

## **4 FINDINGS AND ANALYSIS**

The analyses are carried from the three perspectives, which are Web features review, users review on quality perceived, integrative approach for measurement of differences and correlations, then derivation of effectiveness.

### **4.1 Web Features Review**

Overall, the most frequent features discovered on the web sites are skew towards content related, leaded by "contact information" and "corporate information", which 100% found on every web sites visited. In contrast, features relating to value add customer services that are supposedly play the role of electronic decision aid (e.g. virtual demo, event calendars, air miles calculator, web check in, currency converter, etc) show less count. The finding is consistent with Rachman & Buchanan's that most emphasize on 'content' rather than 'context' oriented features. However, from an interactive principle argument, electronic decision aiders are mechanism to improve communication and support purchase decision-making. Many consumers find themselves having deal with information overload, these features are to help them with information retrieval, filtering and collaborating filtering (Punj, 2003). They are important besides basic and normal ones. The result is sound contradictory to Tang and Bell (1998) that leisure sectors has most score (3.4 out of 5) than other sectors in having unique features. Generally, airlines web sites are lacking motivator factors (Zhang & von Dran, 2000) in promoting online experience.

There is also disparity between Rachman & Buchanan's top 15 most important features design compared to this study, of which only 6 are captured (refer shaded rows in Appendix 6) on the same arrangement. The designs standard and priorities indicated by airlines does not seems cohesive with what the world think is important.

Nevertheless, almost three quarter (73%) of the airlines have more than half the most expected features, except a few anomalies (First Air, Daallo Airlines, Nok Air, TAMS Airlines, Awair and Air Meridiana) have below 30 features out of the 65 listed on board. Of different sites reviewed, Figure 6 depicts the top 10 airlines ranked by number of features found. In comparing the features richness, Figure 5 also provide apparent sign that traditional carriers are much outstanding than low cost carriers. This could be an irony to the current market prediction that low cost airlines will continue winning market share with their aggressive online strategy.

Airlines Company	Region	Business Model	Score	% against benchmark	Rank
Easyjet	Europe	Low cost	52	80%	1
Canjet	N.A.	Traditional	50	77%	2
All Nippon Airways	Asia	Traditional	49	75%	3
Independence Air	N.A.	Traditional	48	74%	4
Air Baltic	Europe	Traditional	48	74%	5
KoreanAir	Asia	Traditional	48	74%	6
Virgin Atlantic	N.A.	Traditional	47	72%	7
JetBlue	N.A.	Low cost	46	71%	8
U Air	Latin America	Low cost	45	69%	9
Thai Airways	Asia	Traditional	45	69%	10

**Figure 6 : Top 10 Airlines with Most Expected Features**

Figure 7 gives another description on low cost and traditional airlines. I have consolidated the business model effect in each region. The scores represent both traditional and low cost airlines features count. Empirically, airlines in South Pacific region (countries like Australia, New Zealand, Tahiti, etc) have most the world anticipated features, followed by European countries, North America, South America, Asia, Middle East and lastly Africa. In actual fact, there are few low cost carriers made known as no frills carriers in South Pacific are exhibiting impressive fiscal achievement through online bookings

Typically from Australia have made tremendous expansion outbound the country, airlines like SpiceJet and Jetstar Airways are targeting Asia region aggressively.

The lower achievement from Africa is expected with the relatively low Internet usage and literacy, and currently there is still no low cost airlines operating within the region except some small scale private domestics flyers.

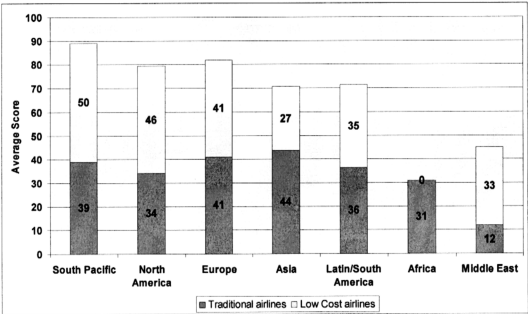


Figure 7 : Inter region Comparison

From the collected data, a statistical test was also performed to estimate the distribution of mean score. Base on t value and 2 tailed significance  $P<0.05$ , dispersion between features is significant. And mean score is 37.47 in comparison to Mean score 65.

Largely, airlines web features have master the basic requirement, and are meeting stakeholders' (tourist, tourism industry, academia) expectation, and greatly different among companies.

It is however, important to emphasize, the higher score still insufficient in representing the quality of entire web site. As pre-mentioned in literature review section, quality is define in multiple combined aspects. Nevertheless, the information acquired here is very useful in indicating necessary areas that should receive attention and improvement as dazzling and helpful designs promote high usability, should be top priority to sustain competency under web environment (Selvidge, 1999).



## **4.2 Quality Perceived**

This section aggregated reviews from 6 evaluators on target web sites base on 5 criteria constructs and 71 attributes. Figure 8 illustrates the summary of the overall evaluation. The average score per attribute is below 1 but remain positive, this show users are broadly agree they perceived quality from the sites they visited. Interface design appears to be highly scored criteria in the industry. On the other extreme, reliability of web sites require critical improvement in order to achieve a comparable quality wit the other criteria to strike to balance performance.

Attributes used in determining the interface design revolved around the integrated elements of multimedia, graphic, text style and displaying flexibility. All attributes seems above par, except less flexible in supporting multi lingua and accommodate visual impaired users. This weakness is generally found in majority web sites. (Webwatch.com).

While on the navigation aspect, as a whole, the sites provided satisfying structure for ease of use and above average of necessity to avoid accessibility hiccups. Unfortunately, responds show disagreement in providing effective search mechanism and alternatives. Most web site only provide product search key but not site search key. In fact not many has proper layout of site map to help users filter overloaded information. This is coincide with Zhang and von Dran,2000 's hygiene factoring, the sites are filled with dissatisfier due to missing interfaces.

Next count is on the content, score are fairly distributed among the attributes of web sites. Interestingly, reviews pointed low agreement in the content quality related to products and services. This

is one vulnerable area where airlines are not fully utilizing its marketing channel and promote its offerings effectively over the net.

<b>a. Interface</b>	<b>425</b>
Graphic design principle	147
Multimedia	117
Style and text	189
Flexibility and compatibility	-28
<b>b. Navigation</b>	<b>346</b>
Logical structure	133
Ease of use	154
Search engine and help function	-91
Navigational necessity	150
<b>c. Content</b>	<b>311</b>
Product/services related content	52
Company and contact information	96
Information quality	97
Interactivity	66
<b>d. Reliability</b>	<b>190</b>
Stored customer profile	29
Reservation process	48
After reserve to confirmation	14
Customer service	99
<b>e. Technical</b>	<b>214</b>
Speed	94
Security	121
Software and database	-1

**Figure 8 : Constructs Element Quality Perceived**

Reliability is the worst performer among all criteria. The weakness partly contributed by the absence of "reservation module" and "after confirmation process". When the site is not eligible for online booking, naturally, it has no confirmation process as well. As conditioned earlier, missing attribute will be penalized and negative two will be appointed. Although by and large the concept of having Web presence for airlines is understood purpose for transactional platform, somehow, there are airlines yet to provide reservations gateway. With increasing efficiency and time saving concern, lacking of ability for online booking haul down the entire online experience. Other than this, capability in allowing special service request is also a critical role as an

unique online storefront in accommodating to today's customer quality demand.

And on the system technical aspect, users generally agree on fast speed for page and subpage loading, protected security and browse compatibility.

While analysis on individual attributes, an analysis shows that top 10 attributes received highest rating, are somehow non-content related. In comparison to features review, these findings are obviously contradictory. Whereas counting from bottom, the last 10 least quality attributes are practically areas that allow users communicate with applications or other way- airlines. Poor perception on communication is a violation of usability principle (Nielsen, 1999).

On inter-airlines profiling (refer Appendix 7) results demonstrates Canjet, Maersk Air and Nippon Airways are the top 3 highest quality perceived sites. Pan Am and IranAir ended with negative reviews. Meanwhile, low cost flyers portrait better quality than traditional flyers. This is opposing previous finding using features review. In extension, I would also like to know whether business model plays a factor in determining the overall quality perceived, data was tested using two-way analysis of variance. Output shows there are significant differences in quality scores across between low cost and traditional business model ( $p < 0.05$ ), that is low cost provide higher quality perceptions.

Again, Chi Square test proves there is significant difference between attributes. Mean score was 49.5 against expected 142 points. And standard deviated score as high as 40.84.

From the information fed, we can conclude using users review method, airlines web sites are less helpful, less contented, less transactional-friendly.

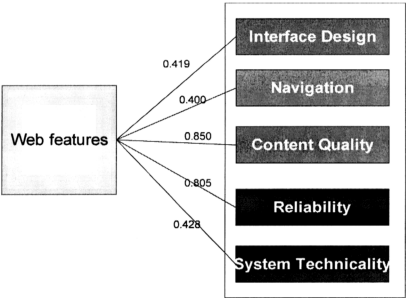
### **4.3 Integrative Evaluation**

In this section, discussion are base on combined data from both instruments in order to draw a conclusion if there are significant differences in result due to diversity in metrics and instruments?

To testify the measure of difference, I begin by operating t test statistics, produce t value =  $-7.116$ ,  $p < 0.05$ , significant difference does exist among two separate instruments. This supporting information is an alarming message to reports users to not solely relying on solitary approach. Appendix 9 also gives a basic computation of difference value delivery of 30 samples airlines web sites. To ease and standardize comparison, all scores are converted into percentage form. Mean from features review (0.527) seems slightly higher than users review (0.348). Again, this point proves that features design is not sufficient to represent total value of a Web site.

This study is also intent to find out if there is prominent relationship between the underlying measurement metrics. Pearson coefficient obtained mark positive relationship between web features with individual discussed criteria. Strongest bonding is with 'content quality'. This could largely due to the 'content-related' features found in prior segment. Subsequent connections are found with reliability, system technical, interface design and navigation. These relationship explain web features are not only limited to web face itself, but also backing with structures and interactivity. Base on such positive relationship,

airlines that wishes to improve on reliability can start by considering adding more contemporary features, coincident with the E-commerce Trust Study by Cheskin Reasearch (Karbonan, 2000)'s six most prominent features promoting online trust is including design quality.



Pearson's correlations values..  $p < 0.05$

**Figure 9 : Measurement of Correlations Among Metrics**

The fact that criterias are positively correlated has given consensus there will be no adverse effect from metrics that will cause deterioration of the ultimate findings.

On bigger analysis scope, both sets of data collected also tested with Pearson correlation. Likewise, significant positively association is found between features and overall quality perceived. ( $p=0.857$ ). Figure 10 illustrates a clear graphical interpretation. The more features incorporated, the higher quality perceived generally. Except a few coordinates are slip from the trend.

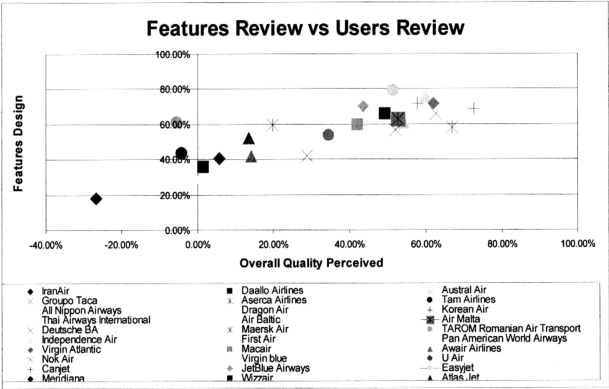


Figure 10 : Measurement of Association

### **4.3 Measurement of Effectiveness**

The final part of analysis is how to determine the web sites are effectively designed to meet common goal in airlines business. From the earlier definition of "effectiveness", quality of solution is the only and primary indicator of effectiveness (Frokjer et al 2000). Along with this definition of "quality of solution" is again entrapped in the rules of subjectivity that is tried to be avoided in this study. Thereof, a redefined 'effectiveness' is necessary. Here, summary from literature reviews have emphasize the importance of utilization. Any effective airlines web site, must have sufficient features to fulfill users need and deliver satisfying online experience. In such, there should be no deviation of performance even when different instruments are adopted. Unless imbalance emerges within the online strategy and affected entire effectiveness of the web site, playing the role as solution provider to online users.

Recap all fundamental theory, a graphical illustration by Figure 11 with a line drawn across origin is determined as the best indicator of effectiveness, where results from features are on par with users review. Appendix 9 provides an idea of how to derive the level of effectiveness. The more disperse the results from two separate instruments, the less effective is the Web site; on another extreme, the closer the gap, the more effective is the Web site. Graphically, any point on the effective line would have zero differences measured in either objective way or subjective way.

Within the sample airlines, majority falls in coordinate above the "effective line", shows relatively higher objective measures than subjective measures. This mean there are much capacity for utilizing

features on site that airlines have yet to discover and make full use of them to generate more user satisfactions.

Canjet, Grupo Taca and Maersk Air are the closest three airlines to the Effective line, results verified that even an airline's storefront features comprehensiveness might not be any superior than others, but the impression given to users are parity to its features design, then it is considerably effective.

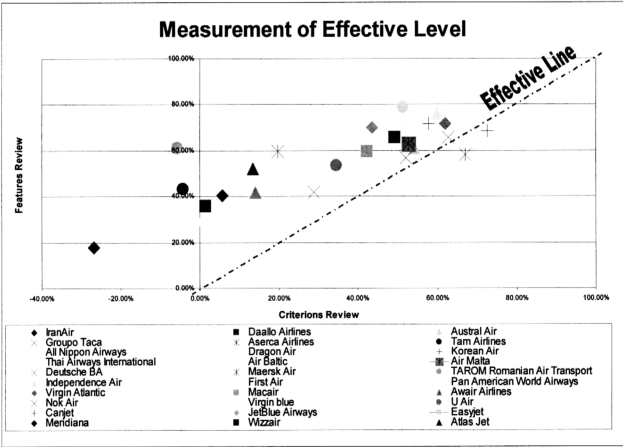


Figure 11 : Measurement of Effectiveness