ausschüttung von Gewinnen oder eines sonstigen Nutzens vornimmt, wenn Risiken entweder nicht eindeutig identifizierbar und quantifizierbar sind oder so weitgehend diversifiziert wurden, dass dadurch kein primärer Träger von Risiken erkennbar ist bzw. nicht existiert. Trotz dieser Schwächen sind die Kriterien des SIC 12 insgesamt positiv zu bewerten, da die Erweiterung Control-Begriffs zur Ausweitung des Kreises der konsolidierungspflichtigen SPEs geführt haben dürfte. Damit wird wesentlich zu einem vollständigen Konzernabschluss beigetragen.

Oft gelingt es Kreuzfahrtunternehmen jedoch die SPEs so zu gestalten, dass die formalen Kriterien für die Einbeziehung einer SPE in den Konzernabschluss nicht erfüllt sind und bleiben dem Leser des Konzernabschlusses häufig verborgen, obwohl das bilanzierende Unternehmen wirtschaftliche Chancen und Risiken trägt, die sich aus der SPE ergeben. Die der SPE übertragenen Vermögenswerte und Schulden sowie sonstige ihr innewohnenden Gewinn- und Verlustpotentiale werden außerhalb der Konzernbilanz gehalten und infolgedessen nicht im Konzernabschluss ausgewiesen. Der Konzernabschluss ist entsprechend unvollständig und die zentrale Funktion der Finanzberichterstattung, relevante Informationen für Investitionsentscheidungen bereitzustellen, wird gefährdet.

Die Unterscheidung zwischen konsolidierungspflichtigen und nicht konsolidierungspflichtigen SPEs ist jedoch schwierig: Aus bilanztheoretischer Sicht geht es um nichts anderes als die Frage, wie die Einheit zu definieren ist, die durch den konsolidierten Abschluss abgebildet werden soll. Aus praktischer Sicht stellt sich die Frage, wie trotz unbegrenzter Gestaltungsmöglichkeiten Regeln zu definieren sind, welche die Möglichkeiten für nur im Blick auf deren - positive - Auswirkungen am Kapitalmarkt motivierte Gestaltungen des Sachverhalts minimieren.

Bereich	Zweckgesellschaften
Relevante Vorschriften	IAS 27 Konzern- und Einzelabschlüsse nach IFRS, SIC 12 Konsolidierung - Zweckgesellschaften
Mögliche Problemfelder und Handlungsempfehlung	Aus bilanztheoretischer Sicht bestehen klare anwendbare Konsolidierungskriterien; in der Praxis könnten Zweckgesellschaften trotzdem derart ausgestaltet sein, dass keine Konsolidierungspflicht vorliegt, indem die Risiken und Chancen an mehrere Gesellschaften verteilt werden → Konsultierung von Experten; bei Vermutung von verborgenen Zweckgesellschaften mit erhöhtem Verschuldungsgrad und schlechterer Bonität rechnen

Tabelle 4.14: Mögliche Problematik sowie Handlungsempfehlungen zu Zweckgesellschaften (Quelle: Eigene Darstellung)

4.4 Fazit, Limitationen & Ausblick

Das Ziel dieser Arbeit bestand zunächst darin, die Rollen der Ertragserfassung, der Abschreibung, der Rückstellung sowie der Zweckgesellschaften nach den IFRS in der Kreuzfahrtin-

dustrie zu thematisieren. Nachdem die Besonderheiten dieser Aspekte festgestellt wurden, folgte eine Ausarbeitung der damit verbundenen Problembereiche und im Anschluss wurden Handlungsempfehlungen zu dessen Bewältigung abgeleitet. Im Folgenden erfolgt eine Zusammenfassung der Ergebnisse dieser Arbeit.

Zunächst wurde die geschichtliche Entwicklung vorgestellt und darauf folgend konnte festgestellt werden, dass das Kreuzfahrtgeschäft sich immer stärker an andere Tourismusbranchen annäherte und somit zu einer Kreuzfahrtindustrie heranwuchs. Anhand der Ziele der IFRS wurde herausgearbeitet, dass die IFRS für Kreuzfahrtunternehmen ein wichtiges Mittel darstellen, um potentielle Eigen- und Fremdkapitalgeber für sich zu gewinnen und/oder bestehende Kapitalgeber mit entscheidungsnützlichen Informationen zu versorgen.

Ferner wurde aufgezeigt, dass die aus Kreuzfahrtreisen generierte Umsätze Erträge aus der Erbringung einer Dienstleistung im Sinne des IAS 18 darstellen. Demnach sind diese Erträge nach Maßgabe des Fertigstellungsgrades, sprich in den Berichtsperioden zu erfassen, in denen die jeweiligen Dienstleistungen erbracht werden. Zusätzlich muss die Höhe der Erträge verlässlich geschätzt werden. Diese Vorgehensweise entspricht damit der im IAS 11 enthaltenen POC-Methode zur Erfassung von Erträgen aus Fertigungsaufträgen. Dies führte dazu, dass durch Kreuzfahrten realisierte Erträge den Perioden zuzuordnen sind, in denen sie entstanden sind. Damit liegt eine anteilige Ertragserfassung vor der vollständigen Erbringung der Leistung vor. Aus bilanztheoretischer Sicht ist der Begriff „Fertigstellungsgrad“ bei genauerer Auslegung nur auf Werk- und nicht auf Dienstleistungsverträge anwendbar, da nur beim Ersten eine Fertigstellung geschuldet wird. Daraus wurde schlussgefolgert, dass in der Praxis der Kreuzfahrtindustrie die Definition der Fertigstellung weit ausgelegt wird. Des Weiteren wurde gezeigt, dass Kreuzfahrtunternehmen häufig in einem Konzern eingebunden sind, der noch andere Geschäftsbereiche enthält. Dessen Erträge werden zwar weiterhin nach der POC-Methode ausgewiesen, jedoch gelten aufgrund der Eigenart der jeweiligen Geschäftsbereiche die Leistungen zu unterschiedlichen Zeitpunkten als erbracht. Dies hat zur Folge, dass die Erträge aus unterschiedlichen Quellen anders zu behandeln sind und dass stets eine genauere Differenzierung bei der Bilanzierung von Erträgen notwendig ist. Darüber hinaus konnte festgestellt werden, dass die nach den IFRS anzuwendende POC-Methode nach dem HGB nicht zulässig ist. Für ein Kreuzfahrtunternehmen erfordert die Bilanzierung nach IFRS vergleichsweise einen höheren und aktuelleren Informationsstand über die realisierten Erträge als nach dem HGB. Bei einer Umstellung auf IFRS empfiehlt es sich daher, die IT-Systeme im Vorfeld zu prüfen, ob diese den neuen Anforderungen genügen und ggf. aktualisiert werden müssen.

In der Kreuzfahrtindustrie verzeichnen die Unternehmen als bedeutsamste Sachanlagen Schiffe, Terminals sowie andere unbewegliche Vermögenswerte. Die Folgebewertung von Sachanlagen wird durch IAS 16 geregelt, in dem der Komponentenansatz hervorzuheben ist. Dieser schreibt die Zerlegung einer Sachanlage in seine wesentlichen Komponenten vor, die einzeln abzuschreiben sind. Wertminderungen sind außerplanmäßige Abschreibungen, die die negativen Auswirkungen des volatilen Marktes in der GuV abbilden sollen. Ob eine Wertminderung vorliegt, wird gemäß IAS 36 mit Hilfe des Impairment Test festgestellt. Bei der Aufstellung des Abschreibungsplans eines Schiffes ist der abschreibungsfähige Betrag zu ermitteln. Dazu ist eine Schätzung des künftigen Abbruchwertes am Ende seiner Nutzungsdauer erforderlich. Nach den Vorschriften der IFRS ist hierfür der Preis am aktuellen Abbruchmarkt anzusetzen. Nicht berücksichtigt wird jedoch, dass schärfere Sicherheits- und

Umweltvorschriften zu erwarten sind und daher die Abbruchwerte von Schiffen sinken werden. Folglich besteht die Gefahr, dass Abbruchwerte zu hoch angesetzt werden.

Bei einer Umstellung auf IFRS sind auch die vorhandenen bedeutsamen Bestandteile von Vermögenswerten nach dem Komponentensatz einzeln abzuschreiben. Die Bewertung dieser Komponenten kann sich problematisch erweisen, wenn das Schiff als Ganzes erworben wurde. Es empfiehlt sich Sachverständige in die Bewertung einzuschließen und nicht lediglich die Ersatzkosten für die Komponenten bei der Bewertung anzusetzen.

Die Grundsätze der Rückstellungen sind im IAS 37 geregelt. Rückstellungen nach IFRS stellen für die Kreuzfahrtindustrie einen relevanten Bilanzposten dar. So konnte ermittelt werden, dass Rückstellungen für regelmäßige Wartung nach IFRS ohne Verpflichtung nicht gebildet werden dürfen. Es wurde gezeigt, dass bei der Identifizierung von verpflichtenden Ereignissen besondere Sorgfalt erforderlich ist. Ferner hängt die Schätzung zur Bewertung einer Rückstellung von der Einschätzung des Managements, Erfahrungen aus ähnlichen Transaktionen und Meinungen von Sachverständigen ab. Dabei gilt es alle zugrunde liegenden substanziellen Hinweise zu berücksichtigen.

Kreuzfahrtunternehmen könnten Leasing-Zweckgesellschaften gründen mit dem Ziel Verbindlichkeiten aus ihrer Bilanz nicht ausweisen zu müssen. Dabei konnte herausgearbeitet werden, dass Zweckgesellschaften einen Vermögenswert selbst herstellen und anschließend mit dem Kreuzfahrtunternehmen ein Leasingvertrag abschließen. Eine weitere Möglichkeit besteht darin, dass die Zweckgesellschaft sich den Vermögenswert mittels eines Leasingverhältnisses von einem Dritten aneignen könnte, um das Leasingobjekt anschließend an das Kreuzfahrtunternehmen mittels eines neuen Leasingvertrages zu überlassen. Letztendlich besteht noch das Konstrukt einer Sale-and-Lease-Back-Vereinbarung, bei dem das Kreuzfahrtunternehmen einen Vermögenswert an die Zweckgesellschaft verkauft. Im Anschluss erlangt das Kreuzfahrtunternehmen das wirtschaftliche Eigentum an der Sachanlage, indem es mit dem Leasinggeber einen Leasingvertrag eingeht. Wichtig ist hierbei, dass stets die Leasingverträge als Operate-Lease ausgestaltet werden. Obwohl die Kriterien des IAS 27 in Verbindung mit SIC 12 dazu beitragen, dass viele Zweckgesellschaften in den Konzernabschluss des kontrollierenden Unternehmens konsolidiert werden, so könnten sich immer noch viele Kreuzfahrtunternehmen dieser Konsolidierungspflicht bei entsprechender Gestaltung der Zweckgesellschaft entziehen. Dazu wurde die Empfehlung, einen Experten bei der Betrachtung von Leasingverträgen heranzuziehen und ggf. von einem höheren Verschuldungsgrad auszugehen als der in der Finanzberichterstattung, abgegeben.

Die Bearbeitung der Thematik IFRS in der Kreuzfahrt: Problematik der Ertragserfassung, Abschreibung, Rückstellung und Zweckgesellschaften wurde insoweit erschwert, dass es sich bei den IFRS um nicht branchenspezifische Vorschriften handelt, so dass deren Auslegung nicht immer eindeutig ist. Zum anderen sind in den Standards und Interpretationen kaum Beispiele mit Bezügen auf die Kreuzfahrtindustrie vorzufinden. Hinzu kommt, dass sich nur wenige Autoren mit dieser Thematik beschäftigt haben, so dass aus der Sicht der Bilanztheorie die behandelte Thematik ein weitgehend unerforschtes Gebiet darstellt. Begründet kann dieses z.T. damit, dass Praktiker zur Wahrung ihrer Wettbewerbsvorteile ihre gängigen Methoden und Verfahren nicht offen legen.

Die vorliegende Arbeit bezog sich in ihrer Ausführung u.a. auf die Auswirkungen, die sich aus der Umstellung auf die IFRS ergeben würden. Dabei wurden als Vergleichsgrundlage stets

die Vorschriften nach dem HGB herangezogen. Da die größten Märkte der Kreuzfahrtindustrie sich im nord-amerikanischen Raum befinden, wäre es von Interesse diese Arbeit mit einem Vergleich der US-GAAP und IFRS bezogen auf die Kreuzfahrtindustrie fortzuführen.

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5 Exploring the IT-enabled Optimisation Potential of Cruise Excursions

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The management of an efficient and effective information flow on cruise ships is essential for the success of a cruise vacation. The more complex the offered cruise product gets and the more extensive the on-board content becomes the more difficult it is to provide the individual customer with the demanded information. In addition, the high amount of cruise content elements is distributed by many different sources through various channels. This cruise content complexity hampers the guests' simple and straightforward usage. Interviews with cruise passengers have been conducted in order to identify the factors influencing the customers' engagement with the information provided on board. From the findings a qualitative model has been derived that illustrates the critical factors. The model is created in order to give implications on how to facilitate the flow of information by delivering conditions to improve the cruise content usefulness and ease of use to the individual guest.

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5.1 General characteristics of cruise-excursions

Cruise-Excursions in nature contradict the concept of a tourism bubble or a touristic eigenwelt, as referred to by Knebel (1960). Excursionists come from the safe cocoon of the ship into a far more uncontrollable and ambiguous environment. The efforts of cruise companies have been concentrated to enlarge the microenvironment artificially by providing guided tours executed by contracted Incoming Agencies and intensive customer service in the port of call. The need for control also manifests itself in the increasing number of private Islands in the Caribbean.

Recent studies have shown that the economic impact of cruise ships on the local economy is marginal (Jaakson 2004). This pattern can also be observed in the matter of social interaction (Jaakson 2004, Henthorpe 2000). Excursionists have also a marginal encounter with the macro environment of a cruise-ship, the destination itself. As a main reason for this limited interaction Jaakson states the unfamiliarity of a new urban environment and the unease or fear that it may cause (Jaakson 2004). Unfamiliarity is defined as the condition of being uninformed and unaware (Oxford University Press 2008), concluding that the provision of a certain amount of information will lead to an extension in the comfort-zone. Jaakson's finding that tourists are only willing to delocalize themselves 200 Meter from the beachfront suggests a condition of spatial proximity that limits the overall information reach (Jaakson 2004). As mentioned before the cruise bubble is artificially created to cater the needs of cruise companies, enabling them to control the service or destination encounters.

Teye and Leclerc found in their exploratory study, which examined the satisfaction of cruise products and services, that the worst scoring component is shore excursions (Teye & Leclerc 1998). Contradicting these finding Lloyd, Thyne & Henry report a high degree of satisfaction among cruise passengers (Teye & Leclerc 1998). These contradicting findings can partially be explained with the quality of the guide as suggested by Ham & Weiler (2002). Excursionists on guided tours are not exposed to an uncontrollable environment. On the other side people who undertake their individual tour are exposed to an overload of new information and ambiguity e.g. a foreign language and limited local knowledge.

Whereas Dahl's findings suggest that passengers want to stay onboard and therefore want to stay in their comfort zone (Dahl 1995), recent studies show the growing need for an independent exploration amongst cruise passengers (Lloyd, Thyne & Henry 2009). Due to the fact that a cruise is a holistic experience the cruise companies must bridge the gap between the contrary approaches of a guided tour and an individual tour by providing tools to reduce the information overload and produce clarity and most importantly stay in control.

5.2 First implications of product design requirements for IT-enabled cruise excursions

Information technologies have to imitate some of the characteristics of a classic excursion. Since the tour guide is the critical satisfaction factor of an excursion (Ap & Wong 2000, Lloyd, Thyne & Henry 2009), IT-enabled excursions must not only substitute the functions of a tour guide as information provider but also have to imitate the tour guide's behaviour and skills. McKean and de Kad define a tour guide as a "culture broker" or "mediator" interpreting the available information (McKean 1978).

Instead of just providing raw information, IT-excursion solutions must be able to make recommendations in regard to preset tours and sights as well as providing comprehensive data according to the excursionist's preferences. A tour guide is often considered as the element of an excursion that has the ability to provide a certain degree of customization. He is most probably answering questions when being asked by the participants of the tours. Due to the respectively high number of participants the degree of customization seems limited. If one person wants to stay longer at a particular sight the rest of the group is also obliged to stay. By adopting dynamic tour planning this disadvantage can be offset with regard to e-excursions. Dynamic tour planning allows the user/customer to stay longer at particular POI and cuts out another POI with a lower priority. Due to the fact that an excursion is produced and consumed at the same time, responsiveness and dynamic customization are a crucial element of customer satisfaction. Information systems must be able to fulfil these criteria.

Another component that has to be replicated is the verbal communication with the excursionist. Therefore a certain proportion of audio content has to be implemented into an e-excursion.

5.3 Supplier landscape

The following part is supposed to give the reader an overview of existing mobile IT devices and systems used for tourism purposes, some in experimental and some in commercially ready stages. Beginning with early projects towards this direction, CRUMPET, a project about how such a system could function and how data providers could be organized and their content exploited in the most effective way are reviewed. Furthermore a portable guiding system and a conducted field trial by the University of Applied Science Zittau/Görlitz in Görlitz in August 2006 and its results will be mentioned, followed by a market overview of current commercially available systems and an outlook of emerging augmented reality technology.

5.3.1 Cyberguide

The first project using a mobile device to obtain information about a person's surrounding area was the Cyberguide project of Georgia Tech which was conducted from July 1995 until August 1997, utilizing Apples early PDA Newton. The user was able to request a route or information about a desired point of interest. Since PDAs at that time were in an early stage of development the possibilities of the system were very limited (Long et al 1996).

5.3.2 CRUMPET

In the new millennium, a project about how systems for mobile it-devices could cater to travellers needs was CRUMPET. The European IST Project aimed at "Creation of User-friendly Mobile Services Personalized for Tourism". Key features of the system are as follows, (1) making use of personal interests, where the system learns over time the users habits. (2) Making use of the user's current position, through GPS and Service mediation. The system is realized as a multi agent system, where middle agents can provide support features, further the system may exploit several content providers for one request (CRUMPET). A user validation of the system with 88 test users had been conducted in 2003 in Heidelberg and Helsinki. As test devices IPaq PDAs were used. Concluding that more than 75% of the users saw an added value of such a system and that 64% would be willing to pay for the content, the study gave a rather positive outlook (Schmid & Poslad 2003).

5.3.3 Dynamic Tour Guide

Deriving from the former mentioned projects, as part of the FHTW Berlins IKAROS project is the Dynamic Tour Guide of the University of Applied Science Zittau/Görlitz in Görlitz. The DTG system is comprised of basically a mobile device, attractions and a DTG server. The mobile device can be a PDA, or smart phone equipped with GPS and an Internet connection. The attractions of a destination are modelled with an authoring tool, in order to make relevant data accessible through web services. A centralized server is in charge of the tour requests.

First all attractions in the users proximity are determined, then they are judged according to the users preferences by a semantic match algorithm and at last the highest scoring attractions are included into the tour. At this point a major difference of the DTG system architecture to the CRUMPET system can be mentioned, which is the centralized DTG server. As mentioned before CRUMPET was conceptualized as a multi agent system with various independent data providers. What distinguishes the DTG from today's commercial systems is its ability to create the tour according to the users' preferences. This is achieved by the semantic match algorithm. Each attraction is categorized into following categories, Buildings, Nature, History, Art & Culture and Science & Technology. Each category is furthermore subdivided into more specific categories, which is for example the precise architectural style of an attraction. In the beginning the user has to choose his fields of interest from the different categories and their subdivisions, then the system is able to find out the closest matches to the users preferences.

In August 2006 a field trial of their Dynamic Tour Guide was conducted in Görlitz. The trial design was parted in 3 approaches. (1) The explorer mode, where the DTG worked as a pull system that showed the user his location on a map and information about objects within a distance of 100 meter. (2) The second was the planner mode where the DTG emulated a personal tour guide considering users preferences, a tour was set up on the basis of these and a before specified starting and ending point as well as the duration of the tour. (3) The third group was only equipped with stand alone GPS loggers. A total of 421 people participated in the field trial. The results were very positive as it is stated that the utility for the explorer and planner mode was on par with traditional guided tours. Whereas both former mentioned groups had an average tour duration of about 1.5 hours, the loggers took about 4 hours. In these 1.5 hours the people using the mobile recommenders saw around 4 times as much as the loggers in their 4 hour tour. Concluding that from a destination management point of view a mobile information system makes the destination look 4 times richer and diverse (Modsching, Kramer, ten Hagen & Gretzel 2007).

However minor technical issues are still to be solved, in the Reisemagazin issue 09/2008 ten Hagen states that GPS signals tended to not reach in between narrow streets, or they were reflected by the walls which lead to wrong signals and for example demanded users to turn into a direction where in fact was a wall. The former mentioned problems are amplified by bad weather conditions like a clouded sky. As also stated by ten Hagen these problems shall be of minor significance when the European Galileo navigational system is launched, which adds a significant amount of satellite signals that can be utilized. In the same issue the director of the Berlin based Cruso GmbH, offering an electronic tour guide for rent, says that they managed to construct a GPS antenna that is capable to catch signals in narrow streets as well as under wet leafs (Jörg-Brosche 2008).

5.4 Market overview

Since the DTG field trials a number of commercial providers entered the German speaking market. The before mentioned Cruso GmbH is one of them, providing a rental service for several cities like Berlin, Munich and others (Mycruso 2010). The first product that is sold directly to the end customer is the Merian Scout. It comes with the full spectrum of ordinary navigational features plus detailed information for typical tourist activities like sightseeing, dinning and shopping, in written, visual and audio format. The system comes, depending on the bundle, with data of German, Austrian and Suisse cities. Further packages for other destinations can be purchased separately.

Merian also offers electronic travel guides for several other devices like ordinary navigational systems, or through Apples app store for the IPhone and IPod touch (Merian 2010).

5.5 Augmented reality

As an upcoming technology augmented reality systems are most likely to have a huge impact in terms of IT systems usable for tourism purposes. Existing a.r. software like the Layar a.r. browser is designed for smart phones equipped with a camera, GPS and a compass. Using these features the a.r. browser shows available information about objects aimed at with the phone's camera on its display (Augmented Reality - Layar Reality Browser – Homepage 2010).

The next step of this technology will be the integration in comfortable glasses, to enable the user to get constantly data about his surrounding empty handed. One of the projects is iS-TAR from the Fraunhofer IPMS (Fraunhofer IOSB 2010).

5.6 The tour guide's role & the DTG: A comparative analysis conclusion

In his article THE TOURIST GUIDE: The Origins, Structure and Dynamics of a Role Eric Cohen (1985b) explores the role of a tourist guide. In the course of his discussion he develops a framework to apprehend the principal components of the tour guide's role. Cohen divides the tour guide's role into a leadership and a mediator sphere. Whereas the leadership sphere refers to spatial leadership, the mediator sphere is more concerned with the role of a culture broker or mediator. Both spheres epitomize the historical roles of the pathfinder and the mentor. Furthermore he divides the tourist guide's role into an outer-directed and inner-directed perspective.

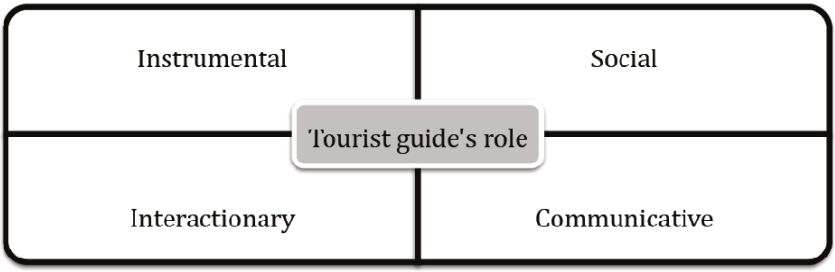

Figure 5.26: Tourist Guides Role (Cohen 1985b)

The instrumental component: The instrumental components core activity can be described as leading the way, whereas its execution demands a complex mix of different elements. The spatio-temporal direction is one of these different elements and requires "navigational expertise" and "considerable orientation skills" (Holloway 1981, Cohen 1985a). Important in this case is that the excursionists are directed to or along the required points of interest. The tour guide must also have the ability to improvise to a certain degree, if for example a road is blocked or sight is closed. In this case the tour guide has to provide alternatives to the planned tour. Another important function of the tour guide is providing access to non-public spaces, e.g. educational, medical or governmental institutions as suggested by Schmidt (Schmidt, 1979). As an additional function of a modern tour guide Cohen mentions the issue of control. This includes sticking to the timetable and itinerary as well as exercising control over the excursionists in order to keep them together as a group. Holloway entitles this function as "sheparding & marshalling" (Holloway 1981).

The social component: The social component refers to the social cohesion among the participants of the guided tour. If there should be any event challenging the social cohesion of the group (e.g. a dispute among the excursionists) the tour guide should intervene in a mediatory manner. The tour guide should also create the requirements and surroundings that foster a social cohesion. He is also responsible to keep the whole group in good mood with "occasionally jocular behaviour" and by animating them to undertake various actions at the point of interest. Furthermore Cohen stresses the importance of the social component in brief tours or less sophisticated tours. Often the social component is used to disguise weaknesses in the other components of the guide's role (e.g. missing professional knowledge) (Cohen 1985b).

The interactional component: The interactional component compromises the tour guide's mediator or "middleman" role between the group of excursionists (social-microenvironment) and the destination itself (macroenvironment) with all its native shareholders (social-macroenvironment). According to Cohen the tour guide fulfils a representation-function, whose realization can be seen as paradox. On one side the tour guide integrates the group to the set of the sight whereas on the other side he insulates the group from the sight and its surrounding.

Another important element of interactional component is organization. In this case organization refers to "the provision of services and amenities…such as refreshments, meals, and overnight stays, as well as medical care and other services in cases of emergency." (Cohen 1985b) This demands the exploration of the local touristic system and the arrangement of these services in non-touristic areas. (Cohen 1985b)

The communicative component: The communicative component is, in consensus with the researchers in this field, considered as the principle component of the tour guide's role. In this coherence the analogy of a cultural broker captures the nature of this component very well. The tour guide selects which sights going to be visited and the way he presents them. His selection is based on personal beliefs and also on requirements of third parties, e.g. the government or his employer. By the provision & interpreting of a certain amount of information the tour guide portrays the "touristic image" (Cohen 1985b) to a great extent. Of course part of that touristic image has already been preconditioned by various sources for perceptions. The guide must be able to connect the different sights or attractions into one coherent and overriding understanding of the destination or tour. In the case of unauthentic and

staged attractions the tour guide's capacity for keying is growing in importance. Cohen defines keying as "the representation through the use of appropriate language and dramaturgic effects of often blatantly staged attractions as if they were authentic." (Cohen 1985b)

The tourist guide's role translated into IT: After examining several IT tour guide systems, from already available systems to prototypes, it can be concluded that the DTG is the most sophisticated one. Looking at the instrumental component, the DTG knows all attractions of a destination in detail, if the tourist stays longer than planned at a certain attraction or takes a spontaneous break, it automatically alters the prearranged tour in order to stick to the predetermined timetable. In terms of control it can be said that whoever sets up the system is in control, e.g. shops, or restaurants that have a contract with the cruise company could be highlighted, or others are just not included.

Looking at these features it could be said that the DTG fulfils most of the requirements of Holloway's "sheparding & marshalling". Without a doubt social functions are a big challenge for an IT device but for groups that are exploring a destination with a DTG the social component might not be as crucial as in an ordinary tour. Reasons for this are that the group using the DTG consists of rather few people who most likely knew each other before. Therefore maintaining the social cohesion is not such a big issue. It might be pointed out that of course it is not possible to have a conversation with the device, but in contrary it could be questioned to which degree it is possible to converse with a tour guide while being on an excursion with a busload full of people. As an advantage the DTG won't hassle the people to leave an attraction if they would like to stay longer.

Coming to the interactional component, the provider can include organizational information about services and amenities automatically into each tour. It should also be possible to include an emergency button function, due to the fact that the tourists are equipped with GPS, a place of accident can be located easily.

The communicative component is referred to as the most important one by a majority of the researchers; the DTG communicates its information in an audiovisual way. The tourist listens to the information via headphones and therefore is not bound to read and look all the time at the devices display, but having a display available it could be utilized to show the tourist pictures of an attractions history, or to include an augmented reality browser into the system, which could especially enrich the attractiveness of locations e.g. ruins.

Looking at these points it is clear that the artificial intelligence of the DTG, with its usage of the semantic match algorithm gives it a clear advantage to all other existing systems. One might stress the fact that having a human in front of oneself can never be emulated by an IT device, but advantages can also be pointed out, which are a constant quality of the given information, the adaptability to the tourists wishes concerning the sites to visit, an increased level of privacy, since participants can choose with whom they take their tour. An individual tour guide for only a few people is also most likely more costly than the use of an IT device.

The set up and maintenance of such a system at a destination might be, depending on its size, an expensive investment and one might think that it could cannibalize the existing excursions, but it certainly brings a lot of possibilities for revenue, too.

After analyzing the requirements of a tour guide it can be said that the DTG cannot totally emulate a tour guide therefore it is unlikely that after installing the system the ordinary

tours are not going to be booked anymore. Presumably the system will attract new customers and looking at the results of the DTG field trial where the users in average saw four times as much as the control group in a much shorter period of time (Modsching, Kramer, ten Hagen & Gretzel 2007) the customers reaction will be very positive and therefore add value to the cruise product as a whole. If the cruise company operates the server by itself it also cuts out middlemen.

Furthermore the system can be turned into a profit centre when its services are offered not just to cruise passengers but to the open public. This could be achieved by renting out the systems from an office in the destination or with a partner. If in contrary a cruise company ignores such systems, other commercial operators will jump into this gap. As a consequence it would deprive the cruise company of the chance to generate extra onboard revenue from renting out the devices and also mean a loss of control over their content, which would consequently cost contracted shops and restaurants extra revenue.

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6 Royal Caribbean: An IT based View

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6.1 Introduction

6.1.1 Cruise Market

Nowadays cruise belong to the most dynamic sectors in terms of tourism and shipping. The cruise market is characterised by high concentration, because there are only few but strong market participants, who compete against each other. In order to obtain and keep a certain competitive advantage within the high market concentration, the participants are forced to find ways and means to improve their competitiveness. Hence, during the last years the cruise industry developed and modernized considerably, both in quality (vertical) and in their variety of offerings (horizontal) it has become increasingly differentiated. (cf. Vaggelas & Lagoudis 2010, p. 2)

In this context, four main dimensions of competition need to be mentioned: cruise ship, time of the cruise, stock and booking/reservation process. So far, the cruise companies have focused on these four dimensions, precisely in order to gain competitive advantages. For example: to satisfy the cruise guests' different demands and economic backgrounds, modern, large and much more luxurious equipped cruise ships with a variety of on-board services (such as cinema, casino, theatre, ice skating rink, swimming pools) are employed. In particular the booking/reservation process has gained in importance as a major competition opportunity during the recent years, as the new communication technologies have increased the links for booking a cruise. (cf. Vaggelas & Lagoudis 2010, p. 2)

Focusing just on these four dimensions, cruise companies consequently disregarded the cruise supply chain as a major factor of competition. Supply chain management is an important part of cruise operations, therefore the cruise supply chain have to ensure that 'the cargo' – namely the cruise guests with occasionally very high demands - reaches its destination on time. Consequently, the supply chain has an added value to them, so that appropriate supply chain management could be considered as a new level of competition among cruise companies. (cf. Vaggelas & Lagoudis 2010, p. 2)

6.1.2 Supply Chain Management in Cruise Industry

Supply chain management is a concept, which has its origin and evolvement in the manufacturing industry. Although cruise industry gained in importance during the last years, comparatively little research attention has been paid to the supply chain management in the cruise industry. (cf. Zhang et al. 2008, p. 4)

A supply chain is characterised by a forward flow of goods (and services) and a backward flow of information (cf. Zhang et al. 2008, p. 7). In general it comprises all operations concerning procurement, production, warehousing and transportation between the participants of the supply chain. The necessary planning, management and control of such cooperation is achieved through the supply chain management (cf. Betge 2006, p. 7).

The supply chain management integrates organizational units of a supply chain and coordinates material, information and financial flows in order to fulfil the customer needs with the goal of improving the competitiveness of a supply chain as a whole (cf. Stadler 2008, p. 11). Thus the goal in general is to ensure the competitiveness of the supply chain by minimizing costs, increasing flexibility to changes in demand or improving product quality (cf. Schwindt & Trautmann 2004, p. 2).

Nevertheless, a holistic approach of the cruise supply chain as a mean to obtain a competitive advantage has been largely neglected, although there are signs that such a supply chain is evident in the cruise industry (cf. Vaggelas & Lagoudis 2010, p. 4).

A holistic view of supply chains is in particular necessary, as the following conditions demonstrate:

The enforced restriction on the core competencies of a company and hence related outsourcing of business domains lead to a shortening of the in-house supply chain and thus contemporaneous to an extension of the business-comprehensive supply chains.

Remarkable advances in information technology allow an easy information technological networking of locations and business via internet.

Efficient logistics in terms of customer-oriented planning is increasingly seen as a key competitive advantage. (cf. Schwindt & Trautmann 2004, p. 1)

In order to understand the key challenges, which are faced by a successful management of a cruise supply chain, the characteristics of cruise products and the cruise industry are of essential relevance.

From the customers' point of view cruise products are considered as a value-added chain of different service components, creating sort of a service network (cf. Zhang et al. 2008, p. 3). In this context three economic features have to be mentioned: heterogeneity (i. e. the cruise product comprise a broad mix of goods and service components (such as transportation, accommodation, dining, entertainment etc.), which compose a unique experience for each customer), inelasticity (as a service cannot be stored for future use, cruise products are perishable) and complementarity (i. e. the cruise product is a bundled package, in which series of complementary services form the final cruise experience).(cf. Gibson 2006, p. 20)

Concerning the cruise industry three characteristics can be observed. Firstly, the cruise industry is an information-intensive industry, as cruise products usually cannot be reviewed without purchasing it before hand, hence the sale of cruises is very much dependent on the presentation and interpretation of the cruise products. Secondly, customers have to travel to the port destinations, where the cruise products are produced in order to consume these products. Finally, the cruise industry is often confronted with high demand uncertainty and complex dynamics. There are many factors, which can contribute to the market uncertainty, e. g. effective advertising can attract more customers whereas negative word-of-mouth effect can be very damaging (cf. Zhang et al. 2008, p. 10). Also, uncertain geopolitical climate, terrorism, the recent terrifying SARS, as well as a preference for last-minute bookings create uncertainty for the cruise industry. (cf. McFarlan & Massoni 2003, p. 5)

In this context this paper aims to design a conceptual holistic approach of the cruise supply chain as a mean for cruise companies to achieve a competitive advantage.

The paper is structured as follows. After the introductory section, section two describes the general architecture of an Advanced Planning System, which is acknowledged used in manufacturing industry. Based on this management system, section three highlights the research question of the paper with an approach of the 'most appropriate cruise supply chain management system'. Aside that, the cruise company Royal Caribbean Cruise Ltd. and its IT projects will be presented. Finally, section four concludes the study.

6.2 Architecture of Advanced Planning Systems

Advanced Planning Systems (APS) are primarily used for supporting decision making activities in supply chain management.

An APS has three main characteristics: (1) integral planning of the entire supply chain; (2) true optimization taking into account best alternatives, objectives and constraints for the various planning issues by using mathematical models and algorithms, either exact ones or heuristics; and (3) a hierarchical planning approach, which divides the complete planning problem into a number of smaller sub-problems and assign them to different levels of a hierarchy. (cf. Günther 2005, p. 8 f)

The following figure illustrates the architecture of an APS (see Figure 6.27), which is described in greater detail with respect to their individual modules.

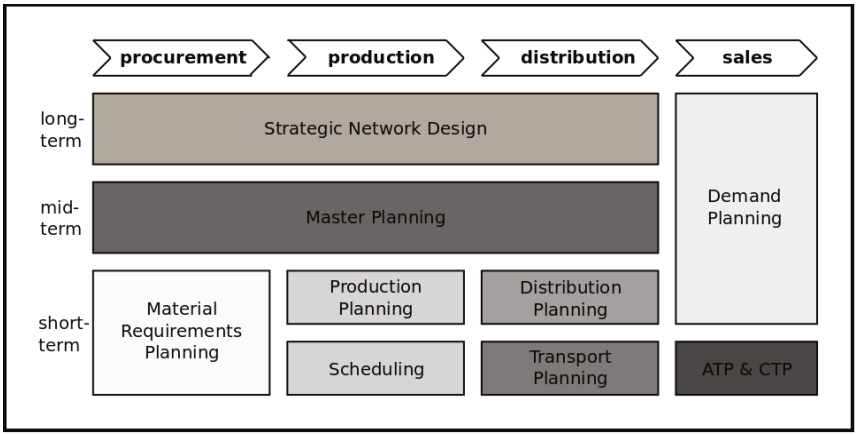

Figure 6.27: Architecture of the Advanced Planning System
(Source: Meyr, Rohde & Wagner 2008, p. 109)

6.2.1 Main Modules

Strategic Network Design

The Strategic Network Design module supports key strategic decisions concerning the configuration of the entire Supply Chain within a long-term planning horizon, which typically ranges from three to ten years (cf. Entrup 2005, p. 14). Thus decisions are strategic and long-term ones, which consequently cannot be easily changed or undone without considerable financial impact (cf. Kallrath & Maindl 2006, p. 7). The issues addressed consist of four mayor pillars:

- Product Strategy: Number, main characteristics of products and their sale markets have to be illustrated.

- Manufacturing Strategy: Number and location of plants, sourcing strategy, investment decisions, supplier selections (for potential long-term collaborations) have to be detected.

- Logistic Strategy: Number, locations and echelons of distribution centres, sourcing strategy, investment decisions have to be considered.

- Investment/Divestment Decisions: In-/Outsourcing, acquistions/mergers, new technology introduction have to be reviewed. (cf. Entrup 2005, p. 14)

Goal is to provide an optimal assignment of locations for procurement, production, warehousing and sale of their most important resources and (semi-finished) goods taking into account of dynamic market changes and regional distinctions. In the long run restructuring measures should be reconsidered, so that adjustments of the supply chain are flexible to arrange during changes in the environment. (cf. Betge 2006, p. 18)

Regarding solutions for planning issues in terms of location planning there are many optimisation and heuristic methodologies. Such mathematical methodologies often strive for a monetary goal as cost minimization or profit maximization, but also other measurable quantities as time and distance minimization. For planning issues restrictive conditions such as capacities for procurement, production and transportation as well as budget constraints have to be included next to the planning process. Due to shaping the network design many qualitative aspects as infrastructure, political support, stability of respective national currency etc. have to be considered during the planning, thus also scoring models are applicable for location planning. (cf. Betge 2006, p. 19)

Master Planning

The master planning module's main task is to create feasible mid-term production plans synchronizing the material flow along the supply chain and ensuring efficient resource utilization in procurement, production, warehousing and distribution within all internal production stages (cf. Betge 2006, p. 23 f). The planning horizon covers at least one seasonal cycle, which frequently amounts to twelve month and is divided into periods of a week or a month (so-called ‘time buckets’) (cf. Entrup 2005, p. 17). For each planning period decisions have to be made on the production synchronization and associated warehouse stocking as well as the circumstances of capacity bottlenecks. Thus, master planning determines the type and amount of the products, which are produced and sold within a defined planning horizon. (cf. Betge 2006, p. 24)

The purpose of master planning is the minimization of all crucial costs for production, warehousing and transportation. In this regard the following constraints have to be considered:

- period-specific demand forecasting in sales regions that correspond to the catchment areas of each distribution warehouse,

- the normal and maximum additional capacities of potential bottleneck resources,

- with rotating planning the capacity utilization, i. e. the pre-assignment of production facilities and

- predetermined safety stocks in each distribution warehouse. (cf. Schwindt & Trautmann, 2004, p. 8)

Solution methodologies for mid-term production planning are at this juncture mostly cost minimization models based on linear programming. Due to the high complexity of production structures, often heuristic methodologies are used for determining the optimal production program. Then, only a good and feasible solution is intended, whose optimality is not ensured any longer. (cf. Betge 2006, p. 24 f)

Production Planning and Scheduling

Based on the results from master planning the production planning and scheduling generates detailed, short-term and operational allowable production plans. Thereby the scheduling of production orders is treated on the available capacity of each production stage. The tasks are separately assignable to the production planning module and the scheduling module, wherein the first one is responsible for lot sizing and the second one is used for machine scheduling and shop floor control. (cf. Betge 2006, p. 34)

In due consideration of the entire supply chain, lot sizes deal with the question of how many units of a commodity should be procured or transported as contiguous lots. In multi-stage production processes, production lots have to be determined and adjusted to each other for each stage. The planning horizon usually differs between weeks and months with time buckets of days or weeks (cf. Betge 2006, p. 34 f). For most solution concepts the goal is to minimize the sum of inventory costs and setup costs (cf. Schwindt & Trautmann 2004, p. 9).

During scheduling the processing sequence of orders is determined in each stage of a multi-stage production process or a supply chain structure. Based on product-specific working plans, processing dates will be determined for the orders in the various stages and the required capacities. Furthermore, scheduling includes determining the sequence of work operations, i. e. whether operations will be executed parallel or sequential in due consideration of technical requirements. The typical planning horizon comprises a couple of hours or days. There are various solution concepts for scheduling, which partially cannot be solved for real planning issues. But also, in scheduling the purpose is basically to reduce the production costs to a minimum. (cf. Betge 2006, p. 35)

Distribution Planning and Transport Planning

Distribution Planning is part of the mid-term planning, which deals with transportation quantities and stock levels of final products in connection with customer deliveries considering transportation and stock capacities (cf. Kallrath & Maindl 2006, p. 8). The planning horizon usually ranges from days to months. With the objective to optimize the trade off between inventory holding and transport cost, several decisions have to be made:

- The aggregate transport quantities have to be determined for every transport link in the supply chain.
- The frequencies of regular transports set target values for short-term decisions on delivery quantities.
- A framework for the selection of distribution routes regarding the limits of order size has to be set. (cf. Entrup 2005, p. 20)

- In the short-term Transportation Planning module, routing and load planning are performed determining cost effective and timely deliveries, i. e. the timing of deliveries and actual delivery volumes are assigned most efficiently to transport carriers. (cf. Kallrath & Maindl 2006, p. 8)

Exact optimization models for calculating the optimal transport lots and optimal delivery frequency are usually mixed-numbered. To determine the most cost-efficient transport lots fixed transportation costs and variable inventory costs are minimized. However, the most cost-efficient transport lots and so the optimal transportation frequency has to be coordinated with the production lots in order to avoid unnecessary intermediate storage. (cf. Betge 2006, p. 46 f)

6.2.2 Auxiliary Modules

Material Requirements Planning

The main tasks in material requirements planning are the determination of the purchase quantity, the selection of the supplier and the initiation of purchase orders. A purchase order can cover both, the supply from vendors as well as from other plants within the own company. In particular products, which are limited in supply or have a long replenishment lead time are addressed here. (cf. Günther 2005, p. 31)

In general, material requirements planning only held a minor importance within the APS systems, because the classical ERP systems provide considerable support concerning material requirements. Thus APS systems have a complementary function considering to the ERP systems, consequently there is no need for advanced methodologies in Requirements Planning and therefore most vendors do not implement this module in their APS systems, but continue to take those ERP systems or master data bases. (cf. Betge 2006, p. 52)

Demand Planning

The demand planning module basically takes a supporting role in the planning processes by generating demand forecasts that are fed into the other planning modules (cf. Kallrath & Maindl 2006, p. 7). The long-term demand is generally forecasted for several years and forms the basis for the supply network design. The mid-term demand forecasts are elaborated on a stock keeping unit level with a planning horizon of weeks or months and are required for the coordination of procurement, production and distribution, which is a key issue in supply network planning. Even the short-term demand forecasts are useful regarding a mark-to-stock environment, where customer orders frequently have to be filled on short notice. (cf. Günther 2005, p. 16)

Forecasting in APS relies on three components:

- statistical forecasting methodologies, which perform estimations derived from historical data;
- time series methodologies, which assume demand following a certain pattern and
- casual methodologies, which focus on the relationships between two series (e. g. dependent and independent variable). (cf. Entrup 2005, p. 15)

Goal is to minimize the sum of those prices for procured quantities, fixed ordering costs and inventory costs. Prices and fixed ordering costs depend on the chosen suppliers and, where appropriate, by the time of ordering. (cf. Schwindt & Trautmann 2004, p. 9)

Available- and Capable-to-Promise

The Available- and Capable-to-Promise (ATP & CTP) is a subsidiary module, which helps to match customer orders against quantities available on stock and from scheduled receipts (cf. Günther 2005, p. 32).

The standard method checks available quantities in stock and in planned procurement and production across the entire supply chain to determine, whether a delivery can be promised. This investigation is called 'available-to-promise' (cf. Kallrath & Maindl 2006, p. 7).

An enhanced method called 'capable-to-promise' checks the available capacity that can be used for placing a new production order or the possibility to increase already scheduled production orders according to incoming customer orders (cf. Günther 2005, p. 32).

6.3 Application of APS on the Royal Caribbean Cruise Ltd

6.3.1 Royal Caribbean Cruises Ltd. (RCCL)

6.3.1.1 The Cruise Company

The cruise company was founded 1969 by Edwin W. Stephan and is incorpo-rated in Liberia. Stephan had the idea to create cruise ships for enjoyment cruises in warm water Caribbean (cf. McFarlan & Massoni 2003, p. 1).

RCCL operates its ships through two brands: 'Royal Caribbean International' and 'Celebrity Cruises'. The idea is to cover the whole cruise vacation market by providing two brands, which are differentiated into four more segments: contemporary, premium, luxury and ultraluxury (cf. McFarlan & Massoni 2003, p. 2).

RCCL is well known for innovation. This is recognizable on the ship equipment which contains movie theatres, ice skating rinks and climbing walls. Furthermore, in order to support processes on ship over $10 million expensive IT is installed (internet cafes, internet access in crew-/passenger cabins). This offers the latest in luxury to the guests and puts the company on the top of innovation (cf. McFarlan & Massoni 2003, p. 8).

6.3.1.2 IT Application Portfolio

Historically, IT was organizationally a standalone with an extreme concentration on costs, where innovation was barely realized. Vision and strategy were non-existent. With the hiring of J. Williams as president and COO (chief operating officer) and later Tom Murphy as CIO (chief information officer) the development began. The most important challenges were: (1) the need for a technological change in 'a company with no email and all data locked up in systems and inaccessible'; (2) that IT had to be integrated into the company in order to assist the business processes. (cf. McFarlan & Massoni 2003, p. 8 f)

So far, it can be captured that during the following years the situation of IT in the company improved. Nevertheless, corrections and upgrades were still needed. As many different sys-

tems coexisted (several reservation systems, separate loyalty system, shipboard system and revenue system), efficiencies were unavoidable. (cf. McFarlan & Massoni 2003, p. 11)

Thus, further improvements were targeted. The strategy of IT department was the creation of a flexible and adaptive IT organization, whereat consideration and performance of IT as a service was emphasized. Murphy understood the business units as customers of the IT department. And these units should have all the tools and data they needed at hand, in order to meet their requirements. (cf. McFarlan & Massoni 2003, p. 10)

In order to bring the strategy into action and involve IT into business strategy, the $200 million 'Leapfrog Project' was conceived. (cf. McFarlan & Massoni 2003, p. 11)

Leapfrog consisted of three main projects: supply chain, employee systems and customer. The scope was to automate and simplify the shoreside purchasing and procurement process. This should be accomplished through upgrading the JD Edwards ERP system to its newest version, a web-enabled financial and procurement suite One World. Thereby, cost should be reduced, purchasing process rationalized and inventory planning improved. (cf. McFarlan & Massoni 2003, p. 11)

The employee system project concentrated on upgrading of the Peoplesoft Inc. human resource system, which offers employee tracking. This web-enabled system provides real-time access through satellite connections, knowledge and document management, access to licensing, training and employees background to ships officers. (cf. McFarlan & Massoni 2003, p. 11)

The third project – customer – comprised the build-up of a $50 million web-enabled reservation system (NexGenRes). Due to the fact that business users needed the whole picture of a customer's history, it would be optimal to receive this information through a single source like the new system. (cf. McFarlan & Massoni 2003, p. 11)

In a five-year-view possibilities were seen to develop fully redundant systems, which provide an access to data independent from time and place. Through consolidating and simplifying the different systems that are used in the two brands costs should decrease. Under these circumstances it should be possible to implement stepwise the systems planned under Leapfrog and in so doing to create an infrastructure that is flexible to dynamic customer requirements, provide common core services and focus on centralization, where it meets customer and business requirements. (cf. McFarlan & Massoni 2003, p. 14)

Following up the idea, the paper will at this point design a conceptual cruise planning system based on the APS, which will be further explained in the next sections.

Before that, the cruise supply chain is considered, in order to comprehend the complexity, which is involved behind an integrated planning system.

6.3.2 Cruise Supply Chain

6.3.2.1 Basic Characteristics

RCCL is acting in the world cruise business. It offers a cruise product, which combines a huge package of services involving – not just accommodation, transport and excursions, but also

bars and restaurants, entertainment, shopping, wellness and fitness, waste disposal, and the infrastructure that supports cruises in destination ports. (cf. Tapper & Font 2004, p. 4)

This diversity of such a product mirrors the high complexity of the cruise supply chain structure (see Figure 6.35) and hence makes the cruise sector one-of-a-kind in comparison to other sectors.

The cruise supply chain takes the cruise company as the core and constructs a chain (including suppliers of food, accommodation, transport, excursions, shopping and entertainment, also suppliers of ship supplies, water/energy supplies and lubricant manufactures, as well as the travel agencies, call centres and the end customers) by establishing strategic partnerships with each node enterprise in the chain. (cf. Zhang 2007, p. 767)

For a more simplistic view the cruise supply chain can be split into two diffe-rent kinds of chains: a hotel supply chain and a technical supply chain (cf. McFarlan & Massoni 2003, p. 6).

In the second tier the hotel supply chain is shown within the orange frame. In this part – including food and beverages, dry goods (restroom supplies, towels, and utensils), furniture and waste/recycling – 14,000 stock keeping units have to be administered.

This part is quite important due to the fact that any incorrect delivery may limit the passengers' convenience and lead to dissatisfaction. The responsible system for the food and beverage management on the hotel side at RCCL is Crunchtime (a standard software in the cruise industry). (cf. McFarlan & Massoni 2003, p. 6)

Within the blue frame the suppliers for the technical side of the chain can be seen in the second tier. AMOS is the information system performing the management of the technical side of a cruise ship – the maintenance – for RCCL. It is fully implemented to be sure, but there is a lot of work in standardizing of parts database (same items should get the same numbers on different ships).

The suppliers of the technical part are liable for crafts, lubricant, ship supplies and port facilities. And the products they supply are relevant for operating the ship with fuel, tools, gaskets, oil, nuts and bolts, also including elevators, air conditioning systems and desalination equipment. All in all, the technical supply chain comprises three million stock keeping units. (cf. McFarlan & Massoni 2003, p. 6)

This part is crucial in many ways. First of all, the craft functionality is an important constraint for a cruise, because on the one hand the safety and the fulfilment of legal requirements are depending on it and on the other hand it assures the taking place of a cruise. The next essential point is the delivery of crafts by means of that the cruise business is characterised by a high restriction of capacity. If extra capacity is needed then an increase is only possible by ordering new ships. This is a long-term decision and is connected with high investments which cannot be unwound without losses.

The original task of both systems Crunchtime and AMOS is not to support integrated supply chain needs, but they are suitable enough to accomplish the basic tasks (cf. McFarlan & Massoni 2003, p. 7).

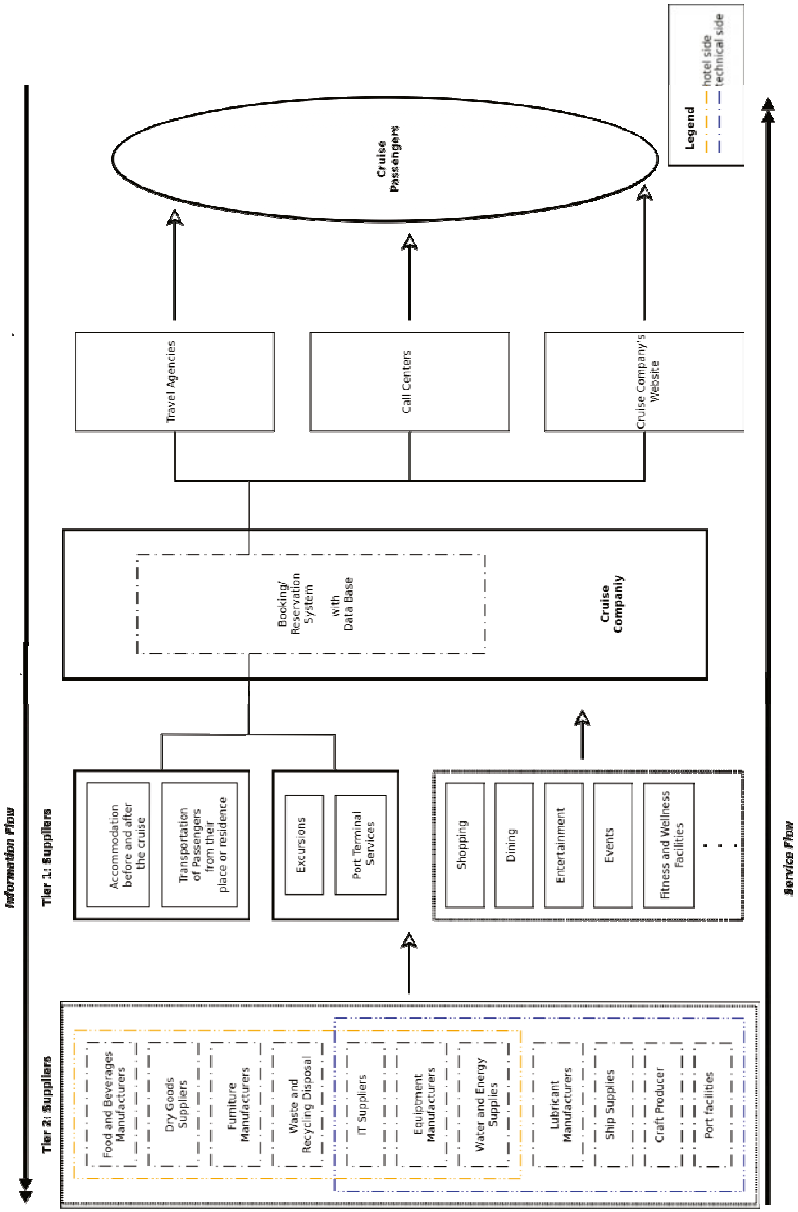

Figure 6.28: Cruise Supply Chain (based on Zhang 2008, p. 48)

The suppliers in the intersection – IT, equipment and water/energy – belong to both of the supply chains. The goods and services they deliver support many processes during a cruise production: processes in the kitchen, sanitary facilities, entertainment area with fitness and wellness centres, internet cafes; also planning and organizational processes.

These second tier suppliers provide goods and services required by the first tier suppliers to fulfil their tasks. The first tier comprises the vendors for accommodation possibilities for the passengers before and after the cruise if there is no alternative for them of a direct travel access. These may be hotels or hostels etc.. Furthermore, at passengers' request transportation has to be organized, via airplane, train etc.. The arrangement of accommodation and transportation is possible through travel agencies, call centres or the company's website, i. e. through indirect distribution channels or directly by the cruise company via internet.

The cooperation with shore excursion provider is relevant for the variety of a cruise vacation. Cruise guests have the opportunity to choose a shore excursion on days, while the ship is not on sea. RCCL uses the so called shore-excursion booking system, which is part of the company's website and enables booking of excursions in advance (cf. McFarlan & Massoni 2003, p. 8). Thus, extra planning on ship is saved.

Port services are responsible for loading the ship with all supplies required for a cruise and unloading it afterwards. Embarkation and disembarkation of passengers with their baggage belong also to these services.

The following vendors ensure mostly the enjoyment during the cruise vacation. Shopping centres, restaurants, fitness and wellness centres offer leisure time activities during the day and events, bars, clubs activity opportunities for the evening. So, the diversity of tastes and expectations of all customers can be covered. The endowment and the pleasure supply of a cruise ship are crucial due to the fact that ship's endowment also constitutes a dimension of competition in the cruise market. Cruise companies invest on bigger ships with more luxurious equipment in order to provide their passengers a more enhanced experience than the competitors. RCCL for example offers cinema, theatres, ice skating rinks and climbing walls. Thus, not the ports of call and their surrounding touristic areas state the destination point for customers but the cruise ships themselves.

The next stage of the cruise supply chain is represented by the cruise company. It is the central part of the whole supply chain coordinating all provided goods and services in order to create the final cruise product.

For distribution a reservation system with a data base is used. One possibility for booking a cruise is to use the direct distribution channel – the cruise company's website. The website accesses the reservation system in order to carry out the booking process. The indirect distribution channels – the travel agencies and the call centres – proceed in an analogical way by accessing the database for booking a cruise. RCCL uses Cruise Match 2000, which was introduced in 1991. It is a real time, fully automated reservation system with direct online access to its international inventory (cf. McFarlan & Massoni 2003, p. 4). After 1991 further reservation systems were installed so that altogether seven systems coexist that do not communicate with each other and this is preventing the marketing/sales department getting integrated information about the customer and a holistic view of his purchasing behavior (cf. McFarlan & Massoni 2003, p. 11). The process of booking is a further dimension of competition and requires consequently an exhaustive examination.

The customers that stand at the end of the cruise supply chain are the most important participants. The reason for their huge importance is the fact that fulfilling and exceeding their expectations is the ultimate ambition of a cruise company. The achievement of this ambition turns out to be a challenge since every cruise guest has individual expectations. Consequently, the task is creating a cruise taking into account the huge diversity of customers' demands.

So far, it can be observed, that each node enterprise in the network chain is closely strategic cooperated and complement each other's advantages. By constructing virtual integrity a community of supply chain with the objective of occupying leading position of the market is formed. The competition between cruise companies will finally evolve into competition between supply chains. (cf. Zhang 2007, p. 767)

6.3.2.2 Typology

A Typology contains a set of attributes, which help to describe a supply chain more detailed. These attributes are important for deciding and selecting an APS, due to the fact that the offered modules of APS may work for one supply chain better than for another. In this context two different attributes are named: functional attributes and structural attributes. Functional attributes are applied to each organization, entity, member or location of the supply chain (see Table 1, p.18) (cf. Meyr & Stadler 2008, p. 66). Structural attributes describe the relations between these entities (see Table 2, p.22).

Due to the large number of attributes and the fact that not every attribute is decisive for the cruise supply chain, only the important ones will be described more detailed. The complete list of attributes and their characteristics can be found in the book by Meyr & Stadler (2008, p. 66).

Functional attributes can be divided into four categories: procurement type, production type, distribution type and sales type. The following attributes describe the procurement type. The number of products (few up to many) that have to be procured is very large as a cruise ship can be compared with a floating city, which requires a huge amount of technical goods as well as supply goods.

The type of the procured products may range from a standard product to a specific product which need to be produced a special way. The products that a cruise company is purchasing are standard products with a high level of diversity.

The flexibility of suppliers referring to the amounts differs between the three sorts of suppliers: craft supply, hotel supply and technical supply.

The supplier lead time – average time between order and delivery – is dependent on the sort of supplier. The more complex a product is the longer is the lead time.

The reliability refers to the promised arrival dates. In general it can be said that the arrival dates get less reliable, when lead time is getting longer.

Next, the production type is considered. Production in service sectors and especially in the cruise sector means the production of a service – namely the cruise product.

Functional Attributes Attributes	Contents
number and type of products procured	many, diversity of standard products
sourcing type	multiple
flexibility of suppliers	craft: low hotel side: high technical side: medium
supplier lead time and reliability	craft: long, reliable hotel side: short, reliable technical side: short – medium, reliable
materials /equipment life cycle	craft: long hotel side: short technical side: medium
organization of production process	customized mass production
repetition of operations	batch production
bottlenecks in production	known
working time flexibility	low
distribution structure	1 and 2 stages
pattern of delivery	dynamic and cyclic
deployment of transportation means	standard routes & individ. links no loading restrictions
relation to customers	market relation
availability of future demands	forecasts
demand curve	seasonal
product's life cycle	season (months)
number of product types	multiple
degree of customization	medium – high
bill of materials	convergent/divergent (dependent on point of view)

Table 6.15: Functional Attributes (Own design according to Meyr & Stadtler 2008, p. 67)

The bottlenecks in production represent the areas where production capacity is an issue. On a cruise ship such bottlenecks are known based on experiences or high demand. These bottlenecks could be certain popular excursions or events on board, certain popular cabins or

even certain sorts of food et cetera. The important task therefore is the planning of recourses in such known bottlenecks.

The attribute working time flexibility describes the level of ability to adapt working time to changing demand. When the production of a cruise proceeds, i. e. the ship is on its way with passengers and the crew onboard, there are little possibilities for the crew to change their working time. On the one hand a crew extension is impossible, on the other hand rest periods are of high value for the crew members.

The first element of distribution type is the pattern of delivery. In the services sector delivery is to understand as the provision of the service. The alternatives cyclic and dynamic are possible. A cyclic pattern can be recognized by delivery in a specific time interval without consideration of demand. A dynamic pattern looks the opposite way. Delivery then is depending on demand. Whereat a cyclic pattern will take place note at any price. If the level of capacity for a cruise ship falls below a certain value the company may decide that cancelling the cruise trip and recompensating the passengers is more economically.

Deployment of transportation means both can be chosen the deployment of vehicles on routes (standard routes or variable routes depending on demand) and a given transportation capacity on individual links (cf. Meyr & Stadtler 2008, p. 68). In the cruise company's case the transportation comprises both the transportation of supplement goods and the transportation of passengers to and from the ports. For example, the cruise company cooperates with an airline and books not only few tickets but entire charter flights in advance for a specific route, where huge demand is expected. Therefore it can be said that vehicles are deployed not only on standard routes, but also individual links. Loading restrictions may exist, if an airline provides charter flights for a minimum of tickets.

The last category of the functional attributes is the sales type. As demand is the underlying reason for sale, correct information on demand are decisive. Due to dynamics, which dominates the cruise market, availability of all information about demand is not possible. Future demands for the entire supply chain have to be forecasted and are not known by contract. Forecasting is the only possibility of getting information on future demand of passengers.

The demand curve for a product may be sporadic (irregular), static or seasonal, whereas for all touristic products it is seasonal.

Thus the cruise product's life cycle is a season. A specific cruise is maybe of during only one season and not longer, because, e. g. the demand has changed, which is not infrequently in such a dynamic sector.

Structural attributes consist of two categories: topography of a supply chain, integration and coordination.

Topography of a supply chain comprises the following four attributes. The network structure depicts the material flows within the supply chain and may take the serial, convergent, divergent or a mixed form. The network structure often conforms to the attribute bill of materials and so the case is in the cruise supply chain. Dependent on the point within the chain the network structure can take either the convergent or the divergent form.

Structural Attributes Attributes	Contents
network structure	convergent/divergent
degree of globalization	procurement: global sales: global
location of decoupling points	assemble-to-order
major constraints	craft functionality, basic services, input prices
legal position	Intra-, inter-organizational
balance of power	customers, oligopoly market
direction of coordination	mixture of directions, central organization
type of information exchanged	orders and contracts

Table 6.16: Structural Attributes (Own design according to Meyr & Stadtler 2008, p. 69)

Degree of globalization is very high, due to the fact that the supply chain operates in several countries both on the procurement and the sales side.

The location of the decoupling points is the first stage (or location) in the flow of materials where a further processing step or a change in the location of a product will only be executed with respect to a customer order (cf. Meyr & Stadtler 2008, p. 70). The alter-natives hereby are: engineer-to-order, manufacture-to-order, assemble-to-order and deliver-to-order. In this case an assemble-to-order is on hand, because the cruise guest chooses during the booking process a combination of options offered by the company he wishes to have on his trip.

Major constraints show the important bottlenecks of the whole supply chain.

Integration and coordination is the second category and consists of the following attributes. Legal position deals with relationships between entities of the supply chain. They may be legally either separated (inter-organizational supply chain) or not separated (intra-organizational supply chain). Balance of power depicts factors with the most influence on the supply chain.

Direction of coordination relates to information flows within the supply chain.

The types of information exchanged between the entities have an influence on planning.

6.3.3 Requirements of Cruise Supply Chain Management

Based on these cruise supply chain characteristics the main challenges for an integrated cruise planning system are as following.

As Demand Planning comprises demand forecasting, sales planning and marketing based on the projected demand and service/production capacity, it is a vital part of the cruise supply chain management that links the processes within the chain.

From a strategic point of view, investment decisions, particularly in destination infrastructures such as ports, airports, rail-links and highways, depend on demand estimations as they require long-term financial commitment, and the sunk costs can be very high if investment projects fail to fulfil their designed capacities. Consequently, once a decision has been made the degrees of freedom for changes are limited, so that changes can only go along with high financial losses. From the operational point of view, the activities of a cruise line is directly driven by the demand considering all planning and scheduling, which are necessary in order to meet the number and expectations of requested cruise products.

Therefore the success relies largely, if not entirely, on the state of demand, whereas market failure often results from missing the market, and hence the customers' demand. This risk, that the theoretic supply chain and th€e actual demand unmatch (e. g. cabins on the cruise), mirrors the high vulnerability of the cruise product – in other words it makes the production process of a cruise company very vulnerable. (cf. Zhang 2007, p. 766)

Considering the key role of demand as a determinant of business profitability (cf. Zhang et al. 2008, p. 12), high forecast accuracy is crucial for a future customer demand per single cruise product, in order to reduce the loss rate to a minimum.

Furthermore, a planning system should cover all the production specifics. These include that the cruise ship is equipped with all the goods in order to make it fit to travel, i. e. goods in the field of hotel services and the technical area must be adequately accommodated on board. Accordingly, optimal transport routes to the port terminals have to be found and set, in order to transport the goods there and the passengers can safely and as directly as possible get on board together with their luggage.

Although cruise products are not storable, it nevertheless can construct their own inventory system, the stored products are intangible products just like contracts and agreements list in future markets rather than tangible products, so the logistic can also give play function. (cf. Zhang 2007, p. 766)

Furthermore, it is necessary to have a seamless working plan and timetable in which the crew members are instructed in their duties, so that everything can run to the satisfaction of the cruise guests, while the ship heads for his destination.

As for the reservation or booking system taking into account the new communication technologies a holistic one should be aimed for, i. e. all distributions channels need a uniform access to a web-enabled reservation system, which provide both real-time information for (available) cruise products and a simple booking feasibility.

Thus, the overall objective is maximizing revenues minus all variable supply chain costs within the minimum sales requirements and the maximum sales opportunities of the cruise market.

6.3.4 Conceptual Cruise Planning System

In the following an integrated cruise planning system, which covers all supply chain decisions mentioned in section 3.3 should be described. Such a planning system should support the decisions in an optimal way during the different planning stages (long-, mid- and short-term).

Figure 6.36 depicts a possible architecture of such a planning system including planning tasks that have to be fulfilled throughout a cruise supply chain. The description is carried out modularly, i. e. every planning module with its tasks will be described. The background colours serve as assistance in order to assign the accordant APS module to every planning module.

6.3.4.1 Main Modules

Strategic Network Design

Based on the long-term forecasts and the product program information, which come from the Demand Planning module, the Strategic Network Design module supports key strategic decisions in the long-term. This module should operate the following planning tasks.

In the procurement area the materials/equipment program is developed. Equipment program supports long-term decisions about procurement of equipment for example IT, which facilitates keeping pace of the company with technological developments. Materials program is composed of planning the procurement of materials required for the cruise production especially concerning availability, quality and price of the materials. During the selection of supplier, attention is paid to procurement costs, material's quality and the service provided by the vendor. These constitute also criteria for potential cooperation, which are also to be considered.

Capacity planning is aiding decisions about procurement of new ships and their size. This investment decision is very long ranging and requires a high level of elaborateness.

Man Power Planning is the long-term planning of work potential developments. Such decision may look like rather an extension or rather a downsizing of work potential.

In the production area based on demand forecasts the optimal amount and location of ports is to be find. The location is not only important for meeting the demand patterns but also for 'parking halls', maintenance and replacement planning in order to ensure flexibility in case of technical failures.

For the distribution area the infrastructure has to be considered. This decision is usually made simultaneously with the port location decision. The objective hereby is minimization of transportation costs for the transport as of procured goods to the ports as of passengers to the ports.

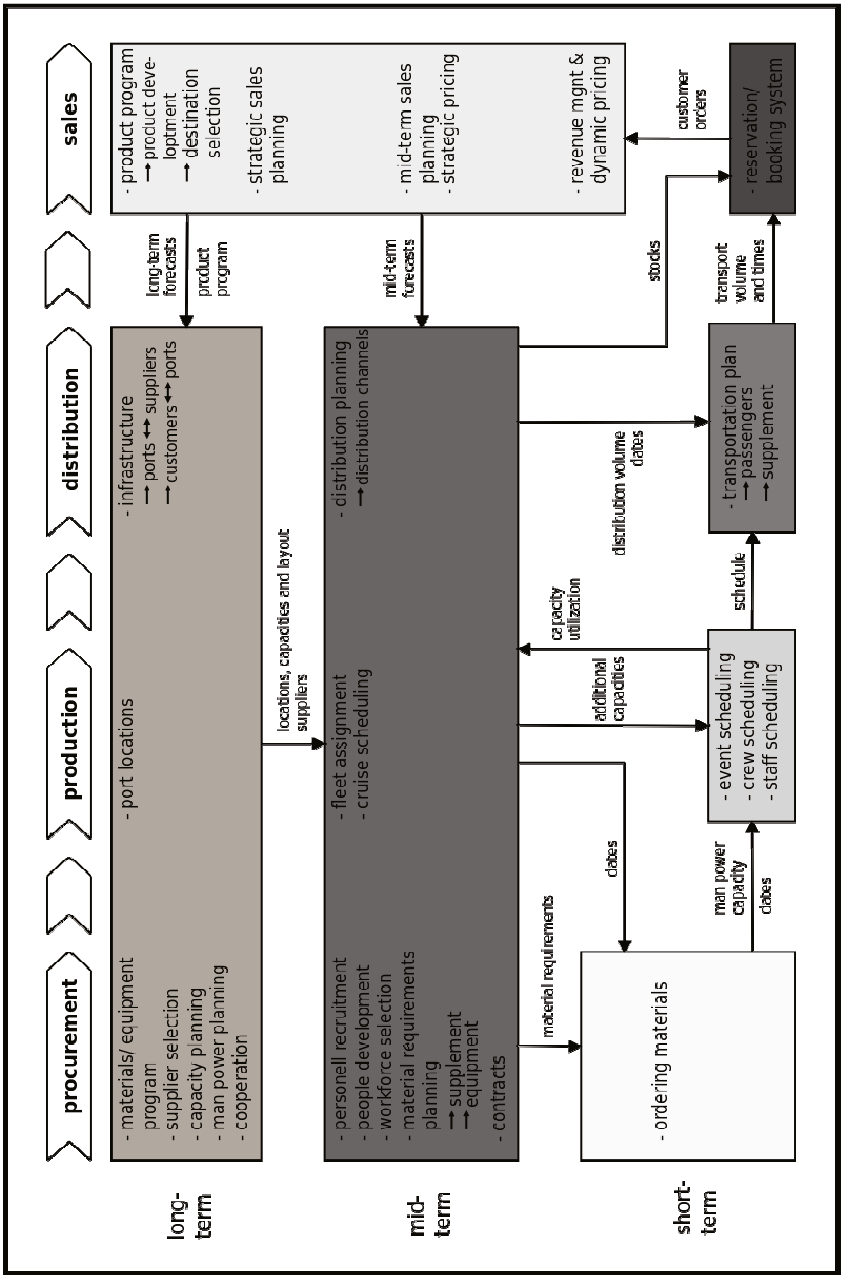

Figure 6.29: Conceptual Planning System (based on Schwindt & Trautmann 2004, p. 6)

Master Planning

All the results of decisions generated in the Strategic Network Design module and in the Demand Planning module constitute the basis for the Master Planning module. In personnel recruiting is decided about the required personnel capacity and about hiring staff or suspension of staff using the mid-term sales forecasts. Also the development of staff is considered, which implies schooling of staff for coming up technical developments for instance. Workforce selection arranges which type of staff (captains, stewards, cooks, entertainer etc.) is required.

Mid-term material requirements planning determines the need for supplement and equipment. Hereby the question of the resources required for a cruise is to answer (what amount of beds, fitness and kitchen equipment etc.).

Furthermore, contracts with vendors concerning the cruise are to administrate. These may be excursion-, event-, and entertainment (e. g. casino, cinema) vendors.

Fleet assignment is the task of adjustment of vessel capacity to specific demand, which includes the assignment of specific ships to specific cruises with consideration of maintenance times.

Cruise scheduling includes planning of the cruise frequencies and timetables for each cruise. The question of the cruise flow is here answered.

In the mid-term distribution planning decisions about the distribution channels are rendered.

Production Planning and Scheduling

Based on the dates and material requirements from Master Planning in the short-term the ordering of materials is coordinated. The output from Master Planning and the Materials Requirements Planning provides the input for Production Planning and Scheduling, namely dates for scheduling and capacities.

Event scheduling literally fulfils the planning of events taking place during a cruise (excursions, shows, concerts etc.). Crew scheduling provides a plan on which crew (concerning the composition) is appointed to which cruise at which time. Due to the fact that “most vessels have at least one crew number for every three passengers” (Mancini 2004, p. 62), the planning effort is very complex. Additionally the crew is divided into two categories. One group is in charge of sailing operation, while the other is responsible for hotel operation. The staff appointed on the shore side in data and IT centres has also to be coordinated.

The results of Scheduling are backwards useful for Master Planning, as they inform about capacity utilization, whether additional capacities are required or not.

Transport Planning

The output of the Production Planning and Scheduling module – the schedule – provides an input for the Transport Planning module in order to enable the creating of a transportation plan. Creating a transportation plan requires dates and volumes. The transportation plan comprises information on how passengers get to ports in order to participate in the cruise.

Therefore flight contingents have to be booked. When not enough airplane seats are reserved, the cruise company may be not able to ensure the cruise for its customers.

The transportation of supplement goods to the ships has also to be organized in order to provide the availability of these goods required for the cruise at the right time. Hereby the costs minimization comes in the fore.

6.3.4.2 Auxiliary Modules

Material Requirements Planning

The Material Requirements Planning module determines the final purchase quantity and the initiation of purchase orders. Therefore goods or materials for the hotel and technical side of the supply chain (such as dry good, food and beverages or desalination equipment, engines, electrical and air conditioning systems) are to be determined and then ordered.

Demand Planning

The module Demand Planning plays an important role for all other modules, because it generates the groundwork for every planning task that a cruise company's success is dependent on.

In the long-term the product program is created, i. e. the cruise product is developed and destinations are chosen.

In the short-term revenue management enhances the profitability of a cruise by influencing the passenger's behaviour and thus providing optimal capacity utilization. This might have the form of decreased prices in last minute deals for example, when a cruise is starting next time and still a lot of capacity on ship is not booked.

Available- and Capable-to-Promise

The last module Available- and Capable-to-Promise is the interface to the customers. It administers the booking process checking capacity availabilities and informing Demand Planning on the booking quantities.

6.4 Conclusion

The present paper deals with the supply chain management in the cruise industry. Based on a case study about the RCCL (by McFarlan/Massoni) the adaption of an appropriate management system was discussed. While considering the current IT situation at RCCL and further literature research, an integrated planning system according the APS seemed most appropriate.

Originated from the manufacturing industry, APS aims at increasing the connectivity between different supply chain members, and streamlining the inter-organizational information, material and money flows of the supply chain, so that the supply chain could operate as a coordinated holistic system. Therefore, APS had the most potential for obtaining competitive advantage within the cruise market.

At present, considered from the cruise supply chain platform, the research on integrated cruise planning systems is quite deficient.

Therein, the main challenge and innovation of this paper resulted in developing a (conceptual) cruise planning system based on a cruise supply chain, which needed to be designed beforehand. The attempt in finding analogies between object supply chains and cruise supply chains then exposed the high complexity and difficulty of the set tasks, as cruise supply chains differs quite much from those of the manufacturing sector.

For instance, cruise guests have to travel to the product, and the purchased product has a particularly high service component – as is involves a high crew/staff commitment in the immediate production of the cruise experience. Another significant difference lies in the chronological flow of the production process stages. While in manufacturing companies the stages generally proceed as follows: procurement, production, distribution and sales; in cruise companies the production forms the final stage, i. e. after the stages procurement, distribution and sales. Hence, a direct transfer of production planning tasks to service planning tasks is hardly possible.

It remains to be seen, if cruise planning systems will win recognition and prevail in cruise companies, especially as implementing such a holistic system will not only challenge companies' budget, but also the acceptance within the companies' manpower.

Nevertheless, the business benefits by implementing such a cruise planning system should be kept in mind – as it may include retention of clients, increased revenue, reduced costs and improved operational efficiency, remaining competitive to assess and respond to risks and opportunities in the cruise market, enhanced staff performance, achievement of better recruitment and staff retention and enhanced brand value, reputation and market share of cruise companies.

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7 Optimising Complaint Management Workflow on Board

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Customer satisfaction, and therefore the handling of customer complaints, is vital for every business dealing with customers. According to the authors' experience complaint management especially on board of cruise ships is, despite great efforts of the crew, often times neither efficient nor effective. Consequently, complaint handling processes harbour optimisation potential, inter alia by implementing integrated electronic systems.

Hence the authors evaluated the typical complaint management workflow on board of cruise ships to detect weaknesses and potential improvement possibilities, resulting in a remodelled optimised proposal for complaint workflows. Knowledge about existing workflows was drawn from own experience and in-depth interviews the authors carried out with experienced professionals in the cruise industry. This conclusive explanatory approach using short deductive case studies, provided the necessary insights to draw a typical complaint handling process workflow, allowing the design of an alternative, optimised and electronically supported complaint handling workflow for cruise ships.

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7.1 Introduction

As industries grow, more competitors enter the market craving for the biggest share, leading to saturated markets. Companies then have to adjust prices to increase demand on the expense of margins.

But there is another way: Improving the quality of the offered product or service. High quality at justified prices leads to customer satisfaction (Frisch 2006). In times of saturated markets, customer satisfaction becomes the precondition for successful business and therefore the ultimate objective of every organisation (Raab & Werner 2009).

Cruise Line	Name of Ship	Passengers (lower bed capacity)
AIDA Cruises	AIDAluna	2.030
American Cruise Lines	Independence	104
Carnival Cruise Lines	Carnival Dream	3.652
Celebrity Cruises	Celebrity Equinox	2.850
Costa Cruises	Costa Luminosa	2.260
Costa Cruises	Costa Pacifica	3.004
MSC Cruises	MSC Splendida	3.887
Norwegian Cruise Line	to be announced	4.200
Pearl Seas Cruises	Pearl	214
Royal Caribbean International	Oasis of the Seas	5.400
Seabourn Cruise Line	Seabourn Odyssey	550
Sea Cloud Cruises	Sea Cloud Hussar	138
Silversea Cruises	Silver Spirit	540

Figure 7.30: Ocean Ships to Debut 2009 (Ward 2009)

Cruise Line	Name of Ship	Passengers (lower bed capacity)
AIDA Cruises	to be announced	2.174
CIP Cruises	to be announced	264
CIP Cruises	to be announced	264
Celebrity Cruises	Celebrity Eclipse	2.850
Costa Cruises	to be announced	2.260
Cunard Line	Queen Elizabeth	2.092
Holland America Line	to be announced	2.100
MSC Cruises	MSC Magnifica	2.568
Norwegian Cruise Line	F3	4.200
Oceania Cruises	to be announced	1.260
P&O Cruises	to be announced	3.110
Royal Caribbean International	to be announced	2.887
Seabourne Cruise Line	to be announced	550
Star Clippers	to be announced	296

Figure 7.31: Ocean Ships to Debut 2010 (Ward 2009)

Taking a closer look on the cruise industry, it can be observed that more ships enter the market (figures 7.31 and 7.32), increasing capacity, and in turn enforcing competition.

The figures show more: Cruise vessels are becoming bigger (Schmenner 2009, Röwekamp 2010). According to bluewaternetwork (2008) passenger capacity per ship increased from 1,800 in 1996 to an estimated 5,400 in 2010. This involves two consequences.

Firstly, competition increases further. Secondly, more humans are penned up together. The logical consequence is that statistically more incidences occur, the handling of passengers will be more difficult, needs to be more effective and efficient. Otherwise customer satisfaction is hard to achieve.

But how to achieve customer satisfaction? Besides excellent communication, it is crucial "to truly understand the customer's viewpoint" (Frisch 2006), to know what they want and what they do not want, e.g. by listening to complaints. Only then counteraction and performance increases are possible. Kandampully (2007) states that 70% of complaining customers will become repeaters if their complaint is resolved, and 95% if it is resolved quickly. Besides this chance to generate repeat business, complaint handling also affects customer acquisition. Through word-of-mouth a customer tells 9-10 people about problems occurred to him. However, if customers have "their complaints satisfactorily resolved [they] tell an average of five people about the treatment they received." (Kandampully 2007, p. 112).

Alas, businesses never hear from 96% of their unhappy customers, which makes it hard to improve service (Kandampully 2007). Thus, one aspect to be approached is to increase complaints by finding ways to lower barriers to complaining, basically simplifying the process and transforming it into a convenient experience.

However, knowing is not solving. Increasing the number of complaints or reported incidents is only useful if they can be handled satisfyingly. This usually involves quick and throughout solutions. Consequently, effective and efficient, transparent incident handling is necessary.

Having observed this, this paper's objective becomes obvious. Apparently, cruise ships need effective and efficient complaint handling. Therefore the guiding research question states as: How can complaint handling on board of cruise ships be improved from the customers' as well as cruise companies' perspective?

Consequently, arousing questions were: What are currently used systems and procedures? Are they sufficient to keep up with the requirements? The first hypothesis can be stated as: Existing complaint handling on board of cruise ships is poorly conceived, not streamlined and consequently slow and costly, thus not sufficient to the important role it plays in ensuring business success.

But this needed validation. To gather rich descriptive information, qualitative research was necessary. In contrast to quantitative research, qualitative methods are based on human interactions, generating a complexity that cannot be described by statistics. Therefore, interviews with cruise professionals were undertaken, providing the insights to draw a typical complaint handling workflow. Based on this, the authors applied workflow optimisation and, relying on self-reflection and improvement suggestions of interviewees, designed an alternative workflow. Accordingly, the second hypothesis formulates: An optimised and electronically supported complaint handling workflow on board of cruise ships will enhance process efficiency as well as service quality.

This hypothesis was tested by simulating incident handling with both workflows and comparing the results to quantify the findings. Furthermore qualitative aspects were discussed.

The generated findings of this paper are useful for implementing a more professional approach to complaint handling on cruise ships, taking into account recent changes in the cruise industry like larger ships and increased application of electronic communication systems.

7.2 Literature Review

7.2.1 Business Process and Workflow

Optimising business processes has become an important issue in today's society of fast developing technology. Especially in staff intensive operations the need for a system to optimise and automate processes has evolved. As a result workflow management systems have been introduced in a variety of industries. The primary characteristic of these systems is the automation of processes using a combination of human and machine-based activities (Hollingsworth 1995).

From the definitions by the Workflow Management Coalition (1999), Österle (1995, quoted in Gadatsch 2005) and Jacobson (1995, quoted in Lindsay & Lunn, n.a.) the following key elements of a business process can be derived:

A business process has a goal, defined inputs and outputs, uses resources, consists of a number of activities that are carried out in some order, may affect more than one organisational unit and creates value for the customer (Sparx Systems 2004).

The Workflow Management Coalition defines workflow as a completely or partially automated business process during which information, documents and tasks are passed on amongst participants, according to a fixed set of procedures to contribute to a defined business goal (Workflow Management Coalition 1999).

Generically speaking a workflow supports the sequences of operations of any business process, in whole or in parts. It contains all specifications, such as time and resources, necessary for an automated steering of the business process (Gadatsch 2005).

Workflows can be divided into three categories (Gadatsch 2005): General workflow, flexible and ad-hoc workflow. Complaint handling on cruise ships can be categorised as flexible workflow, as this business process cannot be standardised completely as incidents differ in type, scope, urgency and impact. Certain tasks can be modified or left out. This gives the participants more freedom in completing their tasks (Gadatsch 2005).

7.2.2 Workflow Management and Workflow Management Systems

Workflow Management controls and supports business processes and ensures the lasting maintenance of the workflow (Galler & Scheer 1994). It is concerned with analysis, modelling, simulation, reorganisation and steering of workflows. With the help of workflow management systems an organisation can increase the efficiency, speed and transparency of its

processes (Skrabl 2007). Consequently, to test the hypotheses of this paper, the authors applied workflow management for modelling and simulating workflows.

7.2.3 Complaint Management

A complaint is the expressed dissatisfaction of a customer. The aim of complaint management is not to eliminate customer complaints but to solve complaints fast and satisfactorily to prevent customers from leaving, preserving the company's competitiveness. Every complaint is a learning experience, useful to reveal weak points, improve product and service quality, bind customers to the company and avoid negative word-of-mouth propaganda (Schüller 2006).

Direct complaint management consists of complaint stimulation, receiving, processing and reaction and encourages customers to complain by establishing suitable channels. Indirect complaint management focuses on quality management, involving complaint analysis, controlling, reporting and information utilisation. (Stauss 2008)

7.2.4 Similar Ideas and Differentiation

The idea of turning complaints into benefits has reached all service oriented businesses. Every organisation has established guidelines for handling complaints though the degree of structure differs. Small companies often only have a vague idea of how to deal with customer complaints whereas larger organisations have clearly set rules and guidelines.

Cruise lines are in between. They have fixed sets of procedures but due to different incidents and the distance between planning and actual complaint dealing, complaint management processes are not streamlined.

Information technology has fostered the development of efficient systems to process and manage complaints. These systems are able to process complaints faster, are less susceptible to mistakes and can handle increasing numbers. Such IT-based management complaint systems with scenario workflows are already in operation. For example the “i-Sight service and complaint management” software by Customer Expressions, used by Tourneau to improve customer service levels (Customer Expressions Corporation, 2010).

Such a system needs to be applied on cruise ships, facilitating collaboration of departments, reducing respond time, entering, categorising and prioritising complaints, using workflows to manage tasks, utilising data mining to produce real-time reports and helping to identify improvement opportunities (Customer Expressions Corporation, 2010). The differentiation to existing complaint management systems is the higher degree of customisation and the integration of passengers into the system.

7.3 Research Method

7.3.1 Choice of Research Method

With regard to the dyadic nature of this work, the research methods used in this paper are various.

A limited qualitative (type) exploratory (purpose) literature survey (strategy) was undertaken to shed light on unclear issues.

Referring to the research question, the purpose was to be conclusive explanatory (Wauters, presentation, 2010), as it was necessary to gather detailed information about current complaint handling. Data was collected conducting in-depth interviews with cruise professionals to follow the research strategy of a deductive case study. The objective of case studies is to focus on one event to develop intense knowledge in this area (Wauters, presentation, 2010). In this case the respective focus lay on the process of complaint handling on cruise ships. This knowledge provided the necessary insights to draw a typical complaint handling workflow as well as testing the first hypothesis. As determined by research purpose and case study-strategy with in-depth interviews, the research style was qualitative, as it is widely acknowledged "that quantitative research is not especially good at generating understanding" (Blichfeldt & Kessler 2009, p. 5).

Due to the final aim of optimising an existing process, the process-focused method of using an explanatory case study was most suitable.

For the second part, based on the case study and testing the second hypothesis, modelling research in the form of simulation modelling was applied to gather quantitative and qualitative data (Panneerselvam 2004). Based on shortcomings evolving from the case study, workflow optimisation was undertaken, allowing the comparison of the existing and the optimised workflow.

7.3.2 Data Collection

Primary data was gathered by taping four in-depth interviews. The interviewees had to have experience working on cruise ships and dealing with passengers. The sample was not selected according to any social or biological features as this has no influence on the data.

Preferably all interviewees were working on different ships / companies, ensuring that the collected data provides a broad picture of complaint handling on board. Looking at interviewees #3 and #4 (figure 7.39), it becomes apparent that both worked on the same ship. The authors decided to take both interviews, as this provided the opportunity to compare complaint handling in 2008 and 2010, potentially detecting recent changes.

For comparison of the complaint handling workflows, information was needed about the average number of complaints per cruise day. As not all interviewees were able to recount according numbers, these details were drawn from the experience of other cruise professionals, too.

Interviewee (Interview Date)	Ship(s)	Company	Last Year of Service	Profession
#1 (02/11/2010)	Liberty of the Seas, Phapsody of the Seas	Royal Caribbean International	2010	Student of Maritime Tourism
#2 (05/11/2010)	Maxim Gorkiy	Phoenix Reisen	2008	Student of Maritime Tourism
#3 (03/11/2010)	Columbus	Hapaq Lloyd Kreuzfahrten	2008	Former student of Maritime Tourism

#4 (31/10/2010)	Columbus	Hapaq Lloyd Kreuzfahrten	2010	Student of Maritime Tourism

Figure 7.32: Overview Interviewees (Authors 2010)

7.4 Data Collection & Discussion

7.4.1 Interviews

The details of the interviewees are highlighted in figure 7.40.

The combined experience of the interviewees enabled the authors to gain a clear picture of complaint handling on board of cruise vessels. All interviews adding valuable information to and confirming the authors' experiences. Thus, step by step a workflow could be developed.

The interviews were unstructured, nevertheless following a rough guideline along a few key points and within a general framework (figure 7.40).

General Framework	Key Points
Ship worked on	Experience with customer complaints
Time spent on board	Existing complaint management procedures or systems on board
	Specific occurrences that happened
	Duration of different steps undertaken to solve a problem

Figure 7.40: Interview Guidelines (Authors 2010)

In the following parts, the content of the interviews together with the authors' experience are depicted in the form of an incident handling workflow like it can be found on an average cruise ship.

7.4.2 Workflow Modelling

Figure 7.42 shows the generic workflow of incident handling on board from an incident perceived by a passenger to its solution as well as the responsible units or positions. The presentation of the processes is kept rather simplified to support understanding. Procedures as well as job titles and responsibilities may vary amongst cruise vessels. However, the workflow depicted shows a common way of handling complaints. For modelling the processes the software ARIS Express was used. Since 2009 this tool is provided by IDS Scheer for free usage. Accordingly the workflow distinguishes between events, activities, documents, files or data bases (figure 7.41).

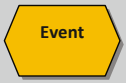
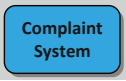
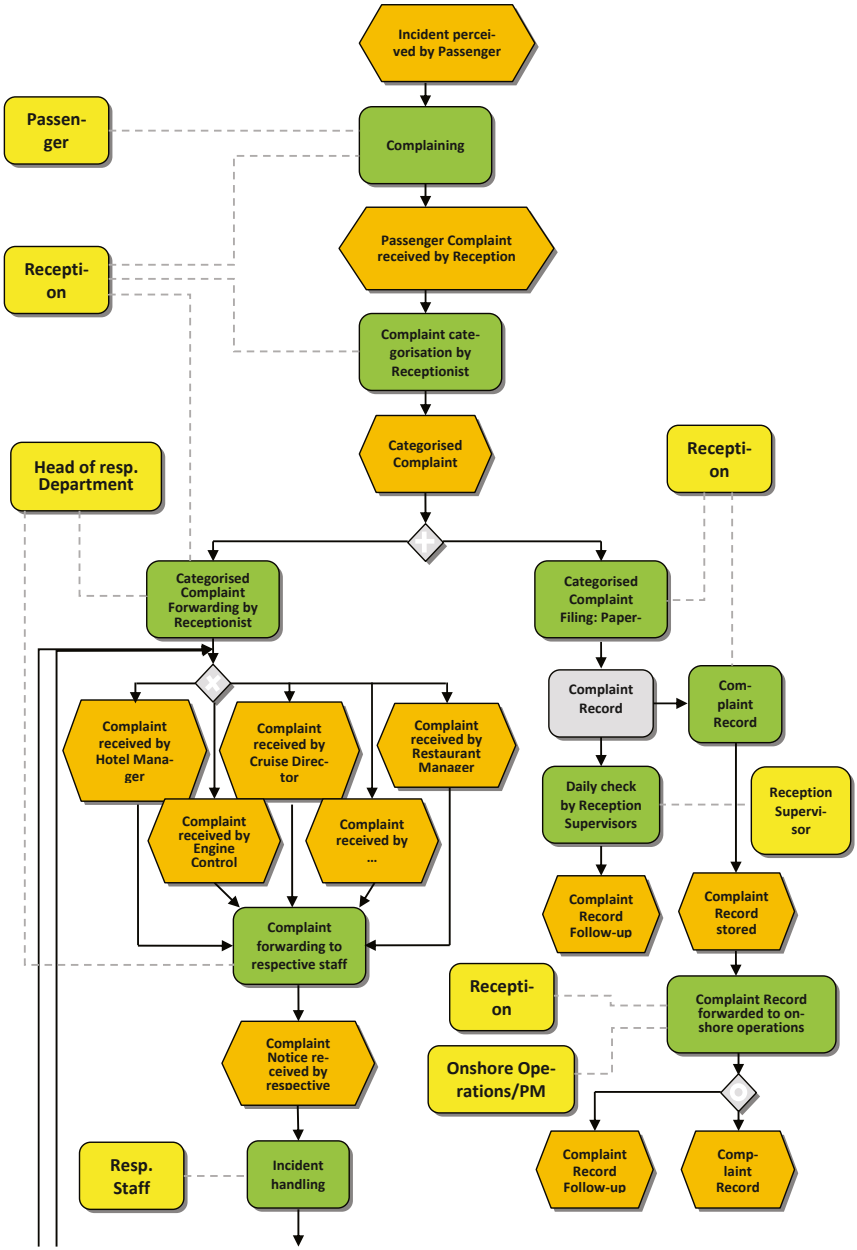
Symbol	Meaning
Orange hexagon 	Event
Green rectangle 	Process / activity
Grey rectangle 	File / data base / document
Yellow rectangle 	Role / responsibility
Blue rectangle 	Computerised complaint system
Arrow 	Direction of workflow
Dashed line	Connection of role / responsibility to process / event
Dotted arrow	Additional data flow
	All directions have to be taken
	Only one direction is possible
	All directions are possible

Figure 7.41: Workflow Legend (Authors 2010, according to ARIS Express by IDS Scheer 2010)

7.4.3 Current Incident Handling Workflow



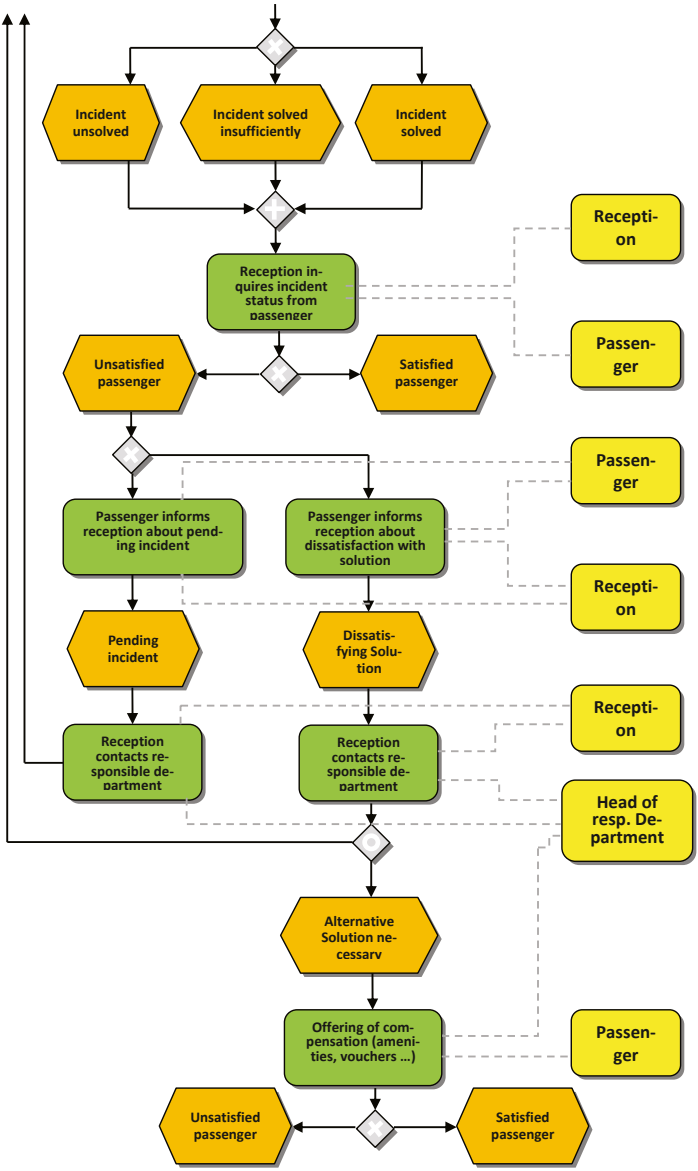


Figure 7.42: Current Workflow (Authors 2010)

The workflow (figure 7.42) starts with an incident that is perceived by the passenger who responds by approaching the reception to complain, relying on a purely human interface. This can be derived inter alia from the explanation of interviewee #1 that “the guest comes to the reception” and #3 that “the guest has to run to reception and fill in such a stupid slip of paper”. When the complaint is received by the receptionists, it has to be categorised. This is supported by the statement “I had to know whom to contact directly” (#1). Subsequently, the categorised complaint is forwarded to the head of the responsible department via phone call, mail, note or workorder, as confirmed by #1 (“Forwarding of problems via email or telephone so to speak”). Responsible departments could for example be Hotel Management, Excursion or Carpenter. Moreover, the categorised complaint needs to be filed by the receptionist. Some cruise lines purely use paper-based documentation: “It was just a normal empty book, three lines about the problem, the time and passenger details” (#2). Others use IT based ways, either spreadsheets (#4: “If it was something very serious, it was included in an Excel spreadsheet. But this was only a very simplified spreadsheet, asking for cabin number, date of happening, problem, passenger name and what was done about the problem and by whom.”), or slightly more sophisticated systems (#1: “It exists a system in the computer where everything can be entered, including guest name, cabin and booking number.”).

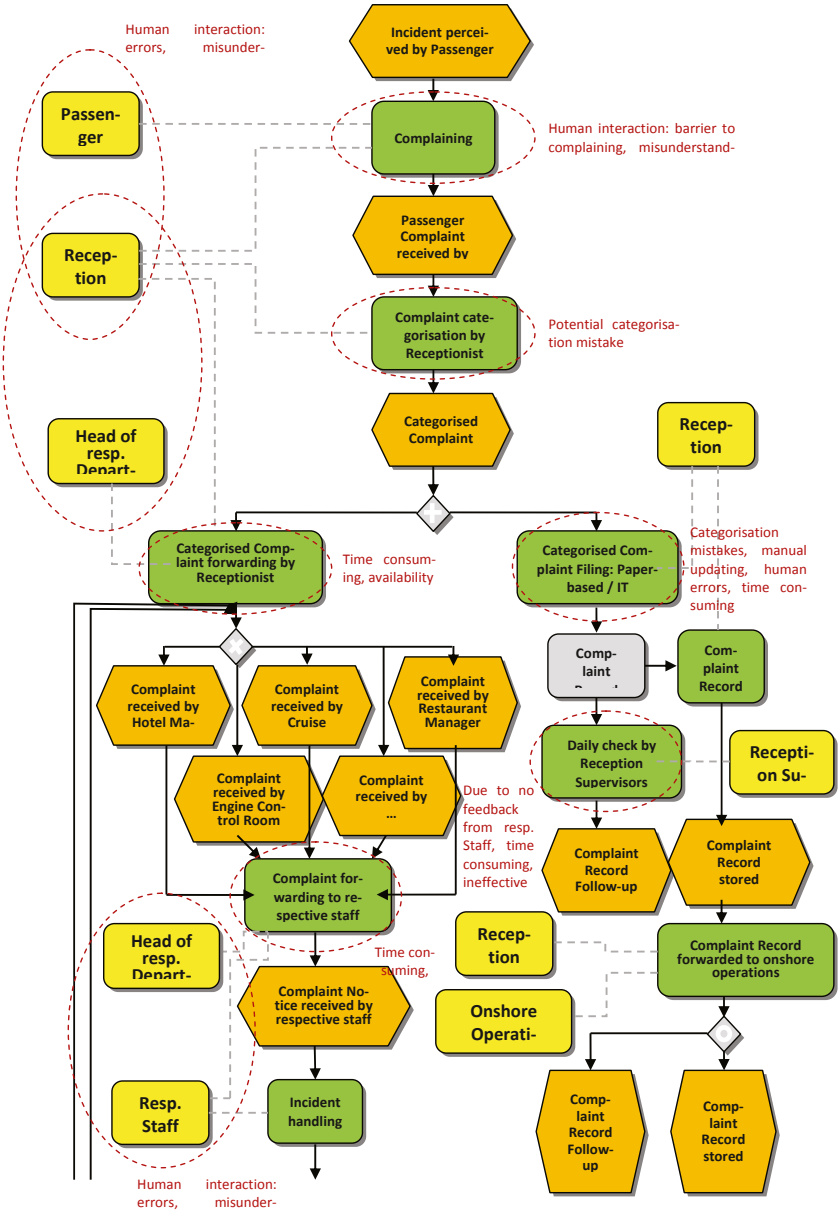
Filed complaint records are stored and after the cruise forwarded to onshore operations for record keeping and further complaint dealing by product management departments, as verified especially by #3. Further, the complaint records generated by the receptionists are also used for daily complaint follow-ups carried out by reception supervisors or senior receptionists.

Coming back to the incident forwarding, the incident information has to be forwarded again by the head of the responsible department to the respective staff.

In the next step there are three possibilities. Either, the incident is solved, solved insufficiently, or not solved at all. However the outcome, the receptionist usually inquires the incident status in a follow-up with the passenger. #1: “Then, one day later you do the follow-up, asking if everything is all right”. If the incident was solved, the passenger is satisfied and the incident handling can be closed. If the incident is not solved or solved insufficiently, the passenger responds accordingly to the inquiry. Both cause another run through the sequence.

In the case that, despite staff efforts, the passenger perceives the solution as insufficient, reception and head of department have to come up with an alternative solution aiming to satisfy the guest by offering compensations, like on board credit, free treatments or even reimbursement. Whether the passenger is satisfied or not, in both cases the incident handling workflow on board will be closed.

7.4.4 Discussion of Current Incident Handling Workflow



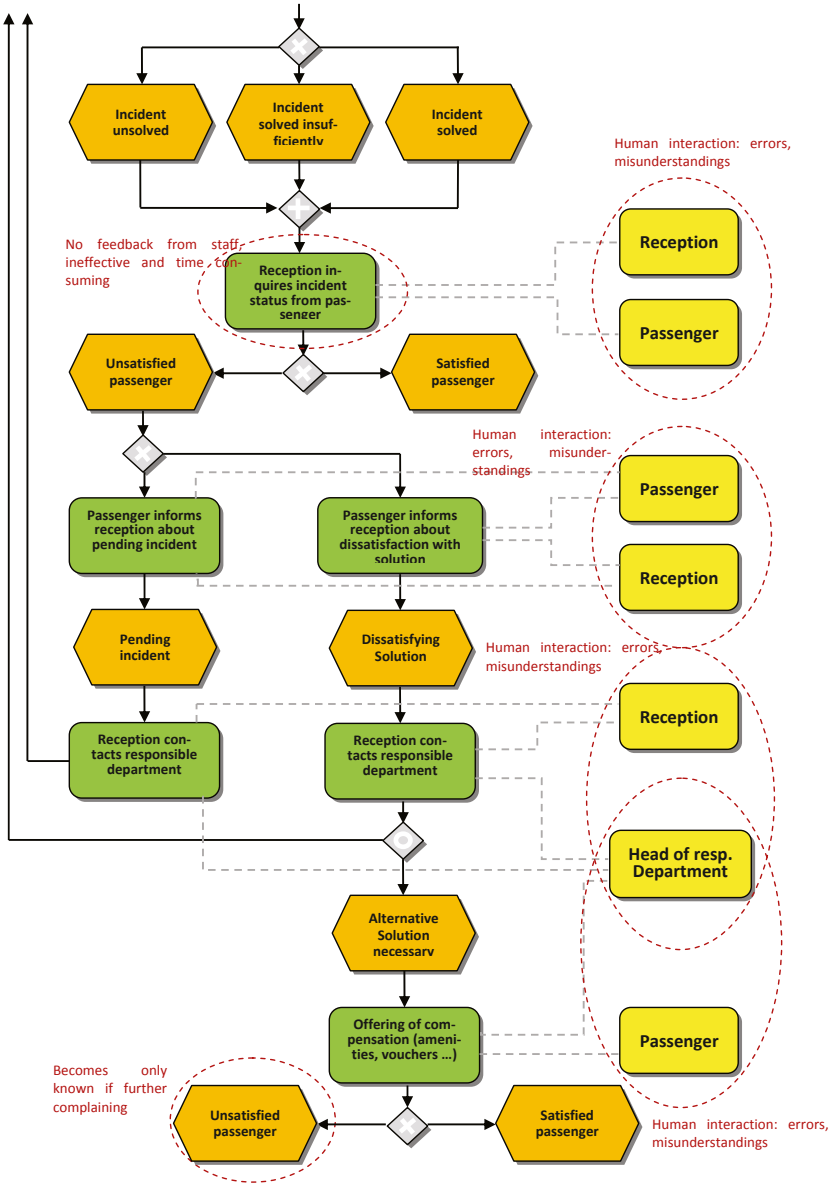


Figure 7.43: Critical Issues of the Current Incident Handling Workflow (Authors 2010)

This part identifies the critical issues highlighted in figure 7.43 and incorporates criticisms and optimisation potential outlined by the interviewees, which is the basis for the development of an optimised incident handling workflow.

General criticism concerning the handling of incidents was expressed by all four interviewees. #4 for example told the authors that “there was nothing professional”, #2 underlined this point by saying that “the process was not exactly optimal or efficient”.

The issue brought up most often concerns the duration. To solve an issue and run through the workflow processes takes too much time, even for small incidents (#3). #1 referred to the whole workflow as “it could even take some days”. A similar opinion was collected from #2, who stated that documentation and forwarding “took quite some time”. She even made the improvement suggestion that it “would run faster and more efficient”, if responsibilities and information would be centralised. Consequently, an optimised incident handling workflow has to ensure time savings.

Paying closer attention to the current incident handling, it becomes apparent that the interfaces between the involved parties of each step are purely human, as visible left and right of the workflow. #1 stated accordingly that “it all relies on humans”. But as commonly known humans are prone to errors, especially if they are under pressure, which is likely when working with increasing passenger numbers. Therefore the possibility is high that misunderstandings affect the workflow. The more human interfaces, the higher the possibility of failure. Therefore, an optimised workflow should seek to minimize the number of human interfaces. Moreover, the human interface might be a barrier to complaining. Sometimes, passengers also do not know where to complain and approach randomly crew members. Consequently a central point of contact for complaining is recommendable when optimising the workflow.

The categorisation can be a point of failure when complaints are categorised wrongly. #1 stated “for me it always was the problem that I did not know where to put the problem”. Wrongly categorised incidents prolong the time for the information to reach responsible departments, affecting the entire workflow.

Complaint filing is also vulnerable to human errors, e.g. manual updating of the status. #3 told the authors about an incident stated nowhere in the files, but was mentioned in the passenger’s feedback form, complicating the work for onshore operations in understanding the problem.

Generating an accurate complaint record also affects the daily check by reception supervisors. This is necessary due to no feedback procedures being implemented between respective staff and reception. This lack of information flow causes the time-consuming work of checking all reported incidents.

#2 identified further optimisation potential regarding onshore complaint handling. On her vessel “basically nothing happens with the complaints afterwards”. This way the opportunity to improve service quality or product is neglected. However, this depends on the company/ ship.

Another time-consuming process is forwarding as it depends on the availability of the managers and their subordinates. As #2 put it, “I believe in some cases this might take a few hours” and #1 mentioned that sometimes information is not forwarded until the next meet-

ing the following day. This strongly affects the duration of the entire workflow as crew is not always available. Consequently it is one of the aspects to be optimised.

The biggest problem identified is the lack of feedback from the staff handling the incident or the department managers so that the reception has to place an incident status inquiry towards the passenger. Another time-consuming process #3 testified the lack of feedback by saying “No, there comes nothing. [...] But in most cases there was no reporting: here it goes, it is completed.” Moreover, as a follow up is usually done 24 hours later (#1, #3), this is valuable time the workflow cannot be closed or restarted.

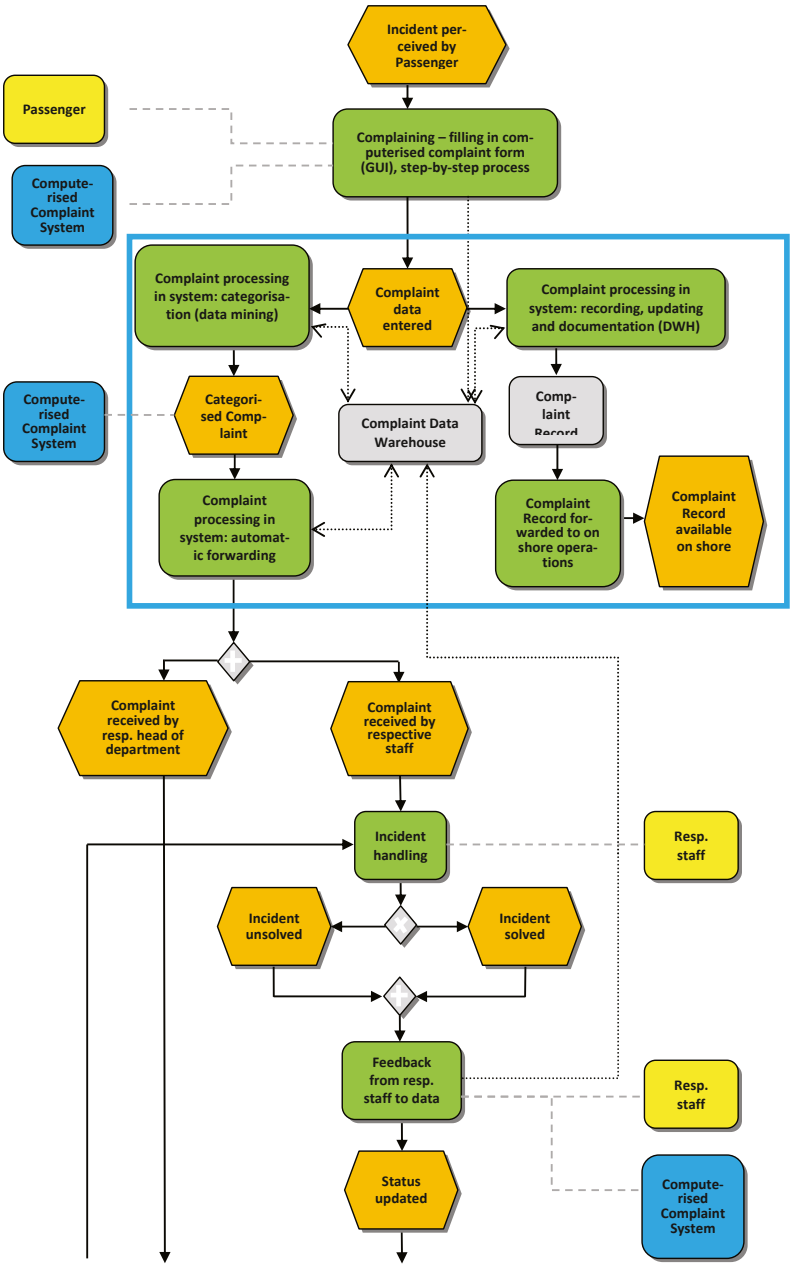
The lack of centrally available information poses another difficulty for the receptionists as they have to “put passengers off” (#2). leading to unpleasant emotions and wasted time where nothing is done about the problem.

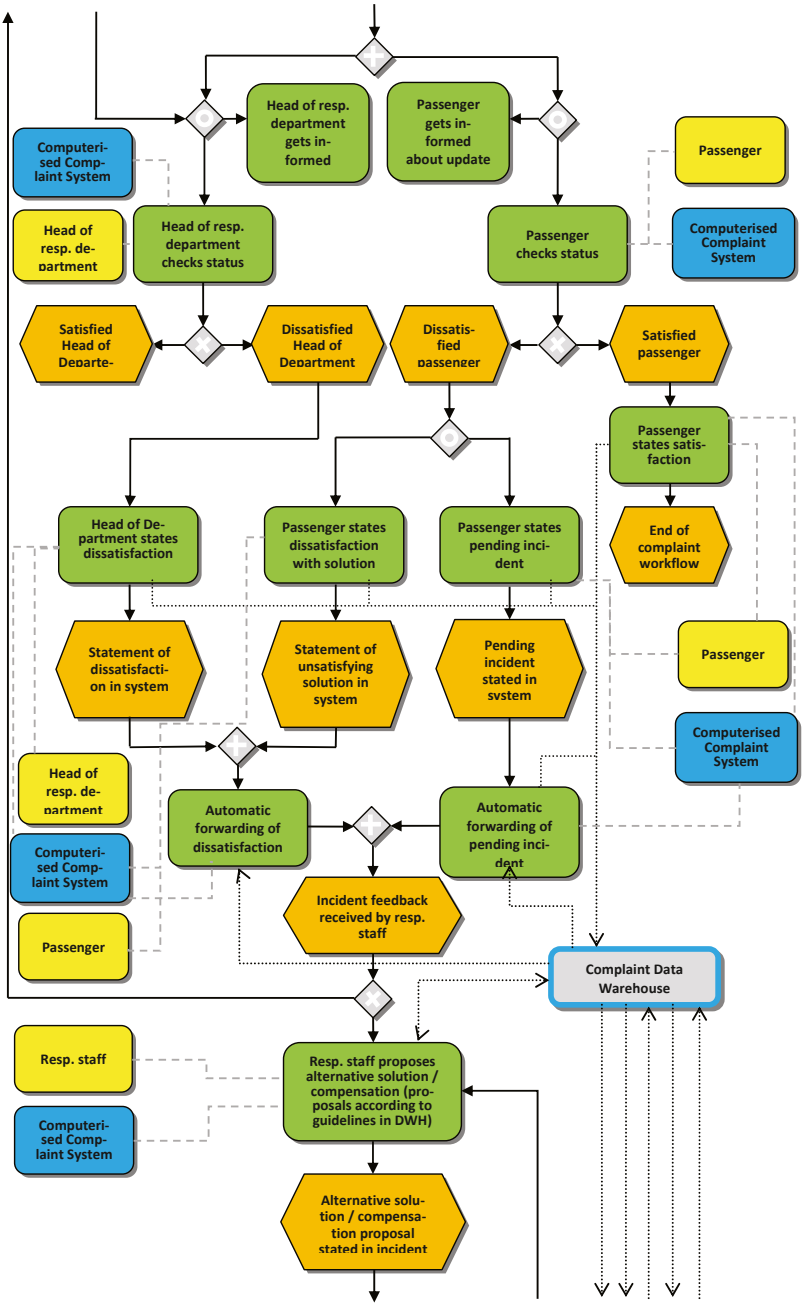
If the receptionists finally get negative feedback from passengers, the whole time-consuming process starts again. This evokes the need for centrally stored information, rapid feedback procedures and instant communication methods.

At the end of the workflow it is impossible for the crew to know if the passenger is truly satisfied with the received compensation. This dissatisfaction might only become apparent when evaluating the final cruise feedback sheets, when it is too late to “repair” the negative experience. Consequently, checking the passenger’s satisfaction after receiving compensation is necessary.

After outlining the critical points a clear picture about areas of potential optimisation results. This positively confirms the first hypothesis. Therefore the next part of the paper will incorporate suggestions for an electronically based and optimised incident handling workflow.

7.4.5 Optimised Incident Handling Workflow




Computerised Complaint System
Head of resp. department gets informed
Passenger gets informed about update
Passenger
Head of resp. department
Head of resp. department checks status
Passenger checks status
Computerised Complaint System
Satisfied Head of Departe-
Dissatisfied Head of Department
Dissatisfied passenger
Satisfied passenger
Passenger states satisfaction
Head of Department states dissatisfaction
Passenger states dissatisfaction with solution
Passenger states pending incident
End of complaint workflow
Statement of dissatisfaction in system
Statement of unsatisfying solution in system
Pending incident stated in system
Passenger
Computerised Complaint System
Head of resp. department
Automatic forwarding of dissatisfaction
Automatic forwarding of pending incident
Computerised Complaint System
Passenger
Incident feedback received by resp. staff
Complaint Data Warehouse
Resp. staff
Resp. staff proposes alternative solution / compensation (proposals according to guidelines in DWH)
Computerised Complaint System
Alternative solution / compensation proposal stated in incident

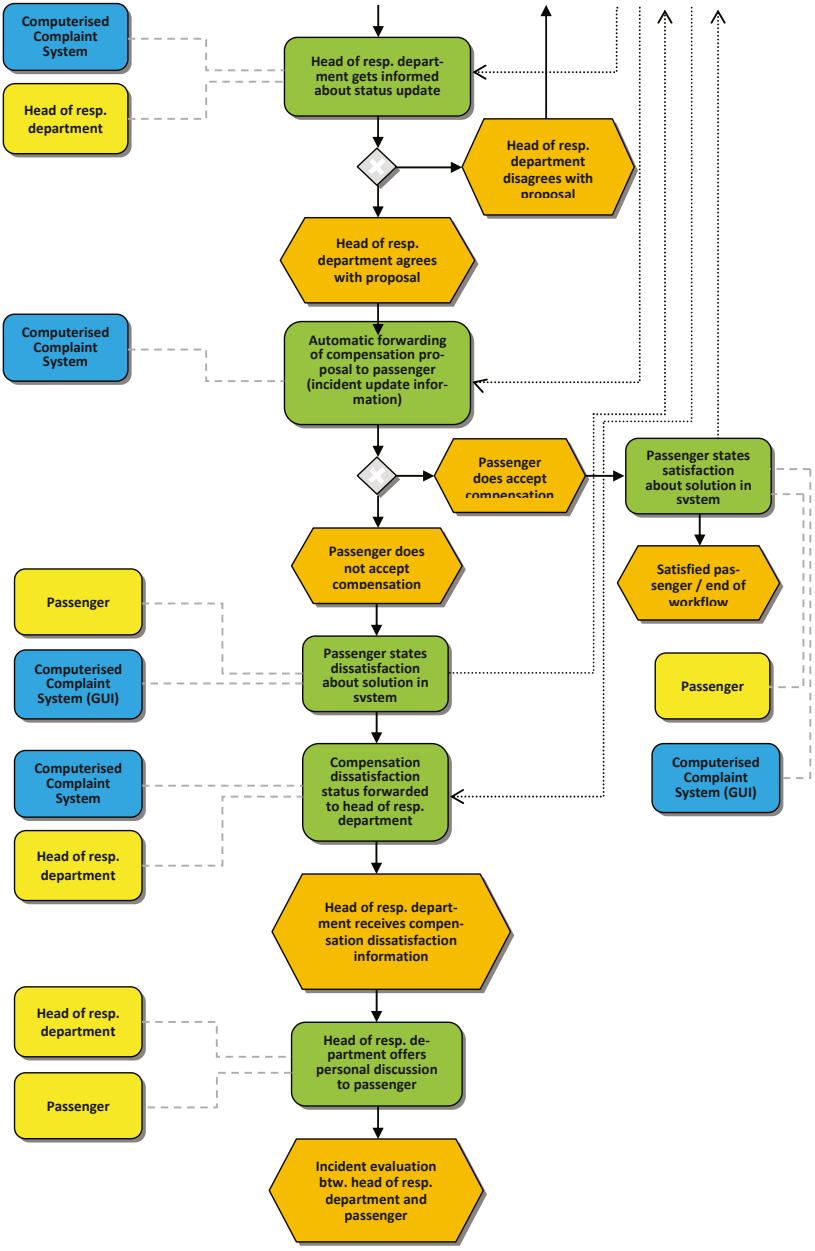


Figure 7.44: Optimised Incident Handling Workflow (Authors 2010)

The optimised workflow (figure 7.44) starts with a passenger perceiving an incident. Instead of going to the reception, the passenger fills in a computerised complaint form via the graphical user interface (GUI) connected with the ships complaint system, possibly integrated into the infotainment system as already implemented on several cruise ships. This allows the passengers to avoid the tenuous business of finding someone they can complain to. For ships not equipped with cabin infotainment access the possibility of complaint terminals can be contemplated.

The next activities are entirely taking place within the suggested system, automatically processing data. The incident is categorised according to preset criteria using data mining, it is documented in a complaint record that is stored in the data warehouse, and the information is forwarded automatically to the department managers as well as the staff on duty.

Forwarding the incident information to the department heads and staff on duty can be realised by linking an advanced pager and communication system with portable devices to the complaint system. With preset routines, entered shift schedules and clearly defined responsibilities available in the data warehouse, it is possible to integrate processes which forward the incident information to the respective departments and crew members. This is done automatically and particularly shortens the forwarding aspect as information is forwarded immediately.

As incident handling depends on the nature of the incident and the capabilities of staff, it cannot be optimise. Outcome can be either a solved or unsolved incident. Disregarding the outcome, the responsible staff will give feedback to the data warehouse, updating the status of the complaint record. This status update triggers an automatic message to the complainant as well as the department head. Department managers have the opportunity to state their dissatisfaction in the system, immediately causing information to be sent to the subordinate. The passenger also receives the update and can state the satisfaction via the GUI, the electronic complaint record gets updated and the workflow is closed. A dissatisfaction statement prompts a corresponding message to be sent to the respective staff member.

This design integrates a better feedback. Instead of waiting 24 hours for the follow-up, all involved individuals can always check the complaint status and information about changes are forwarded automatically. This in turn allows immediate feedback, shortening the process. Furthermore, a complaint check by reception supervisors is no longer necessary. Department managers are also kept up-to-date and can control the performance of their subordinates.

In case the department manager states his dissatisfaction with the solution provided by the crew or the passenger states a still pending incident, the respective crew member has to work on the incident again. The workflow will go through the process again until a positive feedback is given. If the passenger states his dissatisfaction with the provided solution but the respective employee perceives that there is no better solution possible, he proposes compensation. Compensations are to be proposed according to compensation guidelines which are integrated in the data warehouse of the complaint system.

Afterwards, the responsible manager receives the corresponding proposal and is asked for agreement. If this is not given, the subordinate has to rework his proposition until the manager agrees. A new incident update is then sent to the passenger which needs to be ac-

cepted. If satisfaction is stated, the workflow can be closed with an according update of the electronic complaint report. If the proposed compensation is not accepted, a corresponding statement is to be entered by the passenger. This status update within the system gets automatically forwarded to the responsible head of department, who will then offer a personal discussion to the passenger to evaluate the incident and find a solution together.

Automatically forwarding status updates reduces the time needed until a complaint is closed, reducing the amount of time the passenger is unhappy. Moreover, the number of intermediaries is reduced. Furthermore, in contrast to the current workflow, the passenger has more control over the entire course of actions and can influence procedures and outcome by giving feedback.

A distinguishing aspect of the optimised workflow can be seen right and left of the actual course of processes and events. As visible, there are no purely human interfaces, except at the end, when there is no other way to satisfy the passenger. This reduces the risk of misunderstandings and errors when dealing with humans.

7.5 Quantitative Evaluation - Workflow Simulation

To compare the optimised workflow with the current one, a simulation is necessary. This means testing the amount of time necessary to solve a fictitious incident and the corresponding costs related to the employees concerned with solving this incident.

The amount of time appointed to each step is derived from the interviews and corresponds with the authors' own experiences. However, durations are only estimations and can vary. Therefore the outcome of this simulation is generic, but nevertheless sufficient for comparing both workflows.

Costs for involved employees are based on information retrieved from www.cruiseshipjobs.net (2005) and are not accountable for every cruise line. Furthermore it has to be remarked that the figures taken from the website are only the amounts paid to the employees, disregarding any additional cost of employment for the companies. Nevertheless, for comparing the two workflows they are still suitable as both simulations are carried out under equal circumstances.

For the simulations, two scenarios each are assumed. Firstly, a base case where the incident can be solved with the minimum amount of time and effort required, one throughput only. Secondly, the worst case scenario, assuming the incident cannot be solved immediately, is pending for some time and passengers are not satisfied with the solution, so the processes are iterative and need the maximum amount of time.

7.5.1 Outcomes Duration

The simulation generates various results: the time from the starting event until the closing event of each workflow and case scenario, the actual amount of time spent on solving the specific incident, the actual amount of working time spent on solving the incident for every involved crew member, and the total amount of working time that has to be paid for solving the respective incident. The calculated times can be seen in the following figures.

	Base Case	Worst Case
Start until closure of workflow	24 hrs 15 min	145 hrs 45 min
Actual time spent on incident	2 hrs 6 min	10 hrs 35 min
Receptionists	41 min	2 hrs 55 min
Head of responsible departments	5 min	1 hrs 50 min
Respective staff	65 min	144 hrs 30 min
Reception supervisors	20 min	1 h
Total paid working time	2 hrs 11 min	150 hrs 15 min

Figure 7.50: Duration of Current Workflow (Authors 2010)

	Base Case	Worst Case
Start until closure of workflow	1 h 15 min	120 hrs 33 min
Actual time spent on incident	1 h 6 min	96 hrs 53 min
Receptionists	0 min	0 min
Head of responsible departments	2 min	25 min
Respective staff	1 h 4 min	96 hrs 19 min
Reception supervisors	0 min	0 min
Total paid working time	1 h 6 min	96 hrs 44 min

Figure 7.51: Duration of Optimised Workflow (Authors 2010)

Regarding the calculation for the existing workflow (figure 7.50), the base case includes the following processes and events (figure 7.52).

Action	Duration	Total	Timing
Passenger perceives incident and complains at reception	15 min	15 min	10:00 – 10:15 (1st day)
Receptionist categorises incident	2 min	17 min	
Receptionist forwards information to head of responsible department	5 min	22 min	
Department manager forwards information to respective staff	5 min	27 in	
Respective staff handles the incident ➔ Incident is solved	60 min	**87 min** **(1st day)**	**11:27** **(1st day)**
Reception supervisors daily check after 24 hrs	20 min	20 min	09:45 (2nd day)
Receptionist approaches passenger	5 min	25 min	
Passenger gives feedback to receptionist	5 min	**30 min** **(2nd day)**	**10:15** **(2nd day)**
Filing the complaint record	2 min	2 min	
Updating the complaint record	2 min	4 min	
Storing the complaint record	5 min	**9 min**	

Figure 7.52: Processes & Events of Existing Workflow - Base Case (Authors 2010)

The incident is solved the same day it is reported but the workflow can only be closed after enquiring the satisfaction status the second day, resulting in 24 hours and 15 minutes from start until closure. The actual time spent actively working on the incident sums up to 2 hours and 6 minutes.

Total paid working time sums up to 2 hours and 11 minutes for each incident solved in the fastest way. This amount does not equal the actual time spent actively working on the problem, as processes are running in parallel and involve more than one individual at the same time.

Concerning the worst case, the longest possible durations are considered and the incident is first pending and then not solved satisfyingly (figure 7.53).

Action	Duration	Total	Timing
Passenger perceives incident and complains at reception	15 min	15 min	10:00 – 10:15 (1st day)
Receptionist categorises incident	2 min	17 min	
Receptionist forwards information to head of responsible department & department manager forwards information to respective staff	60 min	77 min	
Respective staff handles the incident (apparently severe problem)	2880 min (48 hrs)	**2957 min**	
Reception supervisors check	20 min	20 min	09:45 (day 3)
Receptionist approaches passenger	5 min	25 min	
Passenger gives feedback to receptionist ➔ Incident is still pending	5 min	**30 min (day 3)**	**10:15 (day 3)**
Receptionist forwards information to head of responsible department & department manager forwards information to respective staff	60 min	60 min	
Respective staff handles the incident (apparently severe problem)	2880 min (48 hrs)	**2940 min**	
Reception supervisors check	20 min	20 min	09:45 (day 5)
Reception approaches passenger	5 min	25 min	
Passenger gives feedback to receptionist ➔ Solution is not satisfying	5 min	**30 min (day 5)**	**10:15 (day 5)**
Receptionist forwards information to head of responsible department & department manager forwards information to respective staff	60 min	60 min	
Respective staff handles the incident (severe problem)	2880 min (48 hrs)	**2940 min**	
Reception supervisors check	20 min	20 min	
Receptionist approaches passenger	5 min	25 min	
Passenger gives feedback to receptionist ➔ Passenger not satisfied, alternative solution (compensation) necessary	5 min	30 min	**11:25 (day 7)**
Offering of compensation ➔ Closure of workflow	20 min	**50 min (day 7)**	**11:45 (day 7)**
3x filing the complaint record	2 min	6 min	
3x updating the complaint record	2 min	12 min	
3x storing the complaint record	5 min	**27 min**	

Figure 7.53: Processes & Events of Existing Workflow - Worst Case (Authors 2010)

Evaluating the worst case, this gives 145 hours 45 minutes from start until closure. The actual time spent working on the incident sums up to 150 hours 35 minutes. For simplification, the entire 48 hours of complaint handling are taken into account. However, as the same procedure applies to the worst case of the optimised workflow, comparability is not affected. Paid working time sums up to 150 hours 15 minutes for solving a major problem.

In the base case of the optimised workflow (figure 7.54), the duration is 1 hour 15 minutes. As there is no time wasted waiting for replies or follow up, the actual amount spent working on the incident is 1 hour 15 minutes, too. Observing the individuals involved, it is visible that receptionists and reception supervisor are not involved any longer.

Action	Duration	Total	Timing
Passenger perceives incident and fills in complaint template via GUI	10 min	10 min	10:00 – 10:10 (1st day)
System processing data (categorising, forwarding, documenting)	1 min	11 min	
Respective staff handles the incident ➔ Incident is solved	60 min	71 min (1st day)	11:11 (1st day)
Feedback about successful complaint handling ➔ Status update	3 min	74 min	
Statement of satisfaction by passenger ➔ Updating complaint report & closure of workflow	1 min	**75 min (1st day)**	**11:15 (1st day)**

Figure 7.54: Processes & Events of Optimised Workflow - Base Case (Authors 2010)

For the worst case of the optimised workflow (figure 7.55) again the longest possible durations are considered.

Calculating the time from start until closure of the workflow the result is 120 hours 33 minutes. The actual time spent working on the incident accounts for 96 hours 53 minutes, mainly due to the large amount of time considered for incident handling. Looking at the individuals involved, receptionists and reception supervisors are not involved. The total paid working time is 96 hours 44 minutes. This figure is lower than the workflow time due to the time counted in for processing data in the system. This is contrary to the current workflow.

Action	Duration	Total	Timing
Passenger perceives incident and fills in complaint template via GUI	10 min	10 min	10:00 – 10:10 (1st day)
System processing data (categorising, forwarding, documenting)	1 min	11 min	
Respective staff handles the incident	2880 min (48 hrs)	2891 min	10:11 (day 3)
Feedback about complaint handling ➔ Status update	3 min	2894 min	
Statement of dissatisfaction by passenger (unsolved incident) ➔ Updating complaint report	1 min	**2895 min**	**10:15 (day 3)**
Respective crew member receives feedback			10:15 (day 3)
Respective staff handles the incident	2880 min (48 hrs)	2880 min	
Feedback about complaint handling ➔ Status update	3 min	2883 min	
Statement of dissatisfaction by passenger (solution insufficient) ➔ Updating complaint record	1 min	**2884 min**	**10:19 (day 5)**
Respective crew member receives feedback			10:19 (day 5)
Respective crew member states necessity of alternative solution ➔ Compensation proposal, status update	5 min	5 min	
Department manager does not agree with compensation proposal ➔ Statement of disagreement, status update	1 min	6 min	
2nd compensation proposal by crew member ➔ Status update	5 min	11 min	
Department manager agrees with proposal ➔ Status update & forwarding to passenger	1 min	12 min	10:31 (day 5)
Passenger does not accept compensation proposition ➔ Status update & forwarding to department manager	2 min	14 min	10:33 (day 5)
Offering of personal discussion & meeting with passenger ➔ Closure of workflow (satisfied passenger)	1440 min (24 hrs)	**1454 min**	**10:33 (day 6)**

Figure 7.55: Processes & Events of Optimised Workflow - Worst Case (Authors 2010)

7.5.2 Outcomes Costs

To compare the costs related to the time differences visible when evaluating the results in figure 7.50 and 7.51, it is necessary to know the average number of complaints per cruise day. A small survey about the number of complaints per cruise was carried out, asking cruise professionals for estimations and adding the authors' own estimations (figure 7.56).

Ship	No. of Pax	Average duration in days	Average No. of complaints	Avg. complaints per day
N. Jade	2402	12	45	3.75
N. Jade	2402	7	45	6.43
N. Jade	2402	7	80	11.43
N. Jade	2402	7	70	10
N. Jade	2402	12	100	8.33
Rhapsody of the Seas	2435	n/a	n/a	4
Liberty of the Seas	3634	n/a	n/a	4
	Average No. of complaints per cruise day			**6.85**

Figure 7.56: Average Number of Complaints per Cruise Day (Authors 2010)

Obviously, most of the estimations refer to only one cruise ship, thus limiting the validity of this small survey. However, due to differences in seasons, itineraries and trips, the figures are nevertheless representative. Even more so as the Norwegian Jade represents an average sized cruise vessel with 2402 passengers at double occupancy. The result of the survey is that on average there are seven complaints during one cruise day.

This is the basis for a calculation regarding the time spent on dealing with incidents and corresponding employment costs on an average cruise day for both workflows and case scenarios (figures 7.57 and 7.58).

Looking at figure 7.57, for processing seven complaints in the base case of the current workflow, a total of 15 hours 17 minutes paid working time is needed, amounting to salary costs of US$ 104.55.

Considering the worst case scenario, processing seven complaints takes 1,051 hours 55 minutes paid working time, resulting in US$ 7,055.85 salary to be paid out by the cruise company. These figures affect the number of staff needed to handle the complaints as the time refers to working time.

Current Workflow

Time per Complaint		Avg. No. of complaints per day	Avg. time needed for 7 com-plaints	Average salary / month	Average working days / month	Work-ing hrs / day	Avg. salary / hour	Salary spending on processing 7 com-plaints	
Base Case									
Start until closure	24h 15min	7							
Workflow time	2h 6min								
Receptionist	41min		4h 47min	$1,800	30	10	$6.00	$28.70	
Head of resp. department (e.g. Shore Ex. Man.)	5min		35min	$3,000	30	10	$10.00	$5.83	
Respective staff (e.g. plumber / electrician)	65min		7h 35min	$2,000	30	10	$6.67	$50.58	*Plus add. costs / em-ploye e*
Reception supervisor	20min		2h 20min	$2,500	30	10	$8.33	$19.44	
Total			**15 h 17 min**					**$104.55**	
Worst Case									
Start until closure	145h 45min	7							
Workflow time	150h 35min								
Receptionist	2h 55min		20h 25min	$1,800	30	10	$6.00	$122.50	
Head of resp. department (e.g. Shore Ex. Man.)	1h 50min		12h 50min	$3,000	30	10	$10.00	$128.33	
Respective staff (e.g. plumber / electrician)	144h 30min		1011h 30min	$2,000	30	10	$6.67	$6,746.71	*Plus add. costs / em-ploy ee*
Reception supervisor	60min		7h	$2,500	30	10	$8.33	$58.31	
Total			**1051 h 55 min**					**$7,055,65**	

Figure 7.57: Cost Calculation of Workflow Simulation - Current Workflow (Authors 2010)

In the optimised base (figure 7.58) case it takes 7 hours 42 minutes to process the average seven complaints per cruise day, which mounts up to US$ 52.13 salary costs for the cruise line.

In the worst case scenario paid working time needed to process the seven complaints per day is 677 hours 28 minutes. This again affects manpower needed. Howsoever, the salary costs for the cruise line result in US$ 4,529.53.

Optimised Workflow

Time per Complaint		Avg. No. of complaints per day	Avg. time needed for 7 com-plaints	Average salary / month	Average working days / month	Work-ing hrs / day	Avg. salary / hour	Salary spending on processing 7 com-plaints	
Base Case									
Start until closure	1 h 15 min	7							
Workflow time	75 min								
Receptionist	0 min		0 min	$1,800	30	10	$6.00	$0.00	
Head of resp. department (e.g. Shore Ex. Man.)	2 min		14 min	$3,000	30	10	$10.00	$2.33	
Respective staff (e.g. plumber / electrician)	64 min		7 h 28 min	$2,000	30	10	$6.67	$49.80	
Reception supervisor	0 min		0 min	$2,500	30	10	$8.33	$0.00	*Plus add. costs / em-ploye e*
Total			**7 h 42 min**					**$52.13**	
Worst Case									
Start until closure	120 h 33 min	7							
Workflow time	96 h 53 min								
Receptionist	0 min		0 min	$1,800	30	10	$6.00	$0.00	
Head of resp. department (e.g. Shore Ex. Man.)	25 min		3h 15 min	$3,000	30	10	$10.00	$32,50	
Respective staff (e.g. plumber / electrician)	96 h 19 min		674 h 13 min	$2,000	30	10	$6.67	$4,497.03	
Reception supervisor	0 min		0 min	$2,500	30	10	$8.33	$0.00	*Plus add. costs / em-ploy ee*
Total			**677 h 28 min**					**$4,529,53**	

Figure 7.58: Cost Calculation of Workflow Simulation - Optimised Workflow (Authors 2010)

7.5.3 Comparison of Workflows

Figure 7.59 summarises the outcomes of the simulation and indicates potential savings. The right three columns of the table compare the amount of time from start until closure of the workflow. This is particularly important for customer service, as this is the time passing by until the passenger is satisfied.

Base Case								
Time needed for processing 7 complaints			Salary spending for 7 complaints			Time needed for solving 1 complaint		
Current	Optimised	Savings	Current	Optimised	Savings	Current	Optimised	Savings
15 h 17 min	7 h 42 min	7 h 35 min	$104.55	$52.13	$52.42	24 h 15 min	1 h 15 min	23 h
Worst Case								
Time needed for processing 7 complaints			Salary spending for 7 complaints			Time needed for solving 1 complaint		
Current	Optimised	Savings	Current	Optimised	Savings	Current	Optimised	Savings
1051 h 55 min	677 h 28 min	374 h 27 min	$7,055.85	$4,529.53	$2,526.32	145 h 45 min	120 h 33 min	25 h 12 min

Figure 7.59: Simulation Summary (Authors 2010)

Working time within the worst case scenario is still high. This can be ascribed mainly to the repetition of the process of incident handling, which takes up the most time as it relies upon work procedures and individual capabilities. Still the amount of time that can be saved is considerable, as are the costs. Looking at the worst case scenario from the passenger's perspective, concerning the duration from start until closure of the workflow, the time to be saved is not much higher than for the base case, but can still make a difference in customer service.

Summarising the quantitative evaluation and comparison of both workflows, it can be stated that clear savings with regard to time, manpower and salary costs can be realised when applying the optimised workflow.

7.6 Qualitative Evaluation

This chapter will restrict itself to outlining and discussing qualitative issues.

7.6.1 Process Efficiency and Effectiveness

A side effect of the optimised workflow is the reduction of potential errors with respect to forwarding information correctly, taking time and nerves of crew and passengers alike. Thus, the optimised workflow positively affects customer service as well as work atmosphere.

Incidents might still be forwarded incorrectly by the system, due to potential errors in programming or insufficient information entered. However, this can be corrected by integrating an according function.

7.6.2 Process Simplification – reducing barriers to complain

Another qualitative advantage is the simplification for passengers. The barriers to complaining are lowered, especially when the proposed complaint system uses the existing infotainment systems. Reducing complaint barriers might generate more complainants. This sounds rather unwanted, but more complainants do not necessarily mean more unsatisfied passengers. Increasing the number of satisfied complainants increases the number of repeaters, who are essential for competing in a saturated market like the cruise industry.

7.6.3 Quality perception

Due to faster reaction to complaints as well as traceability of actions, the authors assume that perception of quality increases. Together with the feature of directly influencing the solution by allowing feedback, it is easier to mollify complaining guests.

Moreover, satisfied customers spread the word about the good service received to potential customers, increasing business.

Yet, the increase in customer satisfaction is an untested assumption. It is a position worthy to be discussed in further detail. Which factor does influence passenger's perceived quality more: efficient and fast complaint handling together with convenient complaint reporting and transparency, or personal contact, the empathy directed towards complainants together with the opportunity to direct one's anger towards a 'scapegoat'? As this qualitative aspect is core of this discussion, it cannot be neglected. However, from the authors' perspective, efficiency has the larger impact on perceived quality in the long-term, as the "consumer is far less willing to wait or put up with delays" (Buhalis 2003, p. 314) whereas venting of anger provides mostly short-time satisfaction. Nevertheless, as this point is of high relevance, the authors propose to evaluate and validate the opposing viewpoints in a further study.

7.6.4 Apparent Disadvantages

From the passenger's perspective there are four issues. Contradicting the increased simplicity of complaining via GUI of the infotainment system, the technical inability of cruise guests might prevent positive effects. As for Germany the average age of cruise passengers on ocean-going vessels is 49.7 years, on river cruises 58 years (Schüßler, Deutscher Reiseverband 2008, p. 20/36). Not every passenger might be able to handle the technology linked to the optimised workflow. This disadvantage was remarked by interviewee #3, stating that "Guests are not the youngest. I do not know exactly if they can handle the technology." However, elderly people are increasingly able to handle such technologies.

The second issue refers to flexibility in approaching crew members to complain. The passengers are denied additional channels to complain such as waiters or excursion staff. This might harm perceived quality in the complaining process from the passenger's perspective, but it is necessary to ensure a structured, streamlined and efficient complaint handling workflow.

Thirdly, the personal contact. According to the interviews some complainants are predominantly looking to "vent their anger" (#3) and someone "showing sympathy" (#1). Fourthly, the "complexity of the problem plays a role" (#2). Considering the time it takes to enter and solve a complaint might not fit the complexity of the problem. However, both issues can be

avoided by implementing an additional central point of contact. This especially trained Maître de Réclamation can support complainants in using the system and can act as intermediary for complex problems. This means additional costs in terms of employment and training, but it relieves the work burden of receptionists, providing them with time to concentrate on other duties, or even provides the cruise company with the opportunity to reduce staff.

7.6.5 Benefits for cruise lines and crew

Further benefits for the cruise lines in terms of revenue might be achieved by increasing on board expenditures of guests. More complaints usually mean more compensation. If employed smartly, compensations can be used for increasing on board revenue.

Furthermore, there are advantages for the crew: Time savings, less potential for misunderstandings, and relief from pushy passengers.

Moreover, onshore operations can be linked to the system. This way they can act immediately on urgent complaints, supporting the incident handling before the cruise is over. Management can also extract relevant statistics from the data warehouse to enhance their documentation, evaluation and optimisation. Managers will experience an improvement in the manageability of information. This positively affects power and control of top management as well as decreases the need for detailed research on reoccurring problems.

Accordingly, from a quantitative and qualitative perspective, the second hypothesis of this paper can be confirmed completely.

7.7 Conclusion & Implications

7.7.1 Conclusion

Summarising the discussion, both hypotheses can be confirmed. As proven by the interviews, existing complaint handling on board of cruise ships is on average poorly conceived, not streamlined and, as shown by the simulation, consequently slow and costly. This leads to the diagnosis that existing complaint handling is not sufficient.

Optimised and electronically supported complaint handling will enhance process efficiency. The issue of enhancing service quality is controversial. The authors assume that the positive effect of enhanced simplicity, efficiency, transparency and convenience influences perceived quality more than the reduced personal contact. Yet, the reduction of pushy complainants increases working conditions on board.

There are other advantages to be taken into account by cruise lines. Due to possible integration into existing infotainment systems, the implementation of an electronically supported complaint handling system is cost-efficient. Together with potential revenue-based benefits, improved information manageability and enhanced control, the authors recommend the implementation of an optimised complaint handling workflow using an electronically supported system as described.

7.7.2 Implications

An enhanced complaint handling, as outlined throughout the paper, will lead to higher perceived service quality. Higher perceived quality in turn affects customer satisfaction level positively, leading to a better reputation as well as increased repeater business, which is essential in a saturated market like the cruise industry. Therefore cruise lines implementing an electronically supported complaint handling system, will improve their competitive position.

7.8 Limitations and Further Research

7.8.1 Limitations

One limitation is the small sample size, restricting the representativeness of the findings, thus affecting the representativeness of the current workflow, potentially leading to wrong comparison results and consequently inaccurate conclusions. To validate this study, an extensive qualitative research is recommended.

Due to the small sample size, the results and conclusions of this paper are subject to the following limiting factors: inaccurate assumed parameters and conditions.

A further limitation is the authors' bias, already assuming suboptimal conditions in the workflow. This also applies to the discussion of the qualitative aspects, as from the authors' perspective the advantages more than counterbalance the disadvantage of reduced personal contact.

7.8.2 Further Research

The aspect to be researched in more detail is quality perception. As this paper shows the advantages for cruise lines, crew and passengers it can only assume that perceived quality from the customer's point of view increases.

Other potential research topics are the technical possibilities and costs for implementing an electronically supported workflow as well as the actual necessity and demand for such procedures, considering the average number of complaints per day being only seven. Does this figure legitimate the implementation from cruise line managers' perspective? Is transparency and documentation of complaints and complaint handling even wanted?

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8 Determinants of Onboard Spending

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With the following paper the authors are creating a tentative model identifying the determinants of spending on board a cruise ship. For this, research has been conducted on existing literature focusing on factors that influence tourist's spending at holiday destinations. Structuring the different aspects and determinants allows the authors to build a general overview of tourist's spending characteristics. It is then the aim to adopt the model to the cruise industry. The environment on board a cruise ship is very distinctive and consequently it is questionable whether the model can be adopted. Therefore, the second aspect focuses on the relevance of the created model for the cruise industry. Under which conditions or adaptations can the model be applied? Is it applicable at all, or only for specific cruise ships? The findings will be underlined by putting it through a conceptual test including a critical analysis from industry experts and attendants at an E-Cruising conference. It is the intention to encourage further development of this tentative model, as it is only a first attempt to visualize on board spending.

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DOI 10.1007/978-3-8349-7159-3_8,

8.1 Introduction

The cruise industry is currently the fastest growing travel sector in the world. Whilst in 2004 only 10.6 million passengers cruised, in 2009 nearly 13.5 million travelers worldwide enjoyed a cruise vacation, representing a growth of 27.4% in only five years (Cruiseindustryfacts 2009, Florida-Caribbean Cruise Association 2005).

Cruising started its constant success in the 1980's. It used to be a travel sector attracting predominantly older and wealthier guests. Nowadays, new business models have enabled more affordable vacation prices and a great variety of cruise types. Vessel sizes range from mega liners with a capacity of 5400 passengers to small river cruise ships. Each of them targeting different tourist types and offering a seemingly endless variety of attractions. Cruise operators are continuously developing new and innovative ways to attract customers on board their ships. Competition is tough and with 35 billion dollars generated in the US alone, everyone wants a piece of the cake (Cruiseindustryfacts 2009).

Among the biggest revenue generator is on board spending with nearly one quarter of total daily expenditure. An average spending of 50 US dollars per day also implies that some passengers spend a higher amount than others (Wahlstrom 2010). The question remains, what determines on board spending and why do some guests spend more than others?

In order to find answers, research on various papers has been conducted. Thereby focusing on studies identifying expenditure patterns of tourists, its relations and determinants. None of these studies, however, explicitly focus on the cruise industry. The goal is to create a tentative model by means of the elaborated factors determining on board spending.

8.2 Theoretical Background

Spending behavior, as described in marketing literature, is a complicated process influenced by many variables. Nevertheless, it is of essential importance for companies to recognize specific consumer characteristics to efficiently market their products. According to the identified characteristics consumers can be divided into different segments. Kotler et al. (2010) developed a segmentation framework of buyers, which shows the various factors. As can be seen in Figure 8.55, he specified four major variables, namely: geography, demography, behavior, and psychographics. Each of them is subdivided into more specific terms.

These are the factors influencing spending in general. The tourism industry also sells products, it is therefore logical to assume that those variables also apply. Nevertheless, there might be variations or even further determinants. This model is used as a starting point for scientific research and its applicability to the tourism industry.

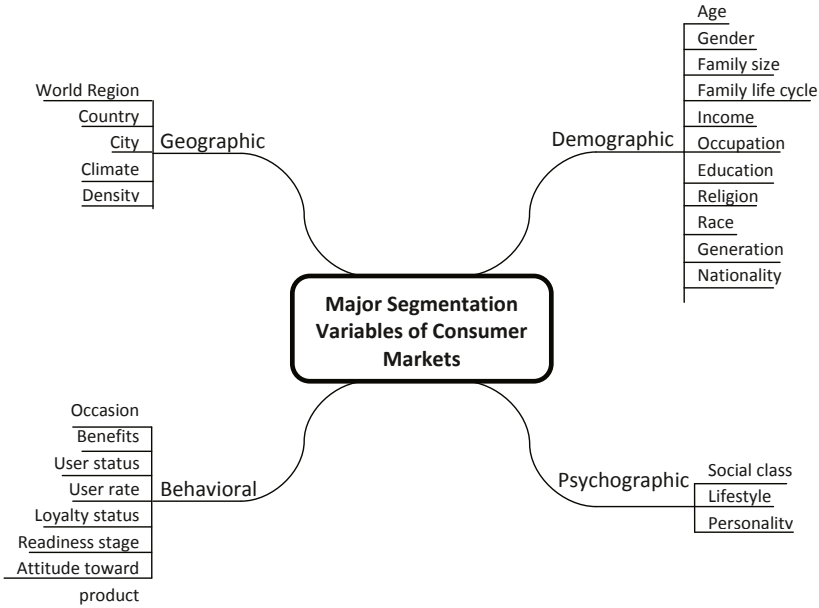

Figure 8.33: Major Segmentation Variables for Consumer Markets (Kotler 2010)

8.3 Systematic Review

In the past, various studies concerning expenditure patterns of tourists have been conducted. The studies relate to specific destinations, specific events or special-interest vacations. In total the authors reviewed 34 articles and scientific case studies. 22 of them are included in this literature review as they examined the relation of spending to various characteristics. The twelve eliminated articles described spending at tourism destination but did not specifically relate them to any characteristics. Sources included the journals 'Tourism Management', 'Annals of Tourism Research', 'Tourism Economics', 'Journal of Retailing and Consumer Services', 'Cornell Hotel and Restaurant Administration Quarterly', and the 'Journal of Travel Research'.

In total, a number of 28 factors have been proven to determine spending of travelers. In summary one can say, that there is no prototype of a tourist with maximum spending behavior. The studies show, that spending behavior correlates with a number of factors. It is important to note that the authors concentrated on the determinants and not their positive or negative correlation. As the studies relate to different subjects and objectives it is impossible to generalize the outcomes to the tourism industry. To better visualize the findings a meta-analysis has been conducted.

As shown some factors have been researched more than others, proving their importance for the tourism industry. For the example "Age" six research papers found a relation to tourist spending (Barsky & Nash 2003, Craggs & Schofield 2009, Jang & Ham 2008, Jang, Bai,

Hong & O'Leary 2004, Kastenholz 2005, Perez & Sampol 2000). By trend, tourists above the average researched age spend respectively more. In contrast, a study by Roehl (1996) found that age is not a dependent factor. This proves it is impossible to generalize the findings.

Also, the length of stay at a destination determines spending (Fredman 2008, Jang, Bai, Hong & O'Leary 2004, Kastenholz 2005, Koc & Altinay 2007, Laesser, & Crouch 2006, Shani, Wang, Hutchinson & Lai 2010). Most of these studies focused on total spending of the tourists per stay and consequently tourists staying longer spend more money. However, Kastenholz (2005) found out, that tourist spending per day negatively correlates with length of stay, meaning tourist staying longer spend more in total, but less than average per day.

Surprisingly, a number of studies found out that origin of the traveler (Barsky & Nash 2003, Laesser & Crouch 2006, Perez & Sampol 2000, Suh & McAvoy 2005) is important to travel spending compared to travel distance (Divisekera 2009), (Kastenholz 2005). This proves that one can not necessarily assume that people traveling a longer distance ultimately spend more money due to flight costs. Just as well, one cannot conclude that travelers from a specific region are generally the maximum spenders.

What might be the most controversial research factors are income and discretionary income. Discretionary income describes the amount of money an individual has after subtracting taxes and normal expenses from income (Jensen et al. 2005). Various studies showed that high income or discretionary income correlate with high spending. In contrast, Jang et al (2004) also proved that tourists spend respectively the same amount on food and entertainment whether they had a high or low income. Insofar there seems to be a third factor namely the budget.

8.4 Application to Tourism Industry

Having reviewed numerous papers the authors came to the conclusion that Kotlers' market segmentation model is not sufficient to determine all factors influencing tourist spending behavior. It is an adequate foundation, but does not reflect all found components. The authors therefore created a first own tentative model to reflect those elements. With the help of Prof. Dr. Alexis Papathanassis, an expert in the tourism industry, the primary model has been restructured and finalized (Figure 8.56).

As can be seen in Figure 8.56 in some ways Kotlers segmentation is still applicable, only it has been reduced to factors where studies have proven the relation to tourist spending. For example, several papers confirmed that a high income correlates with high spending (Jang et al. 2004, Fredman 2008).

A second major determinant are the travel-related characteristics. They especially describe influences that are related to the vacation itself. Purpose of travel differs from vacation type as the latter are for example all-inclusive holidays whereas the first refers to vacations taken together with business trips for example. Composition of party is a broad term describing if high spending tourists travel in small or bigger groups, with or without children, or friends.

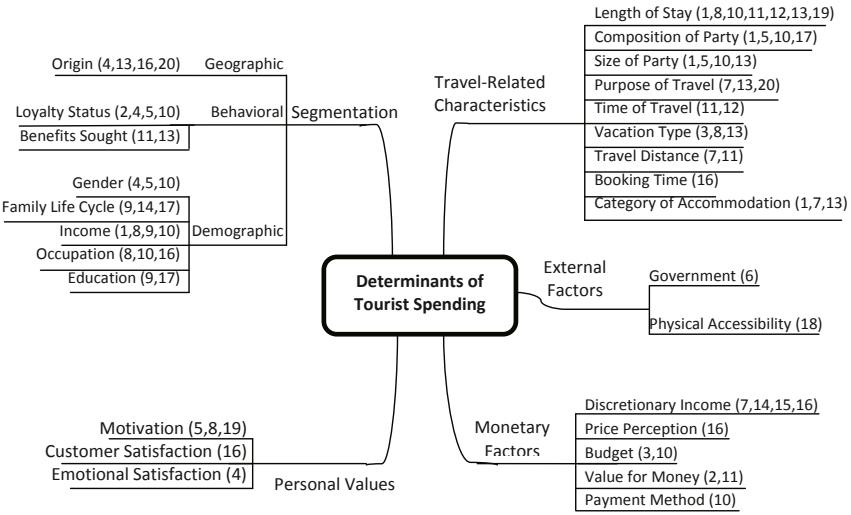

Figure 8.34: Tentative model to identify determinants of tourist spending (Authors 2010, derived from personal communication)

Like the name for the category "Monetary Factors" suggests, it includes those findings the authors relate to money. Four of the researched papers found a correlation between spending and discretionary income. It describes the amount of money an individual has after subtracting taxes and normal expenses, thus the money a person could spend on vacation. Nonetheless, as proven by Jang et al (2004), tourists spend respectively the same amount on their vacation whether they had a high or low income. Insofar there seems to be a natural limit to total spending, namely the budget. However, what remains important for the tourism industry is the amount of discretionary income they spend on a vacation.

The fourth category "Personal Value" describes the intrinsic factors that were found to be determining. Emotional satisfaction differs from customer satisfaction as the first describes a tourist's willingness to pay more in order to fulfill their emotions such as feeling comfortable or safe and secure. In contrast, the research papers that found a correlation to customer satisfaction referred to the fulfillment of tourists expectations. Mostly, this happens while the tourist is on vacation, while the fulfillment of emotional factors happens before, during the booking for example.

External factors relate to those that influence the customer indirectly. A government implementing certain laws on tariff regulations might positively or negatively influence a tourists spending on souvenirs in the country of vacation. The paper of Roehl (1993) proved that tourists spend more in regions with more road miles, thus physical accessibility is also a point that needs to be taken into consideration.

8.5 Application to Cruise Industry

8.5.1 Defining a Cruise Ship as a Destination

As can be seen by the above described example none of the determinants of tourist spending can be seen isolated. As they all interrelate it is impossible to determine a general tourist prototype with the highest spending. Equally, this point has been proven by the numerous research papers that exist on tourist expenditure. It is necessary to take the destination's characteristics into account and individually create a spending model. Is this even possible for the cruise industry? The relevant question at this point was whether cruise ships can be called destinations at all or to what extent they can be compared to destinations.

Can a cruise ship be seen as a destination?

All tourist spending characteristics mentioned before where derived from studies carried out at specific tourist destinations around the world. The central question that arises is what exactly constitutes a 'destination'? Which similarities do all of the mentioned spatial locations possess and most importantly, can a cruise ship be seen as a destination as well?

Literature showed, that the word 'destination' is one of the most frequently used words in tourism but there is no unique content to it (Framke 2002). Several actors in the tourism industry showed differing understandings of the word and used it for example to define an attraction, a specific geographical unit or even an empirical relationship (Framke 2002). Thereby it is clear, that the word has very manifold implications and is open for interpretation. In the following, the authors have chosen one definition to relate it to a cruise ship.

"Destinations are amalgams of individually produced tourism amenities and services (accommodation, transportation, catering, entertainment, etc.) and a wide range of public goods (such as landscape, scenery, sea, lakes, socio-cultural surroundings, atmosphere, etc.). All these elements are branded together under the name of the destination." (Buhalis 1999)

On the first sight it can be said that cruise ships do possess all mentioned variables. When referring to the mentioned 'tourism amenities and services': All cruise ships offer accommodation. Further to that cruise ships offer catering and all sort of entertainment. It is important to note that the bigger a cruise ship is, the more variety of restaurants, entertainment and attractions it has to offer. The transportation is also taken care of as far as shore excursions are concerned and most cruise lines offer assistance for passengers to organize their transportation to and from the ships homeport. Then we pass on to the 'public goods': When talking about landscape and scenery, guests of a cruise ship are in the unique position to choose their desired surrounding along with the ships itinerary. So what about socio-cultural surroundings and atmosphere? At this point we probably exceed the natural boundaries of a cruise ship. Certainly every port of call offers potential cultural surroundings for the guests but the ship itself is a man-made surrounding offering an artificially planned ambience. It could thereby be argued that a cruise ship offers very similar characteristics to a man-made holiday resort.

Nevertheless when thinking a little further these variables are all existent under special circumstances. Buhalis mentioned the phrase 'individually produced' in his definition, which most certainly was meant to highlight the number of suppliers and players involved at a destination. This however is not the case on board a cruise ship. Especially in the case of big

cruise ships there is one cruise line taking care of everything on board the ship. On one hand this abandons natural competition whilst on the other hand it also reduces complexity of managing a destination. Buhalis (2002) also mentioned in his article, that "destinations are some of the most difficult entities to manage", in a way of developing a destination towards a coherent, valuable entity for its tourists.

In summary one could say that cruise ships do offer all components required from a destination, whilst it is also important to keep in mind the mentioned constrains. The Manager Magazin interviewed Pier Luigi Foschi, Chairman and Chief Executive Officer of Costa Crociere lately on the topic of the actual destination of a cruise. The magazine asked whether passengers perceive the ports of call or the ship itself as the actual destination of their trip. Mr. Foschi replied that there is no clear trend to be identified since it depends on the type of cruise, the specific ship and the guests on board. He mentioned that in Brazil for example, passengers often do not even know the ships itinerary because they mostly value the time spend on board the ship. On the contrary there are special adventure cruises, which bring their guests to unconventional, adventurous destinations and passengers choose the cruise only because of these destinations (Hoffmann 2009).

Further to the magazine article the authors infer the size of a ship to be a determining factor because the size of the ship constitutes to what extend a ship resembles an entire tourist destination or rather a floating hotel or tourist resort. Mega liners with a capacity of more than 2,000 passengers typically offer 'multiple swimming pools, casinos, spas, dining options, and lots of activities' while smaller ships rather focus on the actual destinations and offer only a narrow range of restaurants and activities (Gibson 2006).

The findings will now be tested by applying them to the example cruise ship 'Oasis of the Seas', which is one of the two worlds largest mega liners operated by Royal Caribbean International. The authors chose for the ship because it is a new and fairly known vessel that should offer a good basis to be grated as a destination. The testing is done by applying the 'Six As framework for the analysis of tourism destinations' developed by Buhalis (2002).

1. Attractions: The 'Oasis of the Seas' features a number of attractions like two flow riders, sports courts, four pools, ten whirlpools, a casino, a opal theater seating 1,380 guests, several night clubs, a big vitality and spa area and a lot more. It should be mentioned that all attractions are man-made artificial surroundings and there do not exist any cultural or historical sights.

2. Accessibility: When passengers book a cruise with Royal Caribbean, the transportation to and from the ship's home port is usually not included. Nevertheless the cruise line offers to organize the transportation for the guest at an extra price. Additionally Royal Caribbean prearranges all transportation for the offered shore excursions at all ports of call. Individual tours however are not pre-organized.

3. Amenities: The ship is able to accommodate a maximum of 5,400 passengers. Accommodation is always included to the package when booked. A guest can choose between several different cabin categories. The 'Oasis of the Seas' offers up to 20 different restaurants, numerous bars, cafes and other shops. Dining is also included to the standard package when booked but an extra fee is usually charged at specialty restaurants.

4. Available: The cruise product is only sold in packages. Passengers can book different cruise itineraries but the package price will always include at least accommodation dining, non alcoholic beverages and a number of activities to be undertaken free of charge. All extra services, shore excursions and special restaurants are to be paid separately.

5. Activities: Activities are overlapping with the attractions mentioned above due to man-made nature of entire offering.

6. Ancillary Services: The cruise ship must be imagined like a small city. There are three doctors on board and even an intensive care unit. The ship contains an ATM machine and the staff at the front desk can post mail for the guests.

All facts and figure retrieved from (Royal Caribbean International 2003).

By conclusion the term destination is a very broad term with no universally valid definition. According to the applied frameworks and the reviewed literature mega-liners can be argued as tourism destinations due to their big size and broad offer of services.

8.5.2 Application of the Tentative Model to the Cruise Industry

As it has been proven that a cruise ship such as the Oasis of the Seas can be defined as a destination, the next step is to see, which found factors on tourist spending also apply to on board spending. As there are no research papers on influences of on board spending, the authors based their decisions on their own knowledge. To prove its validity a heterogeneous group of students and professors from different universities during the E-Cruising Conference on December 11th 2010 in Bremerhaven, Germany, have been asked to critically evaluate the model. Based on the discussion the tentative model has been adjusted and finalized.

As can be seen in Figure 8.57 a few factors have been concluded not to influence on board spending. The component “Purpose of Travel” describes vacations connected with business travels, but as only a very small percentage of cruise vacations are business trips at the same time this factor can be neglected. “Vacation Type” has been excluded, because only one type exists, since all cruises are packaged tours even legally. Whether or not tourists spend more on board does not directly depend on how far they traveled to the port. It is more a question of discretionary income or budget how much money is saved or spend on traveling to and from the ship. A bit controversial might be the factor price perception. This is due to the fact that the research paper by Perez and Sampol (2000) proved that tourists perceiving the destination as expensive spend more money than others. This is a very specific case the questioned group could not relate to on board spending. Perception quality of the goods and services on board relate to the factor “Value for Money”.

All in all, there is room for discussion. However, by testing the model with a heterogeneous group the importance of the found factors has been proven. The tentative model could also be enhanced. Other influencing factors that have not been considered in any of the read papers are for example the influence of the exchange rates or the relative price for tourists on board compared to their origin.

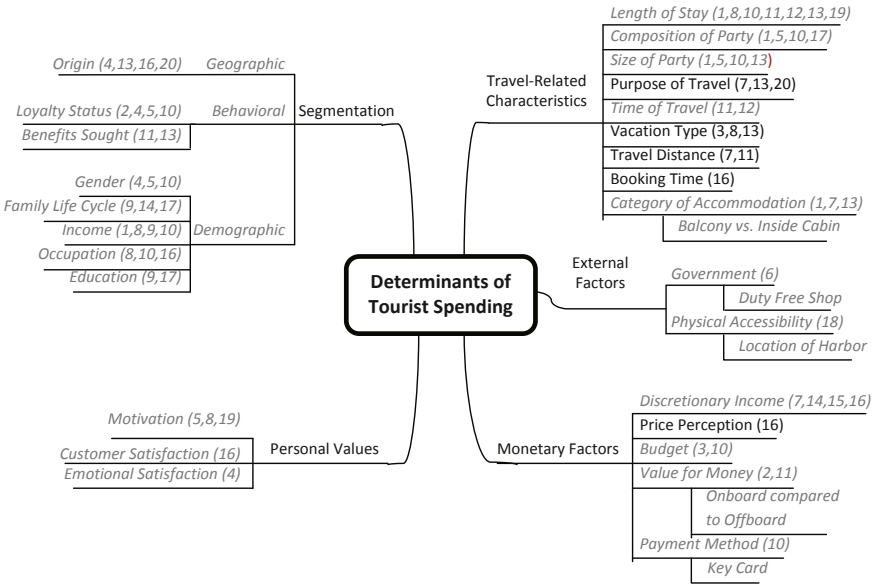

Figure 8.35: Tentative model highlighting factors influencing on board spending (Authors 2011)

8.6 Limitations and Further Research

As already mentioned earlier, the tentative model is only a first attempt to visualize on board spending. A wide range of information was retrieved from the researched papers and structured as shown in Figure 8.57. All reviewed papers gave insight to highly destination specific determinants of spending and these determinants showed strong dependencies between each other. Therefore none of the factors can be seen in isolation and it is difficult to analyze them separately. On board revenue generated by cruise guest spending is nevertheless a very important revenue driver for all cruise companies. The existence of some cruise companies even depends on on board spending but only very limited research exists (Vogel, 2010). Unexpectedly, the study gave no insight to positive or negative trends on total spending. Even the factor “Length of Stay”, which was mostly examined, showed controversial results. The authors therefore conclude that there are no specific characteristics describing maximum expenditure.

Further research could investigate the positive or negative effects of the determinants for a cruise ship to positively conduce total expenditure of travelers. If for example the determinants “Composition of Party” and “Size of Party” would show that passengers traveling in big group of friends show high total expenditure then it might be profitable for cruise companies to market a product suitable to these requirements.

In addition, most companies simply determine their target group by segmentation characteristics. With this study however the authors found out that it is far more complex process. If

you take two exemplary travelers with the same segmentation characteristics, then the expenditure also depends on the travel-related characteristics for example. Imagine a tourist from Philadelphia USA, male, 35 years old, married, one child, working at a bank with an annual income of 40.000$, and seeking relaxation. Depending if this person travels with a group of friends or with his family, his expenditure will logically vary. Similarly, if this person takes a 14-day or a 7-day cruise, it will influence his total spending. Another example refers to the perceived value for money. Due to the monopolistic setting on board, the cruise company can charge higher than average prices. Guests perceive the value for money differently, even though possessing the same segmentation characteristics. Spending on board also differs depending where the ship docks. In harbors with a limited accessibility to attractions or other offerings (e.g. shopping) purchasing possibilities are constrained to the ship. Another example showing the dependencies is "Customer Satisfaction". A company cannot generalize spending according to segmentation characteristics only, as it also varies whether the guest's expectations are met or exceeded by the service on board.

The authors claim that this tentative model would offer a basis for further in-depth research on the topic where all determinants could actually be tested in the cruise industry.

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9 Mobile Infotainment – IT Solutions for Cruise Ships

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9.1 Introduction

In the course of change from an industrial to an information and communication society, the implementation of software solutions and IT services is gaining significant importance (Wirtz 2000, p. 6 f.). Taking into account the needs and desires of the people who want to be constantly reachable and accessible to information independent of where they are, there is an increase in the diffusion and acceptance of mobile devices, so that almost the entire population of Germany is in possession of a mobile phone (Broeckelmann 2010, p. 9). Due to the increasing demand of IT solutions in the hotel industry, the question arises how this desire of an "illusion of being in a gigantic floating hotel" can be implemented on a cruise (Dickinson & Vladimir, 1997, p. 7).

The aim of this work will be to analyze the current market for mobile Infotainment solutions and to provide recommendations for the cruise industry. At the same time the question of targeting customer needs can also be discussed.

To give a structured approach to the subject, section 9.2 gives an overview of the further course of the work and the relevant fields. This will briefly mark upon the development from desktop to mobile computing, and the history and genesis of infotainment systems would be explored also. This is followed by the definition of Mobile Infotainment and the conflict between the terms Mobile Information and Mobile Entertainment and the study of usage motivations. From section 9.2 light is thrown on fundamental knowledge supported with examples of cruise and the first intersection between general and cruise relevant aspects is also illustrated. Finally in section 9.3, the present or latest significance of mobile infotainment and IT solutions for the cruise industry is demonstrated. In addition to the analysis of infotainment and cruise market, an overview of the future of Mobile Infotainment on cruise ships is also given. In section 9.4, the targeting of customer groups in a conceptual framework is illustrated and the relevance of acceptance for the cruise industry is elaborated. This is followed by a critical reflection with action implications as to how the cruise industry can respond to the challenge of different, individual customer needs. At the end a short summary of the key findings and a final overview is presented.

9.2 Basic Concepts

9.2.1 Mobile Computing and Infotainment in Change

In the recent decades besides the classical desktop computing, there was a development of mobile computing. Using mobile devices such as note-/netbooks, tablet PCs, PDAs or smart phones, activities can be carried out, which could previously only be exercised stationary. Mobile devices should make mobile access to a lot of functions possible to give rise to a “mobile office”. Two key aspects are: the accessibility and the location-independent access to information (Rügge 2007, p. 18). Especially the market for smart phones which are mainly for the use of mobile internet and less for the purpose of work, currently experience a high revenue growth which should continue in the future. In Germany the sales in 2010 were 1.6 billion Euros and in 2011 it rose to 2.2 billion Euros (Bitkom 2010, p. 1). The basic principles of desktop computing do not differ for the mobile devices. It would be transferred according to the situation. Initially this was done from the desktop to the notebook before the recent implementation for PDAs and smart phones. The three principles of "anytime, anything, anywhere" were attempted to be achieved in the best possible way. Needs depending on size

and weight of mobile devices either on the flexibility (eg. for notebooks) or functionality (eg. smart phones do not have the functionality of a notebook, it is more flexible) can be omitted (Rügge 2007, S. 20 ff).

In the recent years there have been strong technological developments in the field of infotainment. The degree of integration and complexity has changed in particular. The following graph illustrates the technological development of infotainment systems in the past (see figure 9.51) (Finck, Kolev & Möller 2003, p. 4).

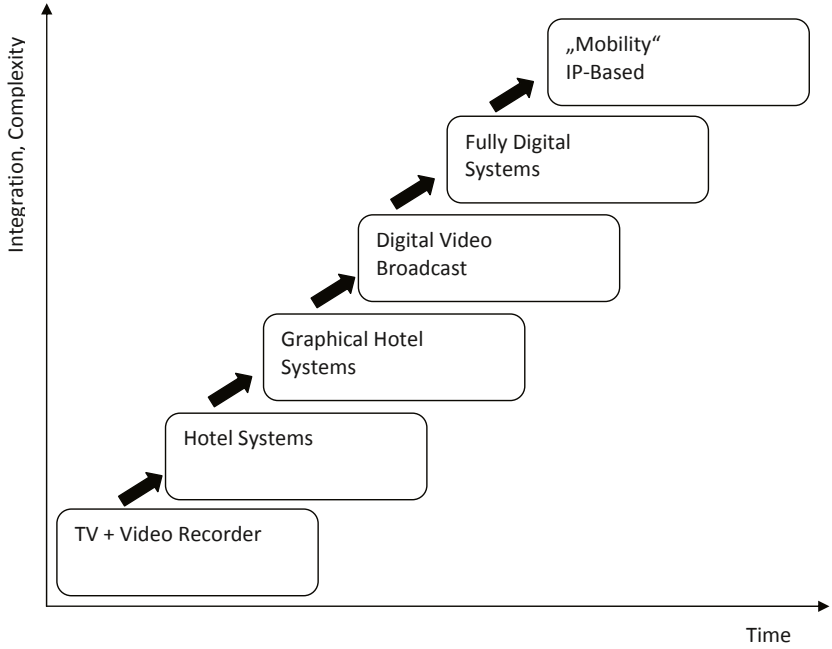

Figure 9.36: Infotainment Systems in Changing Times
(Source: Own illustration, based on Finck, Kolev & Möller 2003, p. 4)

The lowest level shown here in the figure consists of TV and video recorder. This is almost exclusively given for the entertainment factor: Customers can rent videos at a video store on the ship and see in their cabins. Information can be communicated only through documentary videos. Here a drawback is that current information cannot be passed rapidly (e.g. the current weather at your destination port). The TV is connected via coaxial cable. A majority of cruise ships have at least this stage of development. This is followed by the hotel system, which consists of a central unit to which all TVs are built on. Multiple video players are connected mostly to the central unit. The coaxial cable has a return path for the communication with the central unit. Videos are transferred at fixed predetermined times and cannot be chosen by the user freely. In addition, static ship or billing information can be transmitted to the passenger. Like the first stage, this stage has no specific demands on the user. In the third stage followed the use of the return channel by means of a graphical user interface

(e.g. HTML). The user-friendliness and information processing is enhanced by this. The functionality is comparable to the normal hotel system. The analog transmission technology is used here again. The fourth stage has a partially digitalized network. The videos can be digitally transmitted into the cabin. However, there is still a coaxial wiring so that only a certain number of channels are available. Theoretically, the customer can freely select videos and its play time, unless all channels are used. Then the passenger could access only one already started film by another passenger. In the fifth stage the hardware-based restriction of the channels is no longer there as an additional LAN is established. Thus there are no restrictions in the size of content and it can also be accessed by all in the network in parallel. There is a typical server-/client-architecture and the content (music, videos, etc.) are stored on discs. It can be accessed with the help of client hardware such as computers or set-top boxes. All information, communications and entertainment services are available in digital form and are linked together. It is therefore called as an "integrated digital" (Finck, Kolev & Möller 2003, p. 5 ff).

This work will mainly deal with the sixth and final level. As the following chapters will show, only an IP-based network is used. This means, for example, that phone calls are handled over the IP network. All infotainment devices communicate by this IP network. In addition to this, how far the desired mobility in mobile infotainment solutions is implemented will be shown (chapter 9.3 and 9.5).

9.2.2 Mobile Infotainment

The term infotainment is composed of the words information and entertainment together (Meroth & Tolg 2008, p. 1). With Mobile Infotainment the aspect of mobility comes along, so that infotainment systems can be used regardless of the location and time. Companies such as Lufthansa Systems AG advertise with Mobile Infotainment and promise their customers a travel experience on board (LH Systems - Solutions 2010). In scientific literature, the term Mobile Infotainment has gained little attention because the topic is classified as still quite new. Disconnected from the mobile aspect, Postman in his book "Amusing Ourselves to Death" from the year 1985 dealt with the concept of infotainment, though in the context that he questioned the television critically. Considered separately, there is relevant literature on the concepts of Mobile Information and Mobile Entertainment, whose definition and classification will be discussed in the next two sections.

9.2.2.1 Mobile Information

In general Mobile Information would be service defined "which is editorially processed and reviewed regularly with regard to time. In preparation of accessible offers with these mobile devices, the technical aspect of product development plays a subordinate role." (Fiedler & Buse 2008, p. 300).

Since the diffusion of mobile internet the understanding and relevance of Mobile Information services have become the focus of different investigations, on one hand the investigation of the involvement of users for decision making, for example while buying something (Broeckelmann 2010) and on the other hand also assume habitual effects, comparable to reading the newspaper in the morning (cf. Peters 2007, p. 30). Traditional ways of gathering information such as print, radio, TV and the stationary internet have been expanded through the mobile Internet, so that information about weather, sports, news, horoscopes, etc. could

be retrieved not only at home or at workplace, but also can be received while travelling. The number of mobile information services grows in an analog manner with the number of users of mobile devices (Van der Heijden, Ogertschnig & Van der Gaast 2005).

Fiedler and Buse claim the right to mobility of mobile devices that are electronic, fully portable and ubiquitous internet-capable (see Fiedler & Buse 2008). This results in the demands of information supply that enables the reception of mobility and should assist the user in fulfilling his mission. Satyanarayanan expresses the change in mobility and the resulting demands on mobile information services as follows: "The increasing social acceptance of the home or any other location as a place of work is a further impetus to the development of mechanisms for mobile information access" (Satyanarayanan 1996, p. 26).

As the entertaining character of Mobile Infotainment is of central importance, the term Mobile Entertainment is discussed in a detailed manner in the following section.

9.2.2.2 Mobile Entertainment

Mobile Entertainment can be described as a "transaction that transfers of property or rights of use of goods and services with a minimum entertainment value, which is initiated with the help of a mobile terminal and/or implemented. The mobile terminal allows remote access to computer-mediated networks "(Siegmund & Buse 2008, p. 138). Siegmund and Buse defined the concepts of mobile entertainment as a transfer of editorial information, even if they are perceived as entertainment by users. There was another argument made by Van der Heijden, Ogertschnig and Van der Gaast. Their study (n = 123) shows that the practical and hedonistic value of mobile information services presents a high correlation, so that the aspect of entertainment for mobile information services is not be neglected and vice versa. They conclude that mobile information and entertainment should always go hand in hand. Mobile information services differ from traditional information services, in a way that they have a stronger focus on the aspect of entertainment. This dependence of mobile devices plays an important role. In particular, young people perceive mobile phones as an important part of their life (see Van der Heijden, Ogertschnig & Van der Gaast 2005).

In this context, the question arises how many youths are in possession of a mobile. In this regard, Edegger analysed the development in the target group sector of the 12- to 19-year olds. According to this analysis, only 8 % of young Germans had their own mobile phones. Within the next three years, this figure had increased 10 fold to 74 %. In 2007 it was 92 % with almost every young person having at least one mobile phone (Edegger 2007, p. 4 f). Broeckelmann assessed the situation similarly and concludes that now 90.6 % of the population in Germany aged between 14 and 64 years have a mobile phone (Broeckelmann 2010, p. 9).

In terms of mobile entertainment, Xu, Ma, and See-to characterize mobile users as consumers who seek pleasure or entertainment. Hence they write that the interest and emotional response of the users has a greater importance than the technical skill of the user (Xu, Ma & See-To, 2006, p. 4). With regard to these considerations it should be noted that the users of mobile entertainment services, do not follow primarily the practical goals, but want to be recognized as innovators in their communities, who always can use the latest technology in the market (Tojib & Tsarenko 2008, p. 4). The mobile technology (screen size, battery life, mobile operating system, network, port, etc.) is in a steady development and is prerequisite

for the quality of mobile entertainment. Herein lays one of the greatest shortcomings of mobile entertainment (Ylianttila 2004, p.5) that should be included as an important quality criterion for the success of mobile entertainment services. Edegger commented about the maturity of the mobile technology that: "Advanced mobile phones have large colour screens, plenty of storage space, good resolution and also have good transmission and computing technology. The computing power can now be compared with that of a PC from the mid 90s. This fact and a number of other computer-like capabilities allow some observers speculate that many people will see mobile phones as an alternative to PC in the near future "(Edegger 2007, p. 2 f.). Moore and Rutter called mobile entertainment as the most promising incentive for the mobile industry and these include not only mobile video games but also games, erotic services, music and location-based services (Moore & Rutter, 2004, p. 50). Moreover one should also mention the film and video offers that used by the users to relieve stress of daily lives (Peters 2007, p. 30).

In view of the user acceptance of mobile entertainment determinants such as the utilitarian value or the social influence can be mentioned. However the most important factor is the emotional pleasure of the user and is thus regarded as the central component to the success of mobile entertainment services (see Xu, Ma& See-To, 2006, p. 6). Other researches increase the hedonistic value that has emerged as an im-portant indication of user acceptance of mobile entertainment, which is why the perceived pleasure can be postulated as an important motivation for mobile content (Van der Hei-jden, Ogertschnig & Van der Gaast 2005; Tojib & Tsarenko 2008; Pihlström 2008).

In addition to the emotional component of mobile entertainment, users find it valuable especially when they can use it while travelling for example using public transport. In such type of situations the need to bridge the time via entertainment increases (Pihlström 2008, p. 48). The aspect of mobility is particularly noticeable in everyday life when the boredom or stress is felt while travelling. Tojib and Tsarenko refer to this motivation as "social escapism" (Tojib & Tsarenko 2008). The use of the Internet is thus an important indicator for the above mentioned type of escapism. In this context, various internet activities like browsing, information search, online shopping, online games, e-mail and chat services are useful for escapism. At the same time mobile entertainment services should help to overcome boredom or stress independent of place and time. Hence in addition to the emotional component, escapism can be held as an important evidence for the use of mobile entertainment services.

Now that both Mobile Information and Mobile Entertainment have been highlighted in detail, a classification of Mobile Infotainment in the cruise industry market is described in the further section.

9.3 State of the Art of the Mobile Infotainment Analysis

9.3.1 Mobile Infotainment Market

To understand the general interest of the cruise industry for a mobile infotainment sector, the development of mobile entertainment and infotainment market is first examined by means of some numerical examples. In general, recently 56 % of the non voice revenues of the data traffic was accounted that is transferred with mobile devices. The total volume of transferred data has more than doubled from the year 2008 to 2009 (11.5 million GB to 33.5 million GB) (Federal Agency 2010, p. 94) and for the year 2010 approximately 121 million GB

is estimated (Dialog-Consult/VATM 2010, p. 25 f). An analysis from the year 2008 certifies that the revenue generated from the use of mobile data services will grow steadily from 1.6 billion to an estimated 5.7 billion Euros in the period 2007 to 2012 (Bitkom / Gold Media 2008, p. 45). If the mobile entertainment market is the focus, then following picture emerges (see Figure 9.52):

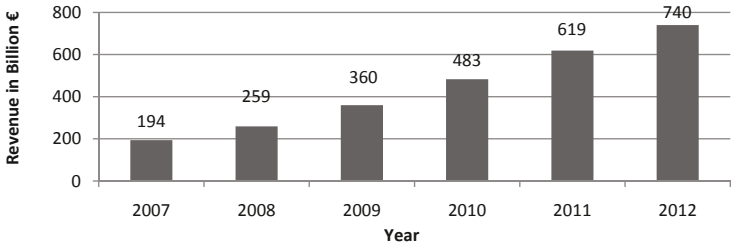

Figure 9.37: Mobile Entertainment Revenues in Germany[6]
(Source: Own illustration, based on Bitkom/Goldmedia 2008, p. 46)

In Germany a constant growth in the revenues of the mobile entertainment market is predicted. The revenue increase in 2012 amounts to approximately 500 million Euros. With a global view of the mobile entertainment market $ 24 billion revenue was estimated in the year 2008. The income is predicted to increase to $ 47 billion worldwide by the year 2013 (Portioresearch 2008, p. 2). Overall, it can be noted that in past a general increase in the use of mobile data services has been there and according to various studies, it would also increase in the future. This is served with latest ever-fastening ways of accessing the data (from GSM to recently developed LTE technology), and a rapid increase in the users of mobile devices in the past. The latter has been based on the sales of smart phones and is clear in section 9.2.1 (cf. Bitkom/ Gold Media 2008, p. 10 f).

9.3.2 IT Solutions – Where does the Cruise Industry Stand?

As already indicated in the preceding section, it is suggested that the mobile entertainment/information is a rising market in the revenue area. This is also an indicator that the content of the mobile gains importance in the general population. It should be noted that it is exclusively from the manufacturers and hence the fact cannot be questioned.

A German company that offers mobile infotainment solutions for cruise ships is Lufthansa AG and its subsidiary Lufthansa Systems (Lufthansa Systems, 2010a). It is equipped among other things, a ship of the AIDA fleet (the AIDAdiva) (Lufthansa Systems, 2010b), the MS Europa (see Lufthansa Systems, 2010c) and the Seaburn Odyssey and the Seaburn Sojourn from the fleet of companies "The Yachts of Seabourn "(Lufthansa Systems 2010d) with their mobile infotainment concept. This mobile infotainment concept includes various entertainment and information services, which are first discussed from the user perspective and then the provider perspective. The base is an IP network that enables applications such as interactive television, IP telephone using Voice over IP, wireless LAN, and also video surveillance

[6] The data of the years 2008 to 2012 are based upon estimations. Mobile Entertainment includes Mobile Videos, Mobile Games, Mobile Music and Mobile Advertising.

and combined into one converged network. These and other related technologies can be controlled via a control unit (see later Figure 9.53). In addition, the system should due to its modular design be expanded and linked with other services of the ship by means of components. For example, not all possible extensions of the system could be acquired or not all new modules are available with improved or novel function, but these could be subsequently integrated into the system (see Lufthansa Systems 2010a, p.1). It should be possible that the passenger using the aforementioned techniques can have inter alia access the internet to collect travel information (e.g. exact whereabouts of the ship via GPS or velocity) and billing data, send e-mails, receive and control radio and television as well as video/audio-on-demand to use functions (cf. Lufthansa Systems 2010c, p. 3). It should be possible for the user to book for example, shore excursions or spa area with the system and also get information about the ports, which starting point of a ship (e.g. in the form of short video clips) (Lufthansa Systems 2010d, p . 2). In addition to the internet and local intranet, the user also has access to the wireless internet and can use his mobile devices such as smart phones or net-/notebooks. The equipment cabin will be extended by a so-called control function. The user is able to control the window blinds, to switch the lights on and off or to dim the lights or to control the desired temperature, which is operated by an air conditioning system.

From the staff and the ship operator`s point of view, there are other ways of using the cabin control system: The system can detect whether someone is present in the cabin. If there is no one present in the cabin, the system controls the air conditioning and turns off all unnecessary electrical appliances (e.g. if the passenger has forgotten to turn off the lights) (Lufthansa Systems 2010a, p. 2). These are mounted in the cabin sensors and switches. All information, go to a central server that collects the information and the possible ad-justment options are saved. The crew for example, could be informed about an open window in case of rough weather on the sea. In this system a remote function is also installed that allows the staff to operate the cabin control system related elements manually. Even in case of emergencies, the workers can undertake the exact settings “remote” (e.g. switch on lights in all cabins in case of evacuation, raise the window shutters or curtains and inform the passengers about the necessary measures to be taken via a speaker). The cabin-control system should therefore provide a more efficient use of the energy and improve the security. The system then automatically points out the defective components (e.g. a faulty climate control). This routine inspection should be made occasionally so that the defect in the remote function if any can be repaired (Lufthansa Systems 2010e, p. 2).

The crew can access the “remote” on the Mobile Infotainment System. The shipping company also can maintain the system remotely from onshore. The crew and the shipping company offers the remote function, the capability of gather information such as itineraries, shore excursions and account balances to detect the individual passenger cabins and manage them together statistically (Lufthansa Systems 2010d, p. 2 f). It is possible for the operator to collect and save information about its passengers. Profiles of individual passengers or groups of passengers can be created for the purpose of technical marketing measures. The statistics may include, among other things excursions booked on-shore, the activities on the ship, the spa offers and the purchased items in the e-shop. Through this "consumer tracking" new forms of marketing such as "predictive marketing" or "incentive branding" may be possible. So one could for example, implement a dynamic, customer-tailored pricing, on the mobile infotainment system called buyable or reasonable services (e.g. e-shop). Further it is also possible to get software updates via the remote access server and the mobile infotainment

systems. This should reduce the time period incurred for maintenance as well (Lufthansa Systems 2010f, p. 3 ff).

Figure 9.53 shows a part of the mobile infotainment system from Lufthansa Systems. On display are an IP telephone, an LCD television, set-top boxes and remote controls to control the infotainment system. The mobile infotainment system is operated using a specially tailored GUI. All systems on board are connected with one or more servers on which the sub-applications that can call the passenger in the cabin on its infotainment system, and all incoming data (for example, the information collected about the passengers) can be stored. The different settings, for example light, temperature, or the window could be controlled with the help of remote controls on the TV (iTV) (see Lufthansa Systems 2010f, p. 6).

Figure 9.38: Mobile Infotainment Solution from Lufthansa Systems
(Source: Lufthansa Systems 2010f, p. 6)

In addition to Lufthansa Systems there are other providers of infotainment systems in the ships onboard. By 2005, the IDF GmbH which was the "Communication Infotainment Network" (CIN) was developed. At that time, IDF was taken over by Lufthansa, so that the level of development merged with Lufthansa Systems until date. The CIO of IDF subsequently founded a new company called Maritime Information Technologies (MIT). MIT also offers a Mobile Infotainment System: it is offered as the solution from Lufthansa Systems, a converged network that can be partly linked to certain basic functions of the ship (such as fire safety). It also provides entertainment solutions such as IP-TV, audio/video-on-demand, internet, or (wireless) LAN. Information services are also included and the control of cabin comfort (lighting, air conditioning, etc.) is also possible. An automatic monitoring of electric-

al appliances in the cabin should be possible as with Lufthansa Systems in the future (Maritime Information Technologies 2010, p. 4/16).

Other companies that offer infotainment solutions were the Prodac Media AG, Allin Corporation and Pronto TV (see Finck, Kolev & Möller 2003, p.31). The Prodac Media AG was taken over in 2002 by the Minibar group and it developed a new infotainment division with Acentric GmbH (Hotel Association 2010), which is now confined to a hotel sector (Acentric 2010). Pronto TV has also focused on the hotel industry (see Moen et al. 2010, p. 23). The Allin Corporation currently offers solutions for the cruise industry. The offer by Allin Corporation is not as far-reaching and is primarily designed for the entertainment factor and is used secondarily as booking and information opportunities of the passengers (e.g. the crew can send text messages to the iTV in the cabin or tickets for interesting offers on the ship or destination port could be acquired) (Allin 2010). The following chart is intended to provide the widest possible choice of features offered by mobile infotainment solutions based on the previous chapter.

• Converging network
  ○ Server connectivity
  ○ Modular construction
• iTV
  ○ Audio-/Video on demand
  ○ Games
  ○ EPG
  ○ GUI
• Communication
  ○ Internet
  ○ LAN / W-LAN
  ○ Email
  ○ IP-Telefon
	• Cabin Control
	  ○ Light
	  ○ Temperature
	  ○ Window / shutter
	  ○ Automatic monitoring
	• Remote function
	  ○ Consumer tracking
	  ○ Profiling
	  ○ Statistics
	  ○ Maintenance
	  ○ Information to Passengers
	  ○ IP surveillance camera
	  ○ Security and alarm systems

Table 9.17: Overview on possible Mobile Infotainment
(Source: Own presentation, raw data taken from Lufthansa Systems, 2010a-f and Maritime Information Technologies 2010)

9.3.3 Brief Outlook and Interim Summary

The company Maritime Information Technologies, with its published roadmap shows that the trend in mobile infotainment systems is inclined towards the link between the basic components and security function in ship. The security system particularly should be dealt with in detail. In addition to an (automated) control of fire doors include the monitoring of the cold stores on the ship. The automated monitoring and control of electronic devices in

the cabins should also be optimized. Overall, the developed network called "Adconet" located on electronic controlled devices may be associated with the ship so that a control and monitoring centre could be created for maximum number of components. A network should be able to cover as many jobs at once. The focus is mainly on the functions which are not directly accessible to the users of infotainment systems (e.g. security protection, cabin control and monitoring, energy management and monitoring). One of the stated goals here is to reduce the number of required personnel on a ship through the additional functions of the network systems (Maritime Information Technologies 2010, p. 18 f; Finck, Kolev & Möller 2003, p. 14).

The overview of the current situation of mobile infotainment systems on ships makes it clear that there is already a wide range of feasible functions. In general, and also when compared to other industries, however, the word "mobile" is often misleading. In some other industries, this suffix is generally omitted entirely. In mobile infotainment systems context, “mobile” means that the passenger has the freedom to do what he wants in the cabin however must remain in contact with the TV to be able to access the GUI service. On the other hand “mobile” might mean for example, an application that could be installed on a smart phone that allows you to control various infotainment components (e.g.: Person X would like to reserve a table, but it is located at the bow of the ship and he needs to first return to his cabin. Instead, the smart phone that could access W-LAN and enables the reservation on the bow of a ship). This possibility was not yet advertised by the manufacturers, even though the use of specific applications for smart phones on ships is partly possible. These have been on a rather limited functionality (AIDA 2010).

9.4 Acceptance of Mobile Infotainment

9.4.1 Conceptual Framework

The foregoing considerations show that Mobile Infotainment requires a holistic approach. Therefore specifically mobile information and mobile entertainment have been analyzed and IT solutions have been presented for cruise ships. The following Figure 9.54 demonstrates that IT solutions can ultimately provide the customer with added value taking into account individual needs of customers.

With respect to Broeckelmann it can be said that a precise response from customers promises a greater chance of success than a mass response. Hence he mentions various aspects from which a concept for mobile infotainment can be derived. Accordingly the customer should be offered with a high amount information and entertainment, the message should be context sensitive, i.e. adapt to the realities of the environment, they should be credible, should not be received as spam by the customers, respect their privacy and in the form of money and other awards, so called incentives, influence, motivation or reward (Broeckelmann2010, p. 25 ff). Therefore Mobile Infotainment works especially well under the premise of context sensitivity. This knowledge can take advantage of the cruise industry and adapt mobile infotainment services to the realities of the environment of a cruise ship. Incentives could be offered on a cruise ship in the form of contests or coupons in combination with MI services to the customer.

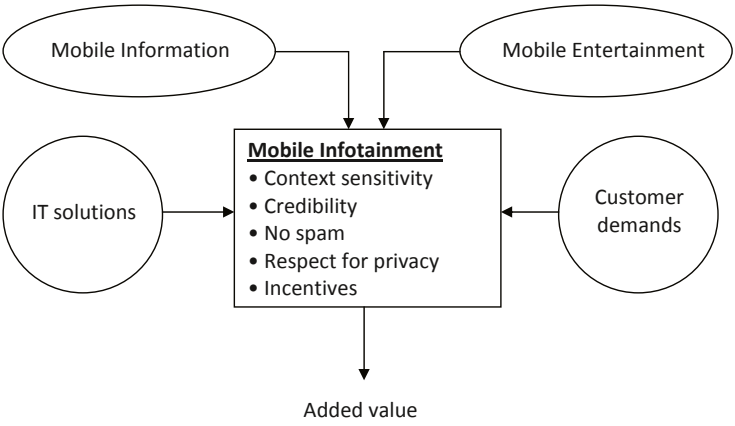

Figure 9.39: Conceptual Framework
(Source: Own illustration, based on Broeckelmann 2010, S. 25 ff)

These considerations illustrate the complexity of the concept of MI services, of which the consumers perceive certain motives and use. This results in the following research question:

What motivation do the consumers have to use MI-services?

This research question and the conceptual foundations discussed in Section 9.2.2.1 and 9.2.2.2 lead to the following hypotheses:

H1: The higher the emotional pleasure, the higher is the probability of using MI-services.

H2: The more the user meets with situations where he has to do escapism; the higher is the probability of using MI-service.

H3: The higher the mobility of the user, the higher the probability of using MI-services.

Based on these hypotheses and the above-mentioned frame of references, the relationship between the implementation of MI through IT solutions and services to the needs of customers on cruise ships will be worked out in the following section. Finally, the acceptance of MI services would be critically reflected and the implications for the cruise industry would be illustrated.

9.4.2 Relevance for the Cruise Industry

Considering the models of Ajzen (1991, p. 182), Davis (1991, p. 476) and Van der Heijden (2001, p. 176) the following figure illustrates not only the motives that the actual use of IT solutions that affect, but also Mobile Infotainment especially as an external stimulus and the interaction on cruise ships using IT solutions.

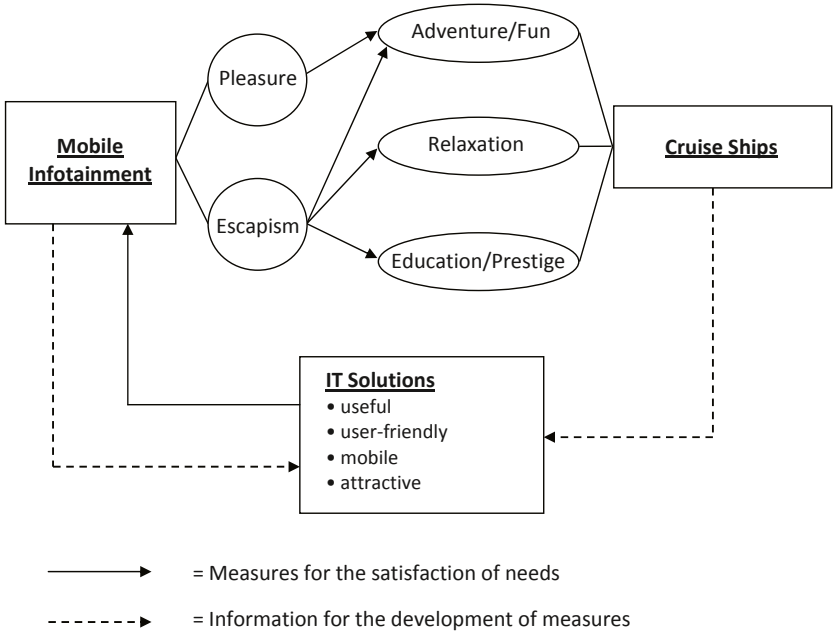

Figure 9.40: Measures and Findings for the Cruise Industry
(Source: Own illustration, based on Ajzen 1991, S. 182; Davis 1991, S. 476; Van der Heijden 2001, S. 176)

As already mentioned games, fun and escapism play an important role in the use of MI-services and thus have a decisive influence on the diffusion of IT solutions. Hence, the cruise industry should respond to and develop IT solutions that are also perceived by customers as useful, user-friendly, portable and attractive. In the "Technology Acceptance Model" by Davis, the perceived benefits influenced the attitude towards the behaviour positively, which ultimately determines the behavioural intention and actual use of the IT solution (see Davis 1991, p. 476). The setting describes the behaviour of the approval or rejection of the IT solution (see Kittl, 2009, p. 54). The user-friendliness influences both positive benefits as well as behavioural intention. Van der Heijden extended the Davis model to construct perceived enjoyment and adds in his study of use of motives of websites that the attractiveness of the perceived benefits, perceived ease of use and perceived enjoyment are positively affected (Van der Heijden 2001, p . 176). It is understood to what extent the user finds the IT solution as aesthetically pleasing in terms of colour, design and layout. Finally, with respect to hypothesis H3 for MI services on cruise it should be perceived as mobile by the user to meet the demands of time and location independence.

In Ajzens "Theory of Planned Behaviour", the behavioural intention is influenced additionally by social norms and perceived behavioural control (see Ajzen 1991,p. 182). The social norms describe the pressure on the users of its social environment, whether it should use

the IT solution or not. Prestige plays a role. In addition, the question lies to what extent the user sees himself as an early user of technological innovations. Perceived behavioural control of the user shows the experiences of the treated as obstacles like financial barriers or technological understanding. Ajzen describes the interdependence of these constructs as follows: The more favourable the attitude and social norms are and greater the perceived behavioural control is, stronger the intention of the user in using the IT solution. He also states that the constructs in the user's behaviour can independently affect each other.

In the development and implementation of IT solutions it is now important to decide which of the customer wishes to comply. These can vary widely, including in the cruise. Hence the central question comes down to: why people travel at all? The so-called flight-thesis says that “tourism escapes the pressures of industrial society, modern travel is an escape into an imaginary happiness, and there is an apparent solution to deliver to the problems of everyday life” (Hennig 1997, p. 72). The escape theory when travelling is therefore linked to the H2 hypothesis that MI-services are used for the satisfaction of escapism needs. Hennig mentions other reasons such as play, ritual associated with sightseeing, the "longing for nature", sports, adventure, social contacts, or the anticipation of the holidays to let themselves go, be it a strong one or even just in a tie store "(Hennig 1997, p. 50). From this it can be broken down into three categories, which summarize the above reasons for travel: adventure/fun, relaxation and education/prestige. There are several cruise offers that include theme cruises, study or expedition cruises and fun cruising.

The aim in satisfying needs has to be developed as a measure IT solutions with regard to requests that are placed on MI services. The perceived pleasure in MI-Services consequently affected the need for adventure/fun on cruise ships. Analogously, the escapist perceived a positive impact on adventure/fun, relaxation and education/prestige. Thus, similar to skiing or mountain excursion the entertaining sport programs will be announced in the ship, just as disco nights, shows, live music and meet like on board to the demand for adventure/fun. In the relaxation area, there are also different requirements such as wellness programs, in which the customer through a precise response by MI-services may be emotionally involved. The AIDA Cruises also offers a variety of theme cruises, such as “Art at Sea,” “Christmas Time”, “AIDA edutainment”, “Fascination Photography”, “snorkelling and diving events”, “Kids Soccer Camp”, “Golf Tournament Travel”, “AIDA cruise fitness” or a variety of culinary options (AIDA Theme Travel, 2010). More special offers include New Year's, wedding and family trips.

These deals appeal to different needs of customers. The needs do not have to exclude each other. As elaborated in Section 9.2.2.2 above, the emotional involvement of customers in the implementation of MI services is crucial to the success of IT solutions.

As Figure 9.55 shows, the findings of MI research as well as the findings from market research on cruise act implications for the development and implementation of IT solutions.

9.4.3 Critical Reflections and Implications

Often technological innovations are in danger of not being able to meet customer needs. For this reason, purely technological innovations are still being developed in a purely economic way. These one-dimensional considerations ultimately prevent that IT solutions can achieve a high growth market and a high relative market share. Complex acceptance and diffusion-

theoretical approaches provide meaningful explanations and recommendations for promising IT-solutions (see Kittl, 2009). Therefore, a technological innovation that has been developed close to the wishes of customers is of better chance of success. Following the statement by Drucker supports this thesis: "It is the consumer who determines what a business is. For it is the consumer and he alone, who through being willing to pay for a good or for a service, converts economic resources into wealth, things into goods." (Drucker 1955, p. 31 f).

The orientation to customer needs is therefore crucial. If the passenger wants to read iTV news on board, he needs to look for a TV channel in the TV Channel manual provided, or is interested in the theme cruise or is looking for information about the destination port or is enthusiastic about an offer, or an access to the LBS service Child Tracker made by the shipping company on a family trip so that he spends less time worrying about the children's needs. It depends on the user himself. To what extent the desire for mobility is taken into account, plays a key role in the realization of MI services. Actually only when the customer can access the services independent of time and place, the mobility of use is guaranteed. It offers significant value to the customers when making a seat reservation or booking a table in a restaurant on your smart phone. Here comes the question as to how much information has a practical benefit and how much distracts the passenger through entertainment. Finally, with respect to escapism effect, the cruise itself already represents an escape from everyday life, so MI-services on board in spite of these added values that it can provide, should be critically examined and should be developed according to the wishes of the customers.

In order to recognize, analyze and observe the different structures of the needs, it is essential to measure. In accordance to the extension of the "Technology Acceptance Model" by Venkatesh et al., the determinants gender, age, experience and the voluntariness of use of services are important factors for the intention of the behaviour and for the behaviour itself (Venkatesh et al. 2003, p. 447). For this reason a segmentation of the customers into groups, which are as homogeneous as possible inside and as heterogeneous as possible outside, is a way to satisfy various customer desires specifically (Homburg & Krohmer 2006, p. 371). Regarding the „Unified Theory of Acceptance and Use of Technology" the performance expectancy is influenced by gender and age. To the effort expectancy there is an influence by gender, age and experience. Social Influence is additionally affected by the voluntariness of use. Besides age and experience have an influence on facilitating conditions (Venkatesh et al. 2003, p. 447). Thus the UTAUT can be a basis for the development of methods for measuring. On doing so, hypotheses by Wriggers can be an orientation, which can be combined with the UTAUT. Some of them will be mentioned exemplary in the following. The probability of an early adoption and high acceptance rises with increasing determinants like trialability, income, educational level, size of the living place, importance of the value of „having fun", characteristic of the motivation of the use „spending time", the positive perception of the provider's performance, decreasing complexity, and decreasing age. Besides according to Wriggers the probability of an early adoption and high acceptance is higher regarding to men than to women (Wriggers 2006, p. 55 f).

9.5 Conclusion and Outlook

Entertainment and information services have taken a leap from the hotel industry to the cruise industry. The basic part has shown that during the evolutionary history of infotainment systems, the complexity and depth of integration increased steadily. Currently mobile

systems are offered that are also based on single network architecture and have a quite high level of integration. The trend towards mobile system coincides with the trend towards the purchase of mobile devices for entertainment and information delivery, e.g. in the form of a smart phone. Subsequently, the use of motives for mobile information and entertainment services were identified: it was noted that the entertainment character plays a supporting role. This can be assumed that through emotional pleasure and escapism, there is an increase in the willingness to use mobile infotainment services. The value of entertainment from mobile Infotainment services is quite high for the young generation. However, the concepts of information and entertainment are hard to distinguish from each other. Information can provide not only information but also entertainment. A common definition of Mobile Infotainment is therefore difficult because it is a very recent term and is used widely in the literature.

At the beginning of the main part it has been shown that the infotainment market that has seen profitable growth would relatively lie down. The entertainment and information market is growing very steadily; hence the cruise industry must keep pace with the trend. In particular, the company Lufthansa Systems offers a very large portfolio of functions, which is seen as an IP network as a whole, and presents a fairly advanced and deep integration with existing components on the ship. However, it must be criticized that the word "mobile" in the term mobile infotainment would not do a lot of justice to its expectations (see Section 9.3.3). The system can be expanded, particularly with regard to the remote control (including mobility) and the integration of mobile devices like the iPhone. In the future, IP networks should be built deeper on board into the ships components and the previously mentioned mobility factor must be improved. According to the ship owners, currently used systems are very popular among the passengers, but there is still little knowledge about what customers really want to take on board. These studies come to light with interviews conducted with passengers or rear channels used in the infotainment systems (e.g. in the form of feedback forms) in question. The average age of passengers is estimated to be less than 50 years but a decreasing trend is shown here since years. Especially for the young people the entertainment factor is far more important than information. This is the reason further research is needed in order to see how the age structure affect the demand for certain infotainment content. In general we can say that there is a lot of research possible in this current topic in the future.

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10 Creating Network Effects for the Cruise Web 2.0

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10.1 Introduction

In the recent past technology has changed human behaviour especially in communication ways. Nowadays people use the computer as communication medium number one, while telephones or even letters have lost in attractiveness. Clifford Stoll finds the following explanation for this trend: “I sense an insatiable demand for connectivity. Maybe all these people have discovered important uses for the Internet. Perhaps some of them feel hungry for a community that our real neighbourhoods don´t deliver. At least a few must wonder what the big deal is.” (Stoll 1995). These different kinds of demands and developments can be seen in the creation of websites like Facebook, Twitter or Myspace.

The change of communication through the internet transformed also the distribution of holidays. Nowadays consumers sell consumers holidays via review pages. Therefore using positive or negative feedback statements to advertise for holidays or recommend no purchase. So O´Reilly mentioned in 2005 that users are the content creating power on websites, which is called the Web 2.0 (Papathanassis & Knolle 2009). Additionally those websites are accessible to everyone, everywhere at every time.

Review pages are sometimes seen as a threat, because of their ability to affect company´s image and sales negatively. However, why not considering them as opportunities? Through review pages user feedback can be gained easily. Consequentially that information can be used for business operations and product improvements. So Papathanassis stated out in 2007, that

“Consumer reviews, blogs and social elements can be seen as additional holiday components, ultimately enriching the holiday experience at a relatively low cost, whilst improving the comparability, transparency and trustworthiness of holiday offerings” (Papathanassis & Knolle 2009).

In relation to that the question occurs what factors would give tour operators review pages a competitive advantage in the usage against the high number of competitors? This shall be examined in the following through the creation of user profiles and websites features that support website usage.

10.2 Research Background and Method

In order to give advices how to construct durable holiday review pages i.e. for selling cruises, two major aspects have to be analysed.

First: Who uses holiday review pages? And as the main consequence: How can this person be characterised? Certainly the most common answer would be that the users are all past, present and future cruise customers.

However, this broad definition helps slightly to understand user behaviour. In the following the different character groups have to be analysed in order to examine character according website features.

10.2.1 Group Differentiation through Social Layers / Sociology Typing Methods

In the past there have been many different kinds of theories about social layers differentiation or sociology typing theories. In the 1930´s researchers started to differentiate people in social layers. According to their results belongingness to a social layer depended on "similar "external" living conditions as well as similar "internal", "physical" attributes" (Geißler). External living conditions included income, education and status. Furthermore those influences were assumed to contribute to people´s character development and behaviour in the long run (Geißler). Ralf Dahrendorf created the "house model" in the 1960s, where population was divided in seven different layers, and tributary to the above named factors.

However those models were horizontally limited means the exclusion of gender and age. Thus extended theories were re-created (Geißler).

Accordingly to this issue Gerhard Schulze wrote his book the "Thrill-seeking Society" in 1992. In his theory he distinguishes people in 5 different kinds of environmental groups: "Entertainment Society", "Harmony Society", "Integration Society", "Self-realization Society" and "Niveau Society". He finds these subgroups differing not only in education and income, but also in age. So people of the "Self-realization Society" mostly transfer to the "Niveau Society", after reaching a specific stadium of age. All these different kinds of subgroups were allocated with specific characteristics and interests (Schulze 1992).

10.2.2 Technology-adapting Models

Nevertheless the remaining issue is how to explain the different usage of holiday review pages according to given typing theories. After further research the given typing seemed insufficient, because of the absence of technology adaption. For instance the authors expected that the usage of the internet has less in common with educational level, but rather with its ease of use and its ease of access. In the following adapting technology models were examined.

In 1962 Rogers invented the diffusion of innovation model. The model is presenting an s-curve, which shows the time span needed for distributing a new technological product to different kinds of communities. All in all it shows the "diffusion process in a social system" (Rogers 1962).

There is also the well-known Technology Acceptance Model (TAM), figure 10.67, by Fred Davis (1993). This model is based on the assumption that the actual use of a technological product is dependent on the perceived usefulness (PU) – "the degree to which an individual believes that using a particular system would enhance his or her job" (Davis 1993) and the perceived ease of use (PEOU) – "the degree to which an individual believes that using a particular system would be free of physical and mental effort" (Davis 1993).

In the last decade the researchers Galletta and Malhotra invented the so called psychological attachment factor, figure 10.68, (Malhotra & Galletta 1999) as a third aspect of influencing adoption of technology. This psychological attachment includes the work of Kelman, who "distinguished between three different processes of social influences that affect individual behaviour: compliance, identification and internalization" (Malhotra & Galletta 1999).

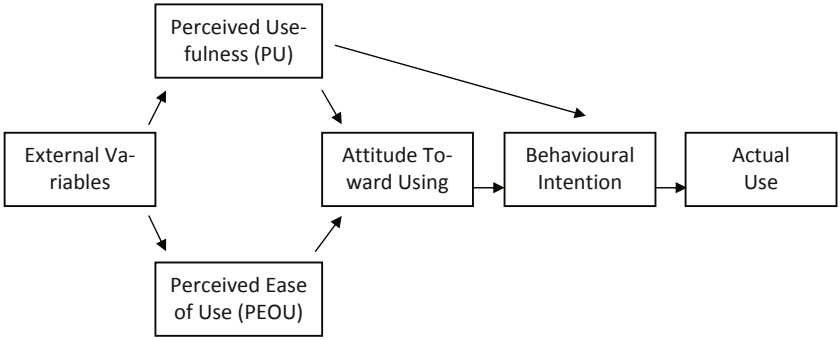

Figure 10.41: Technology Acceptance Model (Malhotra & Galletta 1999)

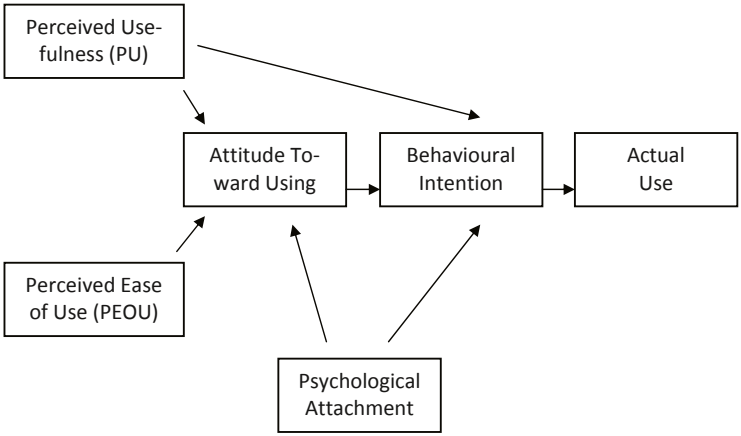

Figure 10.42: Technology Acceptance Model including the psychological attachment factor (Malhotra & Galletta 1999)

The psychological attachment factor gives indicators about the reason for using a specific technology, and creates in extension to that a profile of technology users.

10.3 Character Description

As mentioned above, the TAM model plus “Psychological Attachment” includes Herbert Kelman´s work. The researcher created three different character classes, which contribute in social groups. Those three character groups have been named: compliance, identification and internalization. Therefore the author provided character descriptions. In the following web page attracting features will be generated in accordance to Kelman´s differentiation.

10.3.1 The “Obedient One” or “Apple Polisher”

The “Obedient One” or “Apple Polisher” is a person, referring to Herbert C. Kelman´s (1985, 2010) definition of compliance, who accepts the influence of others (i.e. individuals or groups) in order to achieve a favourable reaction: to gain reward, avoid punishment or disapproval (Kelman 1958, 2010).

So the following characteristic can be created; the “Obedient One” or “Apple Polisher” will get recognition by playing the “supposed-correct” role through the willingness of accepting others’ opinion. He suppresses his own values and beliefs. Means this character adopts different point views, but does not integrate them to his value system. Moreover he is likely to please others with compliments, to achieve either own interest or to avoid conflicts. In each situation he will do whatever is expected of him by his reward.

To attract this sub-group, review pages should establish specific features matching the assumed preferences and characteristics. The following examples shall create a broad picture of options; explanation will follow in the further content of the text.

Review / Writer of month: Website is counting visitor numbers of each feedback; the one with the highest visitor rate becomes winner.

Publication: The release of the best reviews of the year in a travel magazine, newspaper or guide.

Stars: Website users can mark reviews with i.e. 1 up to 5 stars; the review with the best average on stars wins price or gets discount on bookings.

Internal feedback function: Ability to get comments on reviews by other users.

10.3.2 The “Follower” or “Hack”

The “Follower” or “Hack” is a person, referring to Herbert C. Kelman´s definition of identification, who accepts the influences of others in order to maintain a desired relationship or to anchor self-definition in that relationship; therefore the “Follower / Hack” imitates his partners profile or forms an alternating role (Kelman 1958, 2010).

So the following characteristics can be created. The “Follower” or “Hack” is a person who needs group acceptance to avoid the feeling of isolation. Therefore he performs a specific role or creates a special image to maintain or improve social relationships. This person is driven by desire of belonging to someone. This behaviour can be described also as commitment (Martens 2003) and implies the fact that group values maybe congruent to personal values, however those will not be fully internalised.

To attract this sub-group, review pages should establish specific features matching the assumed preferences and characteristics. The following examples shall create a broad picture of options; explanation will follow in the further content of the text.

- Grouping: Possibility of forming internal groups with friends or acquaintances on websites.
- Sending Review: Function to send recommended reviews to other users / group members, i.e. by using E-Mail addresses.

- Direct Contact: Ability of writing comments directly to review author.
- Chat room: Creation of chat rooms or chat functions with friends.

10.3.3 The “Believer”

The “Believer” is a person, referring to Herbert C. Kelman`s definition of internalization, who accepts influence as long as they match his own value system and are internally satisfying. (Kelman 1958, 2010)

So the following characteristics can be created; the believer is a person, who uses technology that fits his lifestyle. This means the usage helps him to fulfil every day task. Moreover through technology he achieves status and becomes self-confident.

To attract this sub-group, review pages should establish specific features matching the assumed preferences and characteristics. The following examples shall create a broad picture of options; explanation will follow in the further content of the text.

Profile: Users are able to create personal profiles.

Pictures: Users can upload pictures and make those accessible to different parties.

10.3.4 Additional Thoughts

Evaluation of the above described profiles shows an overlap between the different stages. In relation to that, the hypothesis can be created that an individual can develop internally and pass through the three different stages.

For example, Tim takes part on many Cruises to achieve a desired status, i.e. “reward needle” or a cruise operator credit card (“Obedient One” / “Apple Polisher”). After receiving the needle he goes on with cruises, because he built up friendships to other guests. Thus he is maintaining those relationships (“Follower” / “Hack”). In the end, cruises are his hobby and are implemented to his lifestyle. So cruises are part of his value system (“Believer”).

All in all a development process is visible. For that reason an overlap of group features can be assumed. This implies the idea that especially the “Believer” is also willed to use features of the “Follower” / “Hack” or “Obedient One” / “Apple Polisher”.

10.4 Application of Features through Benchmarking

10.4.1 Method and Application

The bottom line for creating a holiday review page in accordance to the given model is to attract people in a durable and lasting way.

By analysing the given three types of users it is obvious, that the most favourable user is the so called the “Believer”. However the direct attraction of “Believers” is quiet difficult, because of the impossibility to generate tailored features for an anonymous user.

However through the intensive and positive experienced usage of technology the “Obedient / Apple Polisher” and the “Follower / Hack” can be transformed. So the overall goal of tour operators should be the attraction of the “Obedient / Apple Polisher” and the “Follower /

Hack" to create "Believers" and to guarantee an ongoing usage of company own holiday review pages.

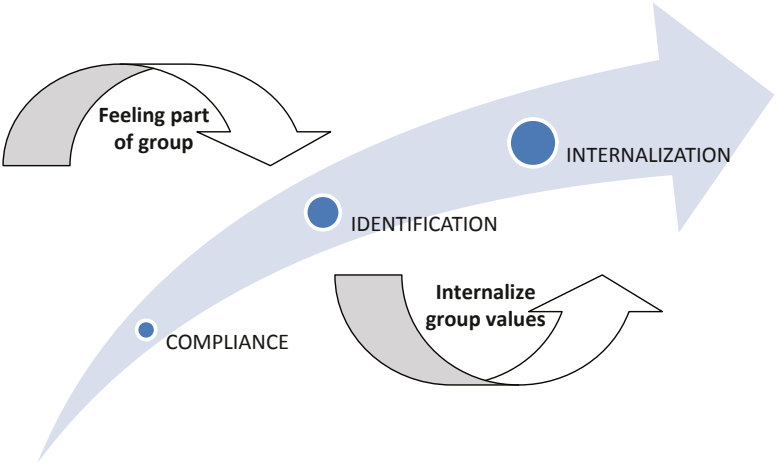

Figure 10.43: Character Development Process (Authors 2010)

In the following the features of the "Obedient / Apple Polisher" and the "Follower / Hack" are applied and compared on different holiday review pages.

The "Obedient / Apple Polisher" would be attracted by following features:

- Review/ Writer of the month; while this person seeks for rewards, it is important that the owned rewards can be presented to others. Means that the author of helpful, informing feedbacks should be rewarded and be recognized by others. This could be done trough the announcement of a "Writer of the month" which is posted on the main page, so that all users can see it.
- Publication; to extend the recognition of those users the reward of publishing the best feedbacks in monthly or yearly magazines could also be motivating for an ongoing subscribing on the given website.
- Stars; not every article can be "Article of the month", however an easy reward gaining system could be scoring reviews through stars, by other users. Means that for example a helpful, well described feedback gets 5 Stars, while a short and maybe not informing one gets only one. The average of those could be stated in the abstracts of each feedback, or close to its headline.
- Internal Feedback on reviews; to extend the contact between the different users and make the recognition of other users more visible to the "Obedient One" / "Apple Polisher", the ability of writing direct comments to the author should be given. So in best case the apple polisher gets a direct reward or intrinsic motivation push.

The "Follower" / "Hack" would be attracted by the following features:

- Grouping; for the "Follower" / "Hack" the interconnection with friends is the most important aspect of the usage of such technologies. The person uses it to maintain contacts

to other and to be seen by those. So internal groups should be able to be generated, by i.e. giving invitation to support the “Follower`s” / “Hack`s” loyalty.

- Sending Reviews; the “Follower” / “Hack” holds contact and communicates with friends through the given medium. Means that opinions or new generated knowledge is been transferred through those groups. So the function of sending or recommend reviews to each other should be accessible.
- Direct Contact; like mentioned before communication runs through the given medium – the webpage. Means that the feature of writing E-Mails internally to each other should be given. Not only for the purpose of writing comments about feedbacks, but also for private matters.
- Chats; to extend the facilities of communication a chat – function should be implemented. The option of group members to “talk” with each other without time passing by. Also not only to recommend reviews, but also for private business.

By applying the given character models on existing websites, it´s reliability shall be investigates. Certainly the following review pages cannot meet exact feature descriptions. Hence a scoring system is created. Is a feature fully met by a web page the scoring would be 3. In response to that 1 means common features, but with improvement needs. A “0” would indicate that feature is not included at all.

Grading: 0 = no agreement, 1 = low agreement, 2 = some agreement, 3 = high agreement

The review page with the highest number includes the examined technology features best.

	Cruise (cruises.co.uk)		Review that Cruise (ReviewThatCruise.com)		Cruise Reviews Online (Cruise Reviews Online)		Holiday Check (Holiday-Check.de)		Hotelkritiken.de (Hotelkritiken.de)		Cruisemates (cruisemates)	
The Obedient One / The Apple Polisher												
	Score	Comment	Score	Comment	Score	Comment	Score	Comment	Score	Comment	Score	Comment
Review / Writer of the month	1	Best Blogs/ Best entries Blog; no entries listed	0		2	Top 100 Cruise Reviews listed	0		0		3	

Publication	0		0		1	User can become an Official Cruise Reviewer. Cruise Reviews Online is giving away a t-shirt per week, for the best cruise review submission.	0		0		0	
Stars	0		0		1	Weekly reviews can be rated as good or bad (i.e. 96% good, 4% bad)	3	Stars will be given for informative text and number of visitors. Users with less and unclean reviews will get less stars.	0		0	
Internal Feedback on reviews	3	User are able to write comment about reviews; in own words. Plus function to ask questions	2	User can write an Email to the reviewwriter, but only if the Email ID is seen in the Profile	0		3	Private E-Mailbox for sending or receiving feedback.	3	Private E-Mailbox for sending or receiving feedback.	2	
Subtotal Score 1	1		0,5		1		1,5		0,75		1,25	
The Follower / The Hack												
	Score	Comment	Score	Comment	Score	Comment	Score	Comment	Score	Comment	Score	Comment

Grouping	2	Internal forums can be generated, where people start to get in contact with.	0		0		3	Can make "friends" on Website; having guest pages, where comments can be sent personally	2	Internal forums can be generated where people start to get in contact with.	2	Internal forums can be generated, where people start to get in contact with.
Sending Reviews	3	Reviews can be sent via Facebook function.	3	"Digg"-button: helps you discover and share content that is the most relevant to you and those in your social network → i.e. Facebook or twitter	3	The review can be sent to a friend or even be shared in social networks like Facebook, Gmail, yahoo etc.	1	Overall Facebook function (fan page)	0		0	
Direct Contact	3	User are able to write comment about reviews; in own words. Plus function to ask questions	2	User can write an Email to the reviewwriter, but only if the Email ID is seen in the Profile	0		3	E-Mailbox integrated.	3	E-Mailbox integrated	2	Message Board is used to get connected
Chat rooms	0		0		0		0		0		1	Usage of Interactive features + Message Board
Extra:	- User profile; including name, home town, no. of reviews, last entry etc. - Gallery; users can upload pictures				- In order to post a review, one needs to create an account - User profile; including name, Email, home town, no. of cruises taken, favourite cruise line							- Gallery; users can upload pictures - User profile: name, Location, Occupation, cruises taken, general info like last activity, join date, referrals

Subtotal Score 2	2	2,25	0,172	1,75	1,25	1,25
Subtotal Score 1	1	0,5	1	1,5	0,75	1,25
Total Score	1,5	1,375	1,36	1,625	1	1,25
Review #	26.089 (15/11/10)	35 (17/11/10)	+ 1500 (17/11/10)	+10000 (19/03/10)	851(17/11/10)	3920 (17/11/10)

Table 10.18: Application of character models on websites (Authors 2010)

10.4.2 Short review pages summaries

Review Page 1 Summary

The Website "Cruises" is offering a wide range of cruise reviews, ca. +20.000. The user has the possibility either to read or enter a review, ask other users about their experiences and is also able to get a better destination impression through uploaded holiday pictures. Besides those holiday offers are made and can be booked. Moreover the websites includes a range of cruise ports information, plus additional maps.

Review Page 2 Summary

On the Website "Review that Cruise" users can rate cruise ships and leave own cruise reviews. It is recommended "to leave a cruise review so that others will be able to decide what cruise ship sounds the best without a sales pitch" (ReviewThatCruise 2006). The Website also provides a Travel Agents Finder for a list of UK travel agents.

Review Page 3 Summary

The Website "Cruise Reviews Online" offers thousands of consumer-written cruise reviews to the readers. Before releasing for public viewing, every review is read by their editorial staff, i.e. offensive language is removed. Only about one out of four consumer-submitted reviews meets their standards for inclusion in their web content. In addition, they deliver their own professionally written editorial reviews. Readers have the opportunity to read what the industry professionals have to say as well as the every day cruise consumer. The website maintains a huge database of cruise ship information, itineraries and sailing dates for 30 major cruise lines. Furthermore it combines powerful cruise search configuration with photo galleries, consumer reviews, and side-by-side comparison tools, original editorial con-

tent and official reviews to help consumers' research cruise vacations and connect with cruise specialists each month.

Review Page 4 Summary

The Website "Holidaycheck.de" provides a lot of information and cruise reviews to the readers. This portal is the biggest German-speaking information portal concerning travelling and cruises. "Holidaycheck.de" uses the interactive possibilities of the internet for the user. The data is being provided by the users for the users. Before the reviews are published they are checked by website's management. The core competencies are reviews, private pictures of the user as well as a collection of holiday videos.

Review Page 5 Summary

The Website "Hotelkritiken.de" is an independent and free information portal regarding holidays and cruises for German-speaking guests. Opinions as well as improvement ideas will be given to certain hotels and cruise ships. A fast search is included and enables information seeker to reduce time effort for information collection. The core competence of the site is precise grading.

Review Page 6 Summary

The website "CruiseMates" is independently owned and offers accurate cruise information as well as providing a place for cruise enthusiasts to meet. The website is designed to help readers gaining information about cruising, cruise ships and discuss ways to enhance the pleasure of sea-going vacations. It offers lots of interaction between the users and cruise enthusiastic, i.e. through the functions "Cruise Blogs", "Message Boards" and "Interactive features".

10.5 Preliminary Conclusion

For the analysis of the given column the following assumption can be made beforehand:

If the score is high and the number of reviews is high, the given features match the needs of the "Obedient One / Apple Polisher" and the "Follower / Hack".

If the score is high but the number of users is low, the given features don´t match the needs of the "Obedient One / Apple Polisher" and the "Follower / Hack".

If the score is low but the number of reviews is high, the page is used by the "Believers". Given features, or website outlay matches their value system. No specific feature catalogue can be generated. If both the score and the number of reviews is low, the website is not used because of the missing character features. Website has a low competitive advantage and influence.

Moreover for the following examination it should be pointed out that a high score is assumed between 2 and 3. In comparison of the different review numbers a high review number is stated until 10,000 reviews per website.

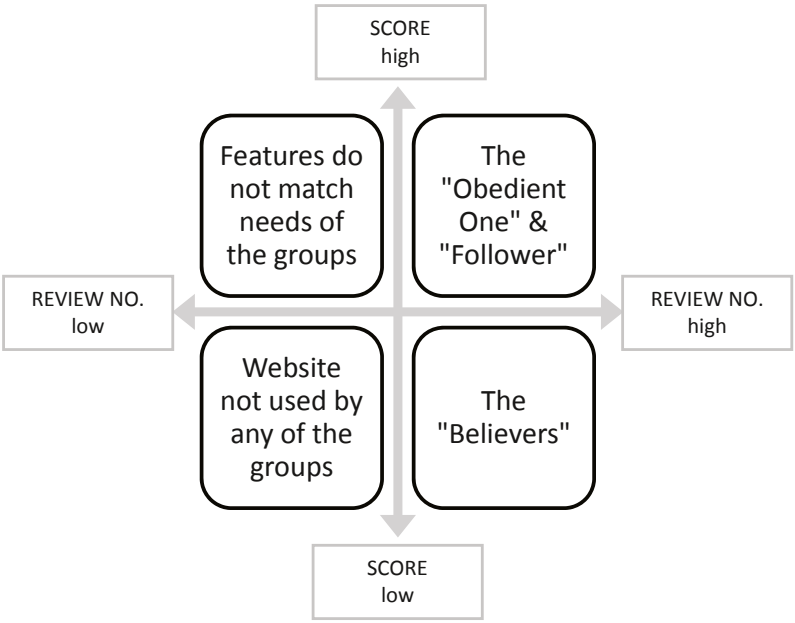

Figure 10.44: Preliminary Analysis Conclusion (Authors 2010)

By analysing the given review pages the following conclusions can be made. On the one hand review page 2 (Review that Cruise), 3 (Cruise Review Online), 5 (Hotelkritiken.de), and 6 (CruiseMates) show a relative low score between 1 and 1.375. Plus the reached review numbers stay low between 35 and 3,920 reviews. So the assumption can be made that because of the lack of fulfilling the given features, that attract the “Obedient / Apple Polisher” and the “Follower / Hack”, the website usage is low.

On the other hand review 1 (Cruises) and 3 (Holidaycheck.de) have relative low score of 1.5 - 1.625 while their review number is between 10,000 – 26,089. So the assumption can be made that even by not fulfilling given feature guides the usage of the page is high. This high user number could be categorised by the subgroup the “Believer”. This subgroup uses websites independently from meeting specific features.

Nevertheless another perspective can be chosen. Reviews 1 (Cruises) and 3 (Holidaycheck.de) have low scores but high user rates, because of meeting subgroup features that were not taken into consideration. Consequently, a further follow-up research about features should have been done.

Additionally review 2 (Review that Cruise) contains a high score of 2.25 for the “Obedient / Apple Polisher” section, while the number of reviews stays low. So the assumption occurs that maybe the made-up features for this sub-group have to be improved.

However the issue of differentiating users in subgroups to collect characteristics and creating specific and usage enabling features remains. Maybe the sociological typing method, TAM, has to be redone or the feature creation has to be done in more depth.

10.6 Further Thoughts and Questions

What other subgroup differentiation systems exist? And what further metrics (i.e. age, gender) have to be taken into consideration?

What other factors enhance usage of websites, i.e. marketing?

Maybe subjectivity in scoring is too high – so how would scores look like by fulfilment of other research group?

What other features according to the given three subgroups exist?

10.7 Discussion

10.7.1 Feedback of E-Cruising Conference (09-11/12/2010)

According to the presented results concerns were mentioned about the eventually underrepresented complaining users. In addition the opinion was mentioned, that the given model is applicable for online communities like Facebook, but not directly for holiday review pages.

So according to the conference outcome the following research will examine if complaints are an expression of a further subgroup or motivational flow within the three existing character groups. Moreover a short discussion and assumption about the similarity of online communities likes Facebook and holiday review pages will be given.

10.7.2 Motivation as behavioural source

To analyse the potential of complaining holiday guests as an independent social group of internet users, the nature or cause of complaints has to be discussed. It is assumed that complaint in the tourism sector is, when people perceive their service as insufficient in accordance to their expectations. Additionally people go online with their complaints, when the response of a negative event is not handled properly, i.e. by the hotel.

To further investigate the complaints nature, the term of motivation, described as the overall explanation for human behaviour and actions (Zhang, Zhao & Tan 2008), will follow. All in all people tend to have different amounts as well as different kinds of motivation. So motivation can be differentiated in its level and its orientation (Ryan & Deci 2000). Therefore motivation is divided into two different motivation classes: intrinsic motivation and extrinsic motivation (Zhang, Zhao & Tan 2008).

Intrinsic motivation means that the person is doing something "because it is inherently interesting or enjoyable" (Ryan & Deci 2000) plus the action is "satisfying in itself" (Lin, McKeachie & Kim 2002). Extrinsic motivation means that a person is doing something "because it leads to its separable outcome" (Ryan & Deci 2000), so to achieve rewards or avoid punishment (Lin, McKeachie & Kim 2002).

Overall there is the assumption, that intrinsic motivation as well as extrinsic motivation can be enhanced through intrinsic or extrinsic rewards, i.e. positive or negative feedback. It is heavily discussed if intrinsic or extrinsic rewards are connected with each other or reduce the effect of the other one. So Porter and Lawyer (1968) as well as Vroom (1964) argued that "intrinsic and extrinsic rewards are additive in their effects upon motivation" (Farr, Vance & McIntyre 1977), while Deci (1975/1976) for example mentioned that under specific circumstances "an inverse relationship between extrinsic and intrinsic motivation exists" (Farr, Vance & McIntyre 1977). Nevertheless in the ongoing paper this discussion is excluded, because of the papers` focus in creation of review page users groups, instead of the in depth examination of motivations nature.

10.7.3 Social character groups and their motivation structures

To analyse the kind of motivation that is needed to cause complaints, the model of Ryan and Deci is examined. The model is called "a taxonomy of human motivation" (Ryan & Deci 2000), and shows the varying proportion of extrinsic motivation, in relation to the caused human action (i.e. non-autonomous – autonomous decision / action). Those four classes are: external regulation, introjected regulation, identification and integrated regulation.

External regulation implies that the person is satisfying an external demand to receive reward or avoid punishment. The person feels a strong control. Additionally this process "is the only kind of motivation recognised by operant theorists" (Ryan & Deci 2000).

Introjected regulation means that a person is doing an action "with the feeling of pressure in order to avoid guilt or anxiety or to attain ego-enhancements or pride" (Ryan & Deci 2000). Even the person´s ability of internal regulation is not diminishing the external influence and so the external perceived locus of causality by deCharms, (1968) remains (Ryan & Deci 2000).

Identification implies that a person has identified himself with a specific behaviour or regulation and implemented those to his/her own behavioural standards. (Ryan & Deci 2000)

Integrated regulation means that a person is implementing regulations or behaviour standards in his value system. Additionally Ryan and Deci stated out that integrated regulation is sharing "many qualities with intrinsic motivation, being both autonomous and unconflicted" (Ryan & Deci 2000).

In the following the beforehand created character groups will be connected with the motivation proportions and cause explanation for human behaviour by Ryan and Deci.

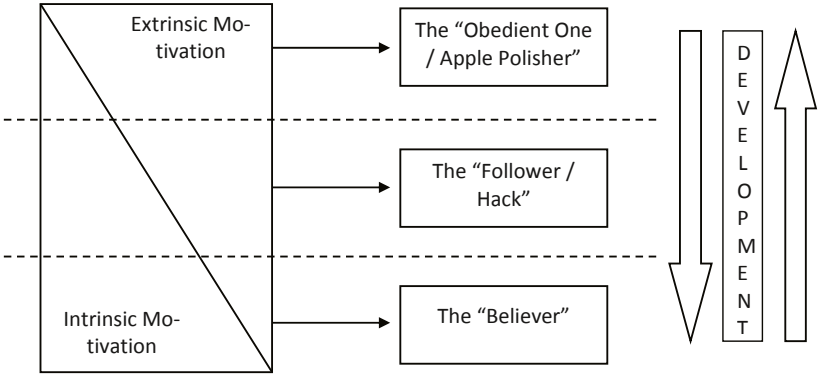

Figure 10.45: Proportions and Motivation Types in the Created Character (Authors 2010, based on Ryan & Deci 2000)

Figure 10.71 shows the different proportions and kinds of motivation in the created character groups by Kelman´s (1958, 2010) theory. So it can be examined that i.e. the "Obedient One / Apple Polisher" gets strongly influenced by extrinsic motivation factors, while the "Believer" is strongly influenced by intrinsic motivation. A practical example is that the "Obedient One / Apple Polisher" would stop the behavioural pattern, when the extrinsic motivation, i.e. punishment for not abounding the law, is removed, whereas the "Believer" would still contribute to the old behavioural standards. As mentioned before, there is a visible back- and forward development through the different stages. Means that through extensive extrinsic motivation people can adopt patterns and implement them in their value system, while wrong extrinsic motivation can also diminish intrinsic motivation and leads a person backward in development process. Whereas Ryan and Deci created four similar behavioural groups in accordance to extrinsic motivation, the following paper will still focus on the three groups by Kelman, because of the difficulty to distinguish if a person is identifying or fully integrating a kind of action. Additionally Ryan and Deci created the internalisation stage, in which "people's transforming external regulatory processes into internal regulatory processes" in accordance to Kelman (1961) himself and Schafer (1968) (in Deci, Ryan & Williams 1996).

In relation to the given explanation the group of complaining people has to be classified into the model. Therefore a definition of complaint has to be created. Overall it can be assumed that complaint is an external motivation, which is reasoned by an external incident. This incident leads to dissatisfaction and a need for action, to reach a specific goal or to diminish a dissatisfying situation. On the one hand it can be further assumed that through the heavy external motivation background complaining people can be located before or after the "Obedient One/ Apple Polisher". However the given information gives no clear boundary between the different social groups as well as the proportions of extrinsic and intrinsic motivation. The difficulty of drawing a line between those motivation classes can also be recognized in heavy discussion about the effects on each other as well as their correlations. So it is also a difficult task to determine complaints´ motivational class. This issue gets enhanced through people's different orientations of motivation and levels. These are influenced by

many extrinsic factors, i.e. by time span of negative event or the individual's evaluation of those events. On the other hand it is possible that complaints are an external motivational flow, which influences person´s behaviour within its character group, i.e. law and social pressure. That means that complaints are a situation adapted character expression within the three subgroups. These expressions do not produce a static profile, because they are continuously transforming. Nevertheless complaining can be an addictive behavioural pattern, which is grounded in a more complex character disorder.

All in all it can be deduced that complaints are an instable extrinsic motivational flow within the given character groups by Kelman (1958, 2010). From our point of view, addictive complainers form an exceptional group, who motivational and behavioural patterns are pathologic and embedded in a deeper personality disorder.

Furthermore the perceived universal construction of the given models, referring to Kelman (1958, 2010) or Ryan and Deci (2000), let the assumption arise that those models can be applied for various kinds of social groups. The effect of social networking is to enhance communication of interest groups. But the be all and end all is that all communication platforms, whether they are for online friendship or just information collection, i.e. travelling, collect and deliver information about consumer behaviour. So a similarity between Facebook and holiday review pages can be examined.

10.8 Conclusion

To come to the bottom line, it is assumed that the differentiation of review page users is possible. For example motivation factors can be utilized for subgroup creation. Therefore website features can be generated, which are expected to enhance website usage. It can be assumed that more than three subgroups exist. Hence the examination and application of different social typing methods is recommended. All in all the creation of usage enabling features is an option to generate a website advantage. Furthermore the information gained out of websites shall increase company´s operational behaviour and make them more competitive.

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11 Revenue Management System for the Cruise Industry: A Simulation Study

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The fast growing cruise line industry anticipates huge uncertainties in its business environment. The cruise companies face uncertainty from four main sources: demand, competition, distribution channel, as well as the economic and political environment. The uncertainty brings risks as well as opportunities for the cruise industry, and a key issue is to understand the nature of the uncertainty and optimize profit by using appropriate management techniques. Depending on the prediction of expected customer preferences, different revenue management strategies should be implemented (Ji & Mazzarella, 2006). In this study, we developed simulation framework to compare 3 different revenue management methods with the simulated data. The first method is the First Come First Service (FCFS); the second method was the Dynamic Class Allocation (DCA). The last method, the Modified DCA, was derived by updating the underlying distributions of demand by current booking data with Bayesian approach. The aim is to find a universal powerful method which depends less on the revenue manager's subject prediction of the demand by combining his belief and the real time booking data. The simulation result shows that when the demand estimated from historical data was not representing the future, by using the modified method, we can significantly improve revenue by updating demand information.

Keywords: revenue management, nested class allocation, dynamic class allocation, cabin fares, cruise lines, Bayesian updating

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DOI 10.1007/978-3-8349-7159-3_11,

11.1 Introduction

Sometimes called yield management, revenue management has gained attention over the last fifteen to twenty years. As it is deemed both as an emerging discipline and a new management science, revenue management is a set of revenue maximization strategies and tactics meant to improve the profitability of certain businesses. Revenue management is challenging because it involves several aspects of management control, including rate management, revenue streams management, and distribution channel management, just to name a few of them. Revenue management is multidisciplinary because it blends elements of marketing, operations, and financial management into a highly successful new approach. Consequently, a revenue manager frequently must work with one or more other departments when designing and implementing revenue management strategies (Forgacs, 2010). To apply revenue management in the cruise industry, the disciplined tactics that predict consumer behaviour at the micro-market level is necessary, and an accurate forecast can help make better decisions regarding product availability and pricing in order to increase revenue.

Cruise line providers have engaged in advance booking that use a wide variety of advance reservation systems. This advance booking is both beneficial to consumers' convenience and the profit of service providers. Among all the features of an advance reservation system, the most interesting one is that they can be used to identify and sort consumers according to their willingness to pay without having to formally making a query to reveal their preferences (Shy, 2008). A common assumption is the large potential customer population assumption, which implies the proportions of each customer type estimated represent the true distribution of demand. And this distribution can be used for the future resource allocation.

But under constant economic fluctuations, it is a straightforward question to ask: does the demand estimated from the retrospective data give a true picture of the future? How to anticipate the existing uncertainties and react to it in real time in the cruise industry? To precisely estimate the real demand of next cruise route, the real time booking information can be used as additional information source to improve the demand estimation and capacity allocation. For this purpose the Bayesian method gives us a practical way to combine priori information with the current observation and finally leads to a more precise demand prediction. By modifying these demand information in the DCA allocation method with a real time Bayesian posterior distribution, the modified revenue method is expected to bring better results than applying DCA under the wrong assumption. So the modification of DCA is not for the method per se, but on the underlying assumption of the demand. The purpose of this modification is to develop a universal powerful method, which anticipate the dynamic change of the market and require fewer assumptions from the revenue manager.

11.2 Overview of Class Allocation Methods

11.2.1 Problem Formulation

We assume the time in the whole booking horizon is discrete and is indexed by $t = 1,2,...,T,T+1$. Potential cruise line travellers are allowed to book during the periods $t = 1,2,...,T$. Then, the booked service is consumed in period $T+1$when no further bookings can be made. And for convenience, we do not consider refund and overbooking strategies.

The cruise line provider announces a number of booking classes indexed by $i, i \in \aleph = \{A, B, C, ...\}$, and the price for each booking class (fare class) as P^A, P^B, P^C, and so on, where $P^A > P^B > P^C > ...$. Class A is the full fare class, followed by discount class B, and so on. Lastly, let $P^0 = 0$ denote a zero revenue "obtained" from a consumer who does not make a reservation. That is, for analytical convenience we treat a period when no booking is made as if a consumer requests to be booked at a class for which she has to pay $P^0 = 0$ for nothing. The prices are treated as exogenous parameters, since they are mainly determined by the competitive market. We denote by K the available cabin capacity, which equals the maximum possible total number of bookings that can be made in all classes combined. Hence, in period $T+1$, the total number of bookings cannot exceed K.

The potential cruise line traveller population consists of a fraction, denoted by π^A, of customers who are willing to pay P^A for a class A service, where $0 < \pi^A < 1$. Similarly, π^B, π^C, and so on are the fractions of the population willing to pay for class B and class C services, respectively. Lastly, the fractions that will pay $P^0 = 0$ constitute the fraction denoted by π^0. Formally, we define $\pi^0 = 1 - \sum_{i \in \aleph} \pi^i$ as the fraction of the population who never travel by cruise ship.

Without loss of generality, we make the following assumptions to investigate the booking system.

ASSUMPTION 1

The potential consumer population is large, which means the fractions π^i are also the probabilities that a consumer will request a booking on class $i \in \aleph$.

In the classical method, these probabilities are independent of the number of bookings that have been made before this booking request, which implies that the historical estimation of proportions will hold true for the current situation. We start our study with this assumption, and later on will relax this assumption by allowing these probabilities to be dependent both on the number of booking request that have been made before and also on the booking request along the current booking process

ASSUMPTION 2

In each period $t, t = 1,2,...,T$, there is at most one booking request.

ASSUMPTION 3

The total amount of cabin available for booking is smaller than the number of booking periods. Formally, $K < T$.

Overbooking is not allowed. Capacity can be costlessly and instantaneously shifted among the various service classes. Given that at most one traveller can be booked in each period t, let $P_t \in \{P^0, P^A, P^B, ...\}$ denote the price/fare for the booking class requested by a period t consumer. Recall that P^0 means there is no revenue from a non-booking customer.

Also, let d_t denote the decision rule for whether or not to accommodate a booking request by a period t consumer. This decision can be made by using different revenue management systems. $d_t = 1$ means that the reservation has been confirmed and one unit of capacity is reserved for the period t booking consumer. In contrast, $d_t = 0$ means that the period t booking request has been denied. Altogether, the period t profit can be written as $d_t(P_t - \mu_0)$, where μ_0 is the marginal operating cost of providing an additional unit of service. For the ease of demonstration, we assume that the marginal operating cost is zero $\mu_0 = 0$. The analysis in each period is split into two parts. First, making a booking decision according to a decision rule $d_t(P_t) \in \{0,1\}$, which indicates whether to reject or confirm a booking request for the class associated with the price $P_t \in \{P^A, P^B, P^C, ...\}$ given that there is at least 1 unit available capacity. Second is the calculation of revenue according to the decision and the price.

11.2.2 FCFS Method

The First Come First Serve (FCFS) method is straightforward; the first K request regardless of their price will be accepted. The calculation of revenue is also elementary by summing up all the offered prices from the confirmed bookings.

11.2.3 DCA Method

The solution for Dynamic Class Allocation (DCA) problem we use in this study is called Bellman's principle of optimality due to Bellman (1957). Generally, the logic behind this method is to solve any finite-horizon dynamic optimization is to work the solution backward using backward induction. Thus, we begin with the last period $t = T$ and work backward period by period until the first booking period $t = 1$.

Let's $P^S \geq 0$ denote the salvage value of a unit of capacity; and $P^S = 0$ is a special case in which there is no salvage value for unused capacity. So the salvage value of unused capacity during the period when the service is delivered (so that further bookings are possible) is given by

$EV_{T+1}(k_{T+1}) = P^S \times k_{T+1}$, for all capacity levels $k_T \geq 0$.

The decision rule in booking periods T, T-1, …, is

$$d_t(P_t) = \begin{cases} 1 & if \quad P_t > EV_{t+1}(k_t) - EV_{t+1}(k_t - 1) and\ k_t > 0 \\ 0 & Otherwise. \end{cases}$$

In each booking period $t \le T$, we denote by

$$\mathrm{B}_t(k_t) \overset{def}{=\!=} \left\{ i \in \mathrm{B} \mid P^i > EV_{t+1}(k_t) - EV_{t+1}(k_t - 1) \right\} for \quad t \le T$$

The booing decision is, $d_t(P^i) = 1$ for all $i \in \mathrm{B}_t(k_t)$, whereas $d_t(P^i) = 0$ for all $i \notin \mathrm{B}_t(k_t)$. The resulting expected period t value of capacity is given by

$$EV_t(k_t) = \sum_{i \in \mathrm{B}_t(k_t)} \pi^i \left[P^i + EV_{t+1}(k_t - 1) \right] + \left(1 - \sum_{i \in \mathrm{B}_t(k_t)} \pi^i \right) EV_{t+1}(k_t)$$

The term on the left $\sum_{i \in \mathrm{B}_t(k_t)} \pi^i \left[P^i + EV_{t+1}(k_t - 1) \right]$ measures the expected profit from accepting a booking plus the future expected value of capacity, taking into account of the resulting reduction in capacity, which means $k_{t+1} = k_t - 1$. The term on the right $\left(1 - \sum_{i \in \mathrm{B}_t(k_t)} \pi^i \right) EV_{t+1}(k_t)$ measures the period t+1 value of capacity in the event that no booking is made in period t, which means $k_{t+1} = k_t$.

11.2.4 Modified DCA (MDCA) Method

The Bayesian method is the process of learning about the general characteristics of a population from a subset of members of that population. Numerical values of population characteristics are typically expressed in terms of a parameter θ, and numerical descriptions of the subset make up a dataset y. Before a dataset is availiable, the numerical values of both the population parameters and the dataset are uncertain. After a dataset y is obtained, the information it contains can be used to reduce uncertainty about the population parameters. Quantifying this change in uncertainty is the purpose of Bayesian inference.

The sample space Y is the set of all possible datasets, from which a single dataset y will result. The parameter space Θ is the set of possible parameter values, from which we hope to identify the value that best represents the true population parameters. The idealized form of Bayesian learning begins with a numerical formulation of joint beliefs about y and θ, expressed in terms of probability distributions over Y and Θ.

1. For each $\theta \in \Theta$, the prior distribution $P(\theta)$ describes our belief that θ represents the true population parameters.

2. For each $\theta \in \Theta$ and $y \in Y$, the sampling model $P(\theta \mid y)$ describes our belief that y would be the outcome of our study if we knew θ to be true.

Once we obtain the data y, the last step is to update our beliefs about θ.

3. For each $\theta \in \Theta$, the posterior distribution $P(\theta \mid y)$ describes our belief that θ is the true value, having observed dataset y.

The posterior distribution is obtained from the prior distribution and the sampling model via Bayes' rule:

$$p(\theta \mid y) = \frac{p(y \mid \theta)p(\theta)}{\int_{\Theta} p(y \mid \tilde{\theta})p(\tilde{\theta})d\tilde{\theta}}$$

It is important to note that Bayes' rule does not tell us what our beliefs should be; it tells us how they should change after seeing new information. The study of Cox (1946, 1961) and Savage (1972) give a strong theoretical justification for the use of Bayes' rule as a method of quantitative learning.

The estimation of the fraction for each fare class is essentially the estimation of probability of a rare event. Under the Bayesian framework, the interest is in θ, the fraction of potential customer for fare class i. Roughly speaking, the parameter space includes all numbers between zero and one. The data y records the total numbers of customers in the sample who request booking form a total of T booking period. The parameter and sample spaces are then as follows: $\Theta = [0,1]$, $Y = \{0,1,..., N\}$.

Before the booking process ends, the number of requests from customers is not known. A reasonable sampling model for Y would be a $binomial(T,\theta)$ distribution $Y \mid \theta \sim binomial(T,\theta)$. The prior distribution $P(\theta)$, that is the prior information about the range of the fraction, assigns a substantial amount of probability to a confidence interval and gives an expected value of θ. For reasons of computational convenience, we encode the prior information using a member of the family of beta distributions. A beta distribution has two parameters, a and b, denoted by $Beta(a,b)$ is used to represent our prior information about θ. The beauty of beta distribution is that, if $Y \mid \theta \sim binomial(T,\theta)$ and $\theta \sim Beta(a,b)$, then if we observe a numeric value y of Y, the posterior distribution is a $Beta(a+y, b+n-y)$ distribution. The posterior distribution $P(\theta \mid Y = y)$ provides us with a model for learning about the fraction of each fare class from all potential customers. By this means, we could update our belief about $\pi^i, i \in \{A, B, C...\}$ the after each confirmed booking.

The determination of the prior Beta distribution is crucial in modelling the demand distributions. There are many different approaches available to estimate the shape parameters a and b for the priori distribution. When there are multiple observations of θ available, maximum likelihood estimators could be used. If only a single realization of θ is available, there are infinite sets of a and b parameters which could be used. Depending on the confidence of this realization of θ, we could choose a and b to control θ with a certain variance. For example, if we are sure, the variance of θ is very small, we can select a and b which has big sum. The selection of and b parameters is crucial, real historical data or expert experiences are necessary in practice.

11.3 Simulation

Simulation tool provides an efficient platform to evaluate our ideas. The simulation may simplify a real complex system using its key components and shows some facts intuitively.

To illustrate the fundamental idea of the Bayesian modification of DCA method, we use a very simple revenue management problem. We adopt a booking process with two booking period (T1, T2) with 2 price categories ($40 and $10) and there is only one capacity (K=1). The initial proportions are distribution of demand estimated from historical data, which is (0.1, 0.8). Consequently, the probability for no booking request is 1-0.1-0.8 = 0.1. Under this condition, the DCA method is designed to be superior to the FCFS method.

In the simulation study, it is possible to assign a true demand distribution for next cruise route. The true demand distribution is set to vary or from the initial distribution to illustrate the benefit of the Bayesian method. The update of distribution only considers the booking event, increasing the proportion of one price category will cause the decrease of the proportion of the other price category. With the probabilities (0.1, 0.8, 0.1) for prices $40 and $10 and no booking request respectively, if we observe one request from price category $40, we will update the probabilities for this price category (from originally 0.1 to for example 0.15). Consequently, the probabilities for $10 price category and no booking request event will be decreased by 0.025 each. Thus the updated probabilities are (0.15, 0.775, 0.075) for prices $40 and $10 and no booking request respectively.

To compare the differences of three RM methods and identify the most powerful one, we simulated 3 different scenarios.

Scenario 1 (Full information): The initial distributions represent the true distributions in the next year. This scenario illustrates the case that when the future demand is just like previous demand, which RM strategy will provide more advantages.

Scenario 2 (Limited information without learning): The initial distributions estimated from historical data are different from the true distributions, where total demands decrease. If we just relay on the experience gained from the past, decisions could be made by using the same rule using initial distributions. We could also calculate the potential revenue if we knew the future (this only happens in our simulations).

Scenario 3 (Limited information with learning): The true distributions are the same like scenario 2, but the decisions were made using the updated distributions with a Bayesian posterior.

Table 11.22 shows the detailed settings of the initial distribution and Table 11.23 shows the true distribution.

		Initial distributions	
Price	$0	$40	$10
Proportions	0.1	0.1	0.8
A	1	1	10
B	9	9	2.5

Table 11.19: The parameter settings of the initial distributions (Authors 2010)

	True distributions		
Price	$0	$40	$10
Proportions	0.2	0.05	0.75

Table 11.20: The parameter settings of the true distributions (Authors 2010)

The logic behind of this simulation framework is that. The initial distributions were estimated from the historical data. So we fix them. The differences among different RM methods are shown with different future demand information.

Parameters a and b were carefully selected to illustrate the benefit of the update of the underlying assumption of the demand distributions. Totally 10,000 simulations were carried out to compare the three revenue management strategies. Both the absolute revenue generated by FCFS, DCA and MDCA and their improvement relative to FCFS were compared.

We also assume the customers were coming randomly.

11.4 Results

Under scenario 1, the expected revenue using DCA from 10,000 simulations is $14.676, whereas the expected revenue generated by FCFS is $13.149. By using DCA, we have 11.6% improvement comparing with FCFS method. This means that if we have full information about the demand information, DCA, as an exact optimization method, will yield the maximum achievable revenue.

Under scenario 2, if we use the true distribution to develop the decision rule, we may reach $ 11.479 as expected revenue by using both DCA and FCFS methods. Here we have no improvement by using DCA comparing to FCFS. Actually this information is not available in practice. If we don't know the true distributions and we use the decision rule derived with initial distribution, the expected revenue for DCA method dropped to $11.127, comparing with the expected revenue generated by FCFS method $ 11.479, the DCA method – though an exact method - is inferior to FCFS (-3.1%) in this case due to the wrong demand information.

Under scenario 3, if we do the update by considering the booking request in period T1, we may generate $ 11.479 as expected revenue, which is exactly the same like under full information with DCA. This means that MDCA may generate expected revenue as we know the true distribution of next cruise trip.

11.5 Discussion and Conclusion

Updating the assumption is crucial in our simulation framework since the update of booking event with price $10 will change the decision rule. With the initial setting, the expected revenue of T2 is 0.1x$40 + 0.8x$10 = $12, this means that the offered price in T1 must be larger than $12 to be confirmed. In T1, only price offer with $40 will be accepted. But under the true distribution 0.05 and 0.75 for $40 and $10 respectively, the expected revenue of T2 is 0.05x$40 + 0.75x$10 = $9.5. This means that in T1, we need to modify our decision rule,

which was larger than $12, to larger than $9.5. Under the new decision rule, we should accept both $10 and $40 price offers.

Using this simple example, we have shown that using Bayesian modification of DCA, we may simplify the Ji and Mazzarella's (2006) revenue management concept (Figure 11.72) by combining the initial belief of the demand and the real time booking request information.

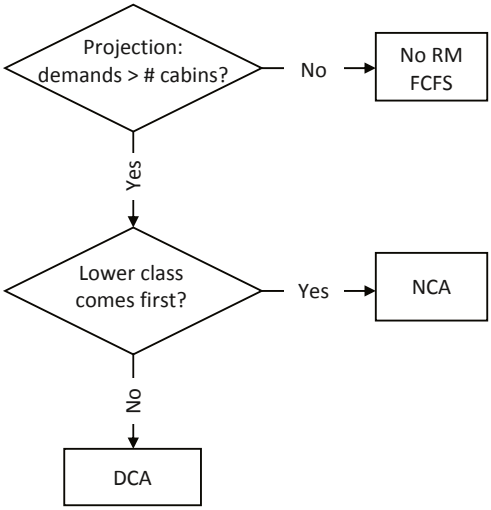

Figure 11.46: Suggestions for revenue management (Li & Mazzarella 2006)

To further investigate the properties of MDCA and the Bayesian update of underlying demand assumption, the booking process should be extended to multiple booking periods with multiple price categories, and more update frequencies should be made to evaluate the feasibility of this method in practical revenue management. The real industrial data should also be considered to have a realistic estimation of the shape parameter a and b for the priori Beta distribution.

Although this Bayesian method can be used as a general modification of RM methods, this method is especially interesting in the cruise industry. Due to the relative long booking horizon, the up-to-date booking information can be easily acquired to modify the RM strategy. By apply this self-learning method, less intervention between the RM management system and the RM manager is necessary. The increasing overall demand and change of customer behaviour in the cruise industry, which distinguish cruise industry from airline or hotel RM, also make this method applicable since the change are all captured along the booking process.

11.6 References

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12 IT-Enabled Beer Exchange at the Upper Deck Bar

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12.1 Introduction

Cruising, said to be the top growing sector in the tourism industry (cf. worldfirst.co.uk 2009), with an annual rate of growth higher than 7% since 1980 (cf.Florida-Caribbean Cruise Association 2010, p. 6) and bringing along "…thehighest satisfaction rating of any vacation sectors..." (Gulliksen 2008, S. 343), is the emerging tourism segment. Ever since the by then largest cruise liner in the world, the Oasis of the Seas,owned by Royal Caribbean Cruises LTD, was launched in October 2009, the world is astonished by the dimension of cruise ships and the possibilities offered onboard. With all kinds of onboard activities imaginable, starting with 37 bars and restaurants, four pools and all sorts of entertainment and sport facilities including an ice ring and a mini golf course (cf. Adams, 2009), there can be no doubt about the importance of onboard activities and their resulting revenues. As a consequence cruise lines have to manage the problematic area of onboard attractiveness through maintaining a high level of passenger satisfaction and offering state-of-the-art and contemporary products and services in order to maximize onboard revenues. Concerning the aforementioned issues, this paper's main purpose is to identify ways in which onboard attractiveness can be enhanced, mainly on the basis of information technology (IT) such as Customer Relationship Management (CRM) systems and/or Infotainment solutions through appropriate marketing approaches, applications and new IT solutions. The outline of this paper is constructed as follows. Section 12.2 first offers an overview of the importance of onboard revenues consisting of a brief background of the cruise industry followed by an analysis of Carnival Corporation & PLCs (Carnival) revenue and cost structure. In Chapter 12.3 a basis for boosting onboard attractiveness through IT is established followed by a number of marketing ideas and IT solutions that could help increasing onboard attractiveness and thus revenues. In Chapter 12.4, building upon Chapter 12.3, pros and cons of the aforementioned IT are briefly explained. Chapter 12.5 and 12.6 contain a detached explanation about onboard pricing and how pricing methods could be used in a mutually beneficial way for increasing onboard attractiveness and thus profits, as was outlined in Chapter 12.3. Finally a conclusion is drawn with a future outlook on what cruise lines should expect and keep in mind regarding IT and onboard activities.

12.2 Relevance of onboard revenues

According to Dickinson & Vladimir (2007), onboard revenues are the key to the success of cruising and therefore one of the main areas cruise lines should take into consideration. After the marketing team has done their job selling the"Cruise Tickets", the only variable factor that determines overall profitability is onboard spending (cf. Dickinson & Vladmimir, 2007, p. 254). Additionally, Klein (2008) points out that "The cruise fare is the "loss leader" while onboard revenue generates sizable profits." (Klein, 2008, p. 127) To review the aforementioned remarks, an analysis was undertaken to elucidate the importance of onboard revenues based on annual reports of Carnival Corporation & PLC (Carnival) and an article written by Michael P.Vogel, Bremerhaven University of Applied Sciences. Before starting the analysis, a concise background of cruising and theemergence of onboard products and services, is given. Due to the vast amount of different cruise lines and different types of cruising this paper especially applies to and focuses on contemporary cruise lines andtheir super-sized cruise ships "...that are built by cruise-ship companies for thepurpose of revenue capture." (Weaver 2005, p. 1). The main reasons for this are that contemporary cruise lines such as

Carnival or Royal Carribean makethe lion's share of cruising (Figures 12.62 and 12.63) and their importance regarding onboard revenues. (cf. Cruise Market Watch 2010)

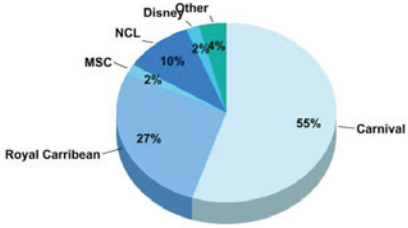

Figure 12.47: North American Cruise Market Share

(Source: Cruise Market Watch 2010)

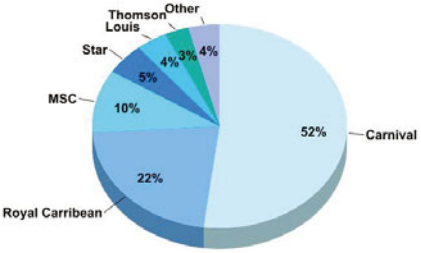

Figure 12.48: Rest-of-World Cruise Market Share

(Source: Cruise Market Watch 2010)

12.2.1 Background

Cruising has a long history dating back to the beginnings of the nineteenth century and grew bit by bit out of the tradition of transporting people. At that time most of the money was made in so called crossings, whereby passenger transportation was the main purpose. Around one hundred years later, at the beginning of the 20th century, first "excursions", which were pure leisure vacations, emerged. Smaller lines ceded the transatlantic crossing business to bigger competitors in winter and repositioned their vessels to warmer places (cf. Machini, 2004, pp. 4-6). Even back in those times, onboard activities like entertainment and dining were present. If one takes a look at the RMS Titanic, probably the best known "Ocean Liner", which may be seen as one of the precursors for today's cruising, one will already see that onboard activities were not to be underestimated. While they were, admittedly, limited to the more affluent to spend time and money onboard, such as reading in the library, going to the barber, relaxing in a Turkish bath or in the swimming pool as well as bars and dining options, the possibility of spending money onboard was existent. (cf.bbc.co.uk 2002)

In 1958 when the first airlines started commercial flights, the number of people crossing the oceans by ship decreased drastically. This was the turning pointwhen crossings started to founder and cruising became trendy. (cf. Machini2004, p. 6) Along with the size and technology of the vessels, the competition between cruise companies is rising. Profits generated through tickets are shrinking due to the tremendous rivalry about attracting passengers and filling capacities and cruise lines shifted their focus to generating revenue through extra-fee products and services onboard.

12.2.2 Definitions for analysis

Due to vague delimitations regarding ticket and onboard revenues, respectively costs, the following terms are defined in order to explain thesubsequent analysis on the basis of Carnivals annual report 2009. (Carnival Corporation & PLC 2009, p. 40ff.)

Onboard revenues:

Onboard revenues primarily consist of those revenues from items andservices sold onboard, which are not directly relatable to the passenger ticketprice, such as revenues by bar and certain beverage sales, casino sales,excursions, shops, photography and revenue from pre- and post-cruise land packages. Additionally a percentage of the revenues earned by concessionaires, in return for the permission to provide products or services onboard, is included.

Onboard costs:

Onboard costs include the costs that vary directly with onboard revenues.They essentially describe the costs related to the aforementioned revenues.

Ticket Revenues:

These consist of the revenues generated by selling the ticket (including accommodation, most meals, non-alcoholic beverages, most onboard entertainment and many onboard activities etc.) plus air transportation to andfrom the vessel.

Ticket Costs:

This paper considers passenger ticket costs as all costs, except the aforementioned onboard costs. Those are costs such as payroll and related costs, fuel costs, food costs, ship operating expenses as well as administrative and deprecation or amortization costs.

12.2.3 Analysis of cruise revenues vs. cruise costs

The following is an analysis of Carnivals revenue and cost structure that was conducted for the years 2005-2009. Different to a similar analysis by Vogel (2009), this paper compares onboard revenues face to face with onboard costs so as to highlight the essential margins generated especially by extra-fee products and services. The problematic nature of this approach is that onboard revenues, as released inthe annual papers, are not solely but primarily generated onboard the ship. Besides, some costs, such as payrolls, are overlapping and cannot be directly assigned to ticket or onboard revenues and revenues generated by concessionaires do not imply direct costs. Nonetheless, even if this approach is not without its weaknesses it still spells out an easy and understandable indication about how essential onboard revenues are.

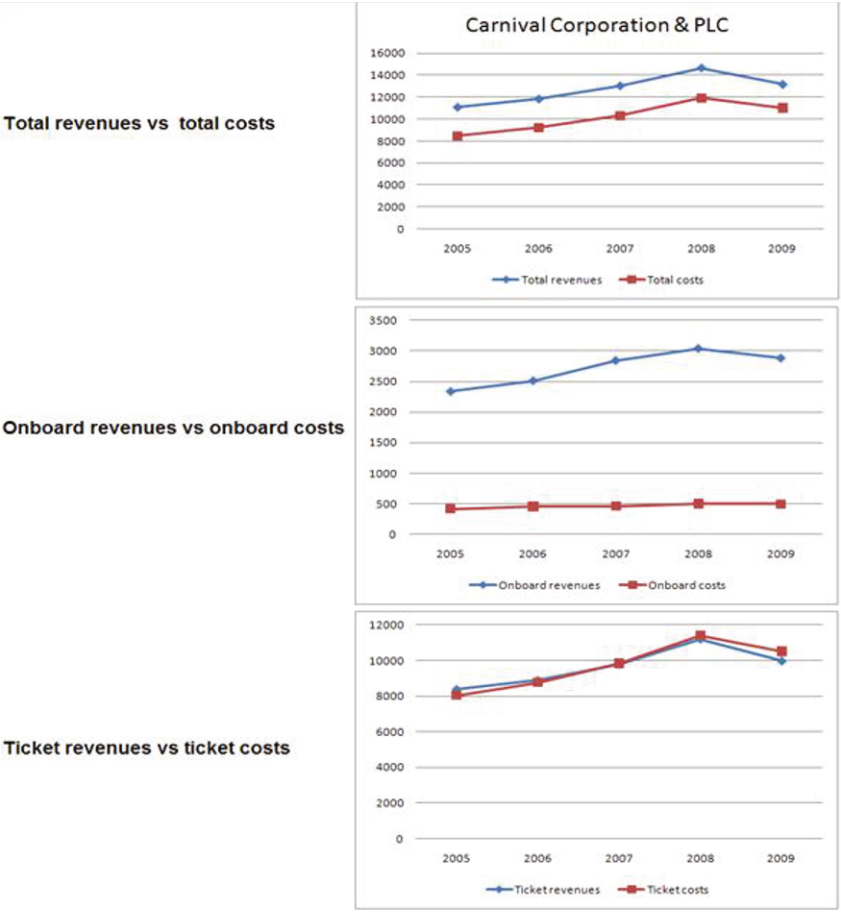

Figure 12.49: Carnival revenues vs. Costs; following (Source: Vogel 2009, p.5 Figure 2a; Carnival Corporation & PLC, Annual Report 2007-2009, 2007-2009)

Figure 12.64 shows revenues and costs of Carnival as a cumulative overview and divided up into onboard and ticket sale. The red line depicts the costs and theblue line the revenues. By taking a look at the section “Total revenues vs total Costs”, one can see that Carnival is generating an overall profit. The assumption that onboard revenues are substantial for cruising can be unambiguously resolved by taking a look at the section “Onboard revenues vsonboard costs” and “Ticket revenues vs ticket costs”. Between 2005 and 2009, the period under review, onboard revenues have steadily increased. The only exception occurs from 2008-2009, which can be explained by the economic downturn. (cf. Carnival Corporation & PLC,Annual Report 2009, p. 41). On the other hand ticket revenues compared to their re-

lated costs show a completely different picture, with revenues matching, or even falling below costs.

These results, headed by the obvious differences in profit margins between onboard and ticket sales, as well as on a more-in-depth evaluation of revenues and costs per passenger cruise days carried out by Vogel (2009), lead to the conclusion that "…Demand for mass market cruises is highly but finitely priceelastic" (Vogel 2009, p. 9) while "…Demand for items onboard is only weakly price elastic" (Vogel 2009, p. 9). Since margins are inversely related to price elasticities, the last citation implies that onboard business is a high-margin business. (cf. Vogel 2009, p. 10) Assuming that the optimal passenger capacity for maximizing revenues, where supply and demand is balanced, is realized, two main factors are influencing onboard revenues. On the one hand the price elasticity of demand and on the other hand the attractiveness of onboard products and services, "…which affects the passengers' willingness to pay..." (Vogel 2009, p. 12) While it is not possible to influence the price elasticity of demand, onboard attractiveness can be directly influenced through the selection of products and services offered or through sophisticated marketing or promoting strategies (cf. Vogel 2009, p.12ff.). With the help of the analysis and the issues explained above, it is clear that cruise lines need to focus on increasing onboard revenues, mainly through onboard attractiveness. Consumer expectations and demands are ever-increasing, whereas the competition is not diminishing. Highly price elastic ticket prices do not give any significant opportunities for generating profits whereas onboard selling does.

12.3 Maximizing Revenues through Onboard Attractiveness

Considering what was shown in the previous chapter, a deeper and moreprecise analysis needs to be undertaken in order to find ways for maximizing onboard attractiveness and hence onboard revenues. The following explains ways that are enabled through the help of Information Technology (IT) andmarketing. There are unquestionably other factors, such as design, influencing onboard attractiveness and revenues, as mentioned by Dickinson and Vladimir (2007) but that would go beyond the scope of this paper apart from pricing, which will be addressed from chapter 12.5 on. In terms of importance of different revenue sources onboard a ship, the sale of beverages (alcoholic and premium drinks) is by far the most important one followed by shore excursions and casino gambling (Video: How to SaveMoney Onboard Your Cruise). Nevertheless they are not the only ones. Photographs are becoming more and more important and popular and thereare also spas, gyms, shops and even art auctions available (cf. Dickinson &Vladmimir 2007, p. 254 ff). Before starting with ideas and concepts it should be said, that almost every kind of common marketing approach can be adopted onboard a ship. The sole but crucial point that has to be kept in mind is that almost no competition and thus a monopolistic situation is given, since cruise ships can be seen as"…spaces of containment..." (Weaver 2005, S. 1). Therefore these approaches and ideas have to be established as instruments that should attracting passengers to buy and consume services and products onboard rather than for the purpose of distinguishing products over those offered by competitors.In the following two mainly IT-driven concepts that are central for onboard success are presented, followed by certain ideas that might increase onboard attractiveness and thus revenues.

12.3.1 Customer Relationship Management

When people talk about CRM, they primarily mean lifetime value orrelationship management. To the same extent as every company requires CRM, cruise lines depend on it both regarding ticket sales and sales onboardthe ship.

Essentially, CRM is an approach which tries to generate customer value with key users and customer segments through relationship marketing strategies and IT. Information as well as data is used to understand customers and to create value through them. The implementation of CRM requires technology, information and applications in order to integrate processes, operations and marketing capabilities (cf. Shoemaker & Shaw 2008, p. 94). As succinctly expressed by Haag and Cummings (2008), "A Customer relationship management (CRM) system uses information about customers to gain insights into their needs, wants, and behaviors in order to serve them better." (Haag & Cummings 2008, p. 58).

Different to the more common uses of CRM, CRM systems onboard a cruiserare primarily used as a platform to market and attract people to products and services in the short run.

Nevertheless CRM can indirectly affect long term aspects, such as loyalty. Cruise passengers that are dissatisfied for any reason will be less likely to cruise again and could spread negative criticism through friends or in online communities, which could lead to passengers using other cruise lines ortourism segments and thus lost revenues. Onboard a ship, information about passengers, such as preferences or desiresstated during the booking process or tracked onboard transactions has to be gathered and stored in a data-warehouse, which is then fed into the CRMapplications. The process of gathering information through tracking all transactions done onboard is nowadays eased by using a cashless systemwhere passengers register their credit card onboard and receive an onboard pay card in return. (cf. Machini, 2004, pp. 48-49) Based on the gathered information, the onboard CRM system tries to spot developments such as the "…passenger's spending pattern…" (Klein 2008) or indicatory onboard trends by the medium of CRM applications, that might behelpful in increasing passengers' satisfaction and onboard attractiveness. To sum up, CRM can be seen as a pivotal factor for affecting onbo ardattractiveness by goal-orientated data evaluations and thus appropriate marketing or onboard activities.

12.3.2 Infotainment Solutions

Infotainment Solutions can be seen as fully integrated IT Solutions delivering new ways and possibilities of communication, entertainment and information onboard the cruise ship (cf. Lufthansa Systems AG, Lufthansa Systems AG, 2008) for the purpose of enhancing passengers' convenience, satisfaction and for facilitating processes. The technological process over the past years has not skipped the cruiseindustry and most passengers expect reachability, connectivity and state of theart technology, as they have at home, as a standard onboard. (cf. worldcruisenetwork, Waves of Communication, 2009) As an example, Lufthansa Systems offers the "…world's leading platform forfully digital mobile communication and entertainment…" (Lufthansa SystemsAG, p. 2) for cruising. IP-based infotainment solutions include for instance interactive television (iTV), presented through portal solutions with inviting graphical user interfaces that provide passengers with information about the cruise, the daily program as well as in-suite shopping, booking and entertainment. Furthermore Internet based Television is quiteusual, allowing passengers to stay up-to-date or watch their daily

series as well as video and audio access on demand. (cf. Lufthansa Systems AG, 2008) Screens for the purpose of promoting onboard offerings or booking terminals on frequent passageways, IP telephone services and WiFi coverage everywhere across the ship should be the normal case onboard a state-of-the-artvessel.

In the future, cruise lines can expect new and more sophisticated IT onboard, which will in turn create new ways and possibilities of marketing and advertising in combination with the aforementioned CRM and also new onboard products and services. Innovations based on state-of-the-art technology, such as three dimensional screens showing promotional videos, mobile applications or virtual realitymodels giving opportunities to visit ports in advance are not unrealistic and could emerge at any time. Aside from that the industry has to keep in mind emerging future trends and especially social media, which will change all businesses (cf. worldcruisenetwork, Onboard IT Creates New Waves 2010). Concerning the mobile business, cruise lines should try to improve their services onboard and their bandwidth. Passengers expect sea-based serviceson the same level as land-based, for the purpose of staying connected, being mobile and having a seamless use of the device (World Cruise Industry Review 2008, p. 95)

Concluding this paragraph, IT clearly plays an essential role onboard the cruise, and cruise lines need to stay abreast of the fast development and emerging of IT hardware, systems and applications to be able to keep ahead of their competitors.

12.3.3 Specific Ideas for Increasing Onboard Attractiveness and thus Revenues

After defining CRM and Infotainment solutions and IT, which can be seen as a necessary stepping stone for successful promotion, attraction and marketing ofonboard products and services, ideas and concepts are presented that could lead to higher onboard attractiveness and therefore to higher onboard utilization and revenues. Some of these ideas can be seen as overarching instruments, whereas others are only appropriate for certain products and services.

Before starting to present ideas it should be mentioned that an important feature of everything offered onboard is, that people have to be attracted by something they view as special. As an example it can be listed that almost everyone who receives a free drink voucher for a certain bar stays for a couple more drinks or women relaxing in the spa may opt for an additional facial care, which thus generates additional revenue. Additionally, from the cruise lines point of view it is important to mention thatquite a lot of onboard offerings are perishable products with high initial costs. That is where utilization comes into play. Shore excursions or entertainment events, where additional passengers are almost cost-free, need to be sold out in order to maximize revenues and thus profits.

12.3.3.1 Onboard Account

As already mentioned, the onboard account is the crucial element for gathering passenger information. Additionally it can be indirectly used as a profitable revenue source as everything spent onboard, ranging from excursions to spa treatments, is charged to the onboard account. Onboard convenience is rising, but there is a danger that it could lead to hasty and undeliberated onboard spending, which can result in passenger dissatisfaction when paying the final bill. Cruise lines have to carefully weigh up pros and cons to find a balance that

donot lead to a decline in customer satisfaction but still increase revenues. An idea about how to attract products and services, based on the onboard account might be the following. Cruise lines could offer “bonus points”, as is already common in supermarkets or cinemas. After spending a defined amount onboard, passengers could receive a “bonus point”, based upon the passenger profile including age, gender or origin and all tracked data in order to meet the varied demands of different passenger profiles. By way of example, young adults could receive a free drink in one of theonboard bars for every 30$ spent or older people could get a discount for the upcoming wine tasting onboard. As already touched upon in 12.3.3, it ismost likely, that passengers when taking their discounted service would probably also opt for other non-discounted offers, thus increasing revenues.

12.3.3.2 Interactive Cruiser Map

Another idea, which could help fill bars, restaurants or spare places in the spa or theatre, might be an IT based interactive cruiser map, which contains information about all kind of possible revenue generating locations onboard the ship. Due to the gigantic size of modern cruisers, this could act to remind people of, for example the 37 bars and restaurants onboard the Oasis of the Seas. The map could be constructed by displaying the ship as a cross-section with all appropriate stories and the situated locations there. Passengers could select different parameters in a graphical user interface such as “bars”,“restaurants”, “entertainment” or even “excursions” and would receive as an output the cross-sectioned ship displaying all locations included in the selection or a list of upcoming excursions/events. In addition to that, schedules and special events/offerings sorted by hour and day and the number of current remaining tickets or the occupancy rate in bars or restaurants could be displayed by selecting one of the locations. Direct booking of events could be made possible through the onboard account. To go one step further, the possibility of showing the current position on the ship’s map could be offered, either through cabin or terminal fixed points or via RFID combined with passengers’ mobile devices or RFID chips implemented on the onboard card. The map could be made available for passengers through terminals onboard the ship, in the cabins through their interactive television or even through programmed applications for mobile devices such as PDAs, the Iphone, Blackberries or any other Smartphone. Figure 12.65 gives an easy and graphically simple example of what the GraphicalUser Interface might look like. In this example, “Bars” is the selected option.The red dots display the available bars on the ship whereas the yellow shows the chosen bar. On the right side the current date, upcoming events and the current occupancy rate of the bar are displayed and the small figure on the bottom left shows the current position.

Such a map would give passengers the advantage of identifying onboard opportunities wherever they want and would facilitate booking. They could avoid reading leaflets and just quickly check the offered programs. As a result the interactive cruiser map has the potential to increase onboard attractiveness through convenience and in some circumstances passengers would use the offered products and services in a more extensive way, generating revenue and increasing utilization.

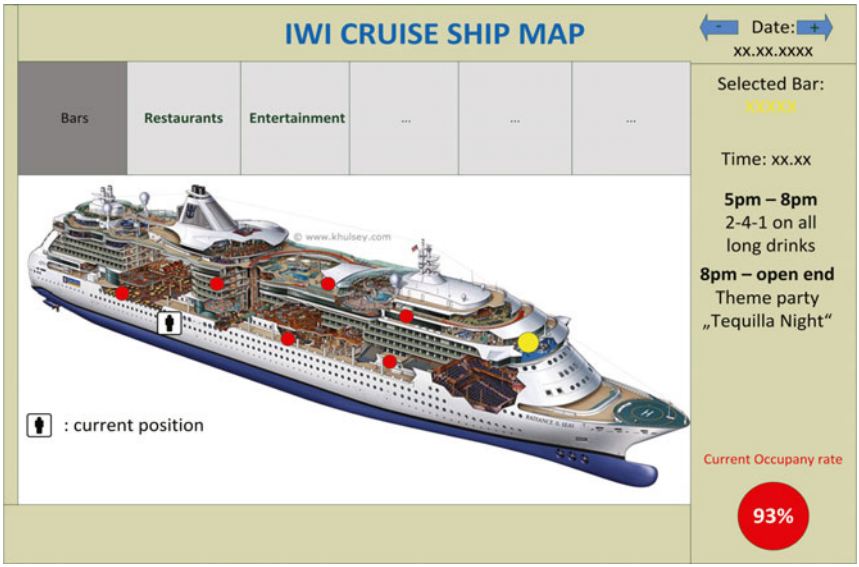

Figure 12.50: Graphical User Interface (GUI) of the interactive cruiser map (Source of the cross-sectioned ship: Kevin Hulsey Illustration 2009)

12.3.3.3 Bars and Restaurants

We have already mentioned that exclusive beverages are the most profitable onboard revenue source. Additionally extra-cost dining options such as steakhouses or others, which are not included in the ticket price, have become trendier over time. (cf. Dickinson & Vladmimir 2007, p. 49/249)

As a consequence, the first thing cruise lines need to ensure is that drinks are available everywhere and in easy accessible, eye-catching and clearly visible areas (cf. Dickinson & Vladmimir 2007, p. 254). To fill bars and restaurants, special offers should be available. Furthermore there have to be bars and restaurants appealing to different kind of passengers, differing in age and purpose of cruising. The following points outsome ideas for increasing the attractiveness of bars and restaurants. Marketing and promotion of special drink or food offers such as 2-4-1 or all you can eat have to be in the right place at the right time. With the help of onboard electronic screens, drink promotions could be offered while eating to suggestthe possibility of a relaxed night out. The same can be said for restaurants. Food offers should, for example be promoted during sport sessions or in bars, which would attract more people. Beverages that are not selling well could be promoted in a more extensive way through onboard screens or vouchers could be distributed for certain drinks or meals based on information gathered through the CRM system, which passengers would receive as a short message on their mobile device or as avoucher in their onboard portal. Passengers could be divided into diverse profiles, ranging from young party seeking adults to just married couples on their honeymoon. In-suite mini bars could be filled with passengers' favorite drinks based on special desires or tracked data.

As an example of something seemingly special, referring to the topic, the concept of beer exchanges might make sense since "…cruise ships and alcohol are natural bed fellows". (worldcruise-network, Raise the Bar 2009)

Based on supply and demand beer prices would be completely volatile as onthe stock exchange and determined through an IT-supported algorithm. Current prices could be displayed and updated every minute on electronic screens inside the venue whereas the price at the time of order is paid. Basically low demanded beers are trying to win passengers favor through lower prices. Speculations such as ordering 10 beers at a stroke would becommon practice and beer market crashes could happen where attentive persons could make beer bargains, though still generating revenue.To increase the attractiveness of the concept of beer exchanges, the bar could be as an example designed in a typical Bavarian manner.

12.3.3.4 Shore excursions

Shore excursions, which are second on the list of top revenue generating products and services, are either offered by concessionaires or by the cruiseitself. To increase onboard revenue generated through excursions cruise lines mighta gain use CRM gained data and IT. Virtual tour reviews could be offered with the aid of the Infotainment solution as a foretaste to attract passengers to the excursion. Additionally marketing could be performed as a function of the demand. When demand for certain excursions is collapsing, marketing for this excursion, through different channels might be intensified and vice versa. The aforementioned advertising and marketing would possibly increase selling but the sale of all places is rather doubtful. To fill out the remaining places, pricing can be used as an effective method, which is discussed later on in chapter 12.5. Remaining places could be sold to merely cost-covering prices or in a lottery, selling lottery tickets for a fraction of the original price, which can in the best case even yield more revenue than theoriginal price but could lead to problems regarding passenger attractiveness as well.

1.3.3.5 Casino and Gambling

Casinos, named as the third biggest onboard revenue source, are still a controversial aspect of cruising. It is not unusual for cruise ships to provide casinos with capacities for more than 1000 people which are open 24 hours 7 days a week. (cf. Douglas 2004, p. 48) Although it is not immediately obvious, data evaluation can play a massive role in the casino business. IT-obtained information can be, for example, used to measure success of casino gamblers or their favorite gamble. With this dataas a fundament, vouchers or any other incentives, such as a free dinner in the casinos own restaurant for bad performing players, can be issued. The purpose behind this idea is to promote additional gambling in order to make profits. The same could be done for the most affluent people or every different niche with the "…means to subsidise their own consumption." (cf. Weaver, When Tourists Become Data: Consumption, Surveillance and Commerce 2008, p. 13 f)

Further in-suite gambling could be provided via iTV or if technically realizable, through mobile devices, such as virtual slot machines, poker, etc. From an exclusively profit-making mind-set the aforementioned ideas make sense and Cruise lines could set no limits and allow passengers to charge their onboard accounts while gambling. Once again, however, this could lead to unfavorable surprises at the end of the cruise when paying the bill, resulting in dissatisfaction and negative references which could in turn lead to losing passengers and

loyalty. Again cruise lines have to weigh up the short-term generated profits against the potential long term losses in loyalty etc.

12.4 Pros and Cons Regarding IT Onboard

It is an undisputed fact that IT is growing in prominence and that industries which have not invested in IT are running into problems. IT solutions are facilitating almost everything onboard the ship, both for the cruise line and the passenger, ranging from selling in a cashless system to marketing and advertising through different channels. Passengers are mostly fascinated and appreciate both consciously and unconsciously the convenience regarding the possibilities offered onboard through IT, even where the influence of IT is not visibly present, such as the task of gathering information, evaluating data as well as the hence resulting tailored offerings and the facilitation of accessing information and booking wherever and whenever they want. Cruise lines have almost boundless possibilities of reaching passengers forthe purpose of increasing onboard attractiveness and thus revenues, resulting in a mostly mutually agreed win-win situation.

Nevertheless, IT is a relatively new and rapid developing discipline, that begun to develop in the 1990s. Since cruising is still a sector that attracts a large number of older passengers, with an average age of 45 in 2006 (cf. Dowling2006, p. 4), who are not proficient with the terrific speed of IT innovations oreven overchallenged by the handling of IT terminals or mobile devices, there is some potential for passengers to become unsatisfied. As a consequence their response to onboard attractiveness and spending could decrease and even result in a shift to another cruise line or tourist segment.

Furthermore, Cruises have historically been seen as opportunities to leave the stresses of daily life behind - something which may be interrupted by communication with the outside world. Mobiles ringing everywhere on the deckmay be particulary bothering for certain passenger segments. Additionally privacy and data protection could be an issue concerning passengers. Passengers could be worried about the fact that their cabin own mini bar is filled with drinks directed at them or why they receive vouchers or “bonus points” on their preferred onboard activities. By weighing up the pros and cons it can be said that IT is an essential and irreplaceable feature onboard the ship, one which is certainly helpful in increasing customer satisfaction and inducing higher revenues. Nonetheless cruise lines have to carefully reflect upon the way they field IT onboard theship to avoid intrusive IT implementation, and the resulting loss of potential revenue.

12.5 Pricing and Yield Management

After examining ways to increase the onboard attractiveness of products and services, based on IT and marketing, this chapter will briefly address onboard revenue management and pricing strategies as useful and necessary tools for maximizing revenues. Clearly cruise lines, like all other industries or tourism segments, are trying to maximize their profits.

One within the tourist industry quite common approach of pricing for perishable, by passengers’ different valued and fixed capacity products, iscalled revenue or yield management.Yield management is especially important in cases where fixed costs are high and variable costs negligible. It aims to optimize resource allocation with the highest expected net revenue over a planned horizon (cf. Wikipedia 2010) through selling the right product to the

right customer at the right time for theright price. (cf. Dickinson & Vladmimir 2007, p. 250) Onboard a ship, services and products such as such as shore excursions or entertainment, which cannot be reutilized after the cruise ends entailing high initial costs are perfect for the yield management approach. To illustrate this approach on the basis of shore excursions, as already referred to in 12.3.3.3, it can be said that only a limited number of places exists, that passengers value the shore excursions differently and that if the shore excursion is not sold out cruise lines are will waste capacities, resulting in lower revenues and subsequently lower profits (cf. Gibson 2006, p. 129) That is where price discrimination might come into play. Cruise lines offer tickets for shore excursion at reduced prices before the cruise, add a mark-up for bookers during the cruise or might even price down or hand out free tickets last minute. Even if this makes sense from an economic perspective, pricing such as in theaforementioned example might result in satisfaction losses owing to the different prices and thus a feeling of unfairness among passengers. Other onboard services and products, not entailing high fixed costs are usually priced with mark-up pricing due to the monopolistic character onboard, which means adding a margin to the costs of the offered products and services. As already mentioned in 12.2.2, margins are inversely related to the price elasticity ofdemand, which leads to different optimal margins and thus prices for products and services (cf. Vogel 2009, p. 10).

In conclusion, pricing and yield management strategies need constant assessment to ensure that the right pricing strategy is adopted, whereas passengers price sensitivity is a crucial element that has to be constantly observed. But obviously cruise lines cannot focus their attention solely on pricing; they also have to keep in mind other factors that influence passengers' willingness to pay.

12.6 Mutual Benefits of CRM & IT with RevenueManagement / Pricing

Tools for increasing onboard attractiveness are attempting to make the cruiseas convenient and memorable as possible for the passengers in order to give them an unforgettable experience, which stands in contrast with pricing and yield management who focus on raising profits as high as possible. Essentially the tools we have discussed here, such as CRM, Infotainment Solutions and Revenue Management pursue the task of optimizing profitability, using different tools and different timeframes. Revenue Management assesses ways of maximizing current profitability while tools such as CRM and infotainment solutions aim to maximize revenue through convenience andsatisfaction. (cf. Gupta 2010) Since cruise lines try to maximize onboard profit through onboard attractiveness, the combination of these approaches has to be used in a mutual beneficial way to maximize onboard revenues, with a particular focus on long term gains. Parameters such as the timeframe or the price elasticity of demand of different passengers for different products and services complicate this already difficult task even further.

Cruise lines have to cope with this set of problems through developing complex algorithms that are able to optimize the aforementioned variables incombination with the tools stated.

12.7 Conclusion and Outlook

In this paper the importance of onboard revenues was evaluated and it was illustrated that revenues generated onboard are the crucial parameter for generating overall profits in the contemporary cruise industry. Onboard attractiveness was then spotted as the essential

element for increasing onboard revenues and long term loyalty. On the basis of these insights, ideas about how to increase onboard attractiveness with the help of IT and marketing were presented, followed by pros and cons of IT onboard and some particular pricing questions. IT is a powerful tool and maybe even one of the most important factors for increasingonboard attractiveness and thus revenues but can hardly be the only one. Further and deeper research has to be undertaken in order to reveal the reasons for increasing onboard revenues through onboard attractiveness. An issue that came up while writing this paper was that almost no research literature in this particular field exists. Onboard offerings are easily to access whereas concepts about how cruise lines are trying to maintain their revenues onboard on a high level are almost untraceable. This may suggest that some of the ideas raised have already been realized, but are undocumented. Most cruise lines are not willed to reveal their tactics, due to the high competition nature of this narrow tourism segment. In the future cruise lines will face even greater competition and the importance of onboard revenues will rise due to its high margin character. Cruise lines will come up with ships bigger than ever before and onboard offerings and innovations will reach new levels. Cruise lines will try to increase onboard attractiveness through never before seen efforts, where IT will surely play aprominent role.IT, one of the fastest innovating fields worldwide will definitely affect the cruise industry. Cruise lines have to stay ahead of new changes and be prepared to adopt new technologies as they become available. Finally it has to be mentioned that the onboard cruise market is in a state of high fluctuation both regarding offerings onboard as well as in attempts to maximize passenger attractiveness through different tools.

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