A perspective on beauty - Reading its urban attractiveness via content analysis of photographs

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Abstract

Tourists like beautiful places. This should influence willingness to pay, demand for destinations and the development of places with its repercussions on real estate. But if the intention is to analyze these interactions empirically, a necessary first step is to measure the beauty of a place. This is what this paper tries to achieve. While the traditional focus in this context is on landscape and the (negative) impacts of real estate development on it, we concentrate on cityscape and city tourism looking for the positive – beautiful – aspects of the built environment as perceived by visitors. The underlying idea is that tourists take pictures and bring home souvenirs of what they like. Existing destination rankings fail by definition to account for un-measurable dimensions of urban reality such as culture, atmosphere and aesthetics. But urban development driven by measurable dimensions only, might not be a good guide towards an attractive city and a competitive destination The ambition of this work is, therefore, to measure the un-measurable, the attractiveness of the city-scape, in the eyes of the beholder – the visitor, the commercial photographer and the artistic photographer. We have performed a content analysis of 225 photo-graphs and using a set of 42 variables grouped in three modalities reflecting the content, the way of picturing and the spatial organization. The results have been used to identify underlying dimensions and clusters of images. The main result is a dominating dimension, namely a view on 'heterogeneous', 'general built' environ-ment of 'contemporary' architecture. The famous landmarks and icons of Dubai appear only in a third dimensions in order of importance, while art and culture and entertainment are not a specific feature of the photographs. Regarding the ambition to compare urban beauty among cities, two aesthetic values were calculated for Dubai and five other cities. Dubai ranks low according to both measures and across all groups of observers.

Keywords: content analysis, photography, urban beauty

1 Introduction

This paper is about the perception of beauty of a cityscape as perceived by tourists in comparison to professional photographers. In city tourism the urban reality can be considered as a location of production of the tourism experience (Croce & Maggi 2007). Accordingly, the possible motives for city tourists are manifold, reaching from shopping to heritage and architecture, and from cultural to educational and sports events, but can reasonably be encompassed in a broad definition of cultural tourism as given by the Association for Leisure and Tourism Education (ATLAS). There, the conceptual definition is: " The movement of persons to cultural attractions in cities in countries other than their normal place of residence, with the intention to gather new information and experiences to satisfy their cultural needs ..." (WTO 2005, VI).

What is of interest here is that independently from the final scope of a visit, city tourism is happening in the built environment of the place – the cityscape as opposed to the landscape. And like in e.g. beach or mountain destinations, where the landscape can be the main driver, but mostly is just enhancing the tourism experience, the cityscape will normally set the scene for the tourism experience rather than representing its final aim (with the exception probably of architectural tourism). But as evidenced by Bilbao and the ensuing trend of architectural icons as an attractor, setting the scene can become a relevant strategic element of city marketing and hence tourism performance.

Tourists prefer to go to beautiful, or better, attractive places. But does beauty refer to single architectural icons, to buildings in general, to skyscrapers or rather to open spaces? And would tourists refer those fast built skyscrapers as ‘beautiful’? When people go to New York or Hong Kong they go for events, shopping and culture but also they go for the built environment. But, in contrast to many of Dubai’s buildings, neither Manhattan’s nor Hong Kong’s skyscrapers have been built for tourists.

When tourist come home from their travels they bring ‘beautiful’ memories which are captured in photographs as souvenirs. They pictured what they liked and do not repeat exactly the stereotypes of travel agent’s catalogues, inherently limited by their marketing purpose and probably their technical and professional knowledge.

Consequently our question is: what do people take home from Dubai? Is there an ‘urban attractiveness’, and can it be traced in the pictures of tourists? We expect Dubai to have a very specific beauty – driven more by an economic rationale than by aesthetic urban paradigms as it has excellent scores with respect to tourism as well as to real estate. It ranks on 1st position for the best beach holiday in 2008 regarding the website Trip advisor the content of which is user-created, so to speak tourist-created.

But what about the cityscape of Dubai? The oft criticized applied building scheme of skyscrapers along the Dubai's beach follows the pure market logic. What is scarce is the sea view and therefore the optimization lies in building up to permit as much people as possible this feature, but do the fast track constructions of skyscrapers attract tourists?

We propose to measure and explain this perceived urban beauty in quantitative terms, based on revealed preferences of three groups of observers by performing a content analysis of photographs. Use of visual images as data material can tell us more about the multiplicity of meanings and messages as opposed to more traditional, normative data collection methods which seldom allow one to go further than frequency analysis. The application of the method 'content analysis' on photographs for answering our question on the un-measurable qualities of urban situations is as any other theoretical method challenged through the way questions are asked. But taking photographs is a very clear activity. When someone takes a photograph they are implicitly assigning value to a certain scene, at that specific moment in time. Any kind of notion inside a picture is accredited a special value through being fixed and framed on paper or in some 2D region.

While we do not impose a specific norm, through the selection of variables, our search for the attractiveness of a city is formed through our Western world view. The selected codes for the data structure were based on our ongoing research on the image of European cities, where categories were drawn from those identified by Kevin Lynch (1960) - landmark, path, districts, edges, and nodes. "Many studies confirm the stability of these five elements across a variety of populations and cities ... Controlled experiments using a statistical technique called cluster analysis also confirm the validity of the five elements …" (Nasar 1998, p.7). Inhabitants share the same meaning about defined features. For example people like places of open space and scenery ('openness') and dislike places for their restriction, crowding, congestion and narrow roads.

As our objective is focused on urban situation seen by a wider range of people rather than on the 'image' of the place, we use three perspectives: amateur photographers (our tourists), commercial photographers, and artistic photographers. Among these three, only the commercial photographers will necessarily choose a perspective that "sells" Dubai. Artists will have a more critical, analytical eye, while amateurs simply represent the tourists as residents rarely take pictures of their own city.

In a previous research Govers & Go (2005) have analysed photographs from "official" websites like Dubai Tourism, Dubai E-Government, UAE Ministry of Information and Culture, Abu Dhabi Chamber of Commerce etc. which are clearly motivated through the destination marketing for the tourist market. Their results differ significantly from ours due to the different sample and the restriction of the content

analysis to the motives found in the pictures. We analyze correlations among picture attributes using cluster analysis to measure urban beauty and to discover similarities and differences among different observer groups. Furthermore, our coding scheme permits us to calculate an aesthetic measure for Dubai and five other cities, and compare it across the groups of observers. This is the first time to our knowledge that these measures have been calculated in this context.

In what follows we will introduce Dubai as an example for an instant city, and present the way in which we measured attractiveness. We then discuss the results of the statistical analysis, including the measures for 6 cities followed by some conclusions.

2 Background : Profile of Dubai

This is the new world, young and unique in its Western derivative expression. Without any remarkable historical, natural or religious sites, Dubai reinvented itself with artificial islands, faked souks, indoor ski slopes as an international destination for shopping, tourism and business initiatives in the Middle East. But the descriptions of Dubai are contradictory. Some speak of the city of superlatives – everything is the highest, the biggest, the largest; others from the city of ‘gatedness’, ‘sameness’, ‘fadeness’ and ‘maleness’. In its run for exceptionalism all has become the same.

Dubai, as every city, has thus its historical, sociological, economic and political specificities which are important to understand its form. The most interesting historical feature in our context seems to be the fact that this city has been built not in response to the people inhabiting it but as part of a global strategy. Dubai’s diversity of people and cultures attracts especially ambitious young professionals from all over the world who stay an average of 2 or 3 years. Most liked is the buzz of working in a multicultural environment, followed by the ability to have unparalleled leisure facilities, a vast ocean and desert escapes where they can recharge their batteries. If according to Glaeser (2001) urban success comes from being an attractive ‘consumer city’ for high skilled people, then Dubai might be an extreme sample – a city almost exclusively built for expatriates and (foreign) investors. This relates to the second specificity: the sociological mix is characterized by a small local elite, a small group of Western and Asian expatriates, and a majority of immigrant workers. Foreigners make up 85% of the population – none of the diverse groups is able to form a relevant mass of active citizens. Immigrant workers do not have the money neither the rights to express a demand regarding their environment. Wealthier expatriates often do not have the time or interest for interaction with the city development as they stay only for short periods. Therefore, the economic logic is driven by partly speculative real estate investments in view of the transformation of the city in a financial centre and a tourist magnet.

The planning seems to promote this development by encouraging huge and prestigious development projects without a view for the conventional public urban space. Market logic is dominating, resulting in investments in high end apartment buildings targeting vacationers, featuring specific services and incentives. Developers built hundreds of miles more in shape of Palm Jumeirah and The World – Islands to give maximum beachfront area. Most of the 500 skyscrapers under construction are built on generous spots, which is paradox as skyscrapers are usually a sign of land scarcity. However beneath the city's glitter serious problems are arising. The infrastructure is overtaxed, inflation is climbing, and crime and prostitution are on the rise. Dubai isn't subtle, it is crowded and has a smoggy skyline though all is new. There is scarcely open space or an un-congested highway.

Given this very special background we expect our analysis to produce results that define an aesthetics that differs from what we know either from tourist catalogues, or from comparing oriental as well as Western cities – a beauty based on a recently constructed built environment.

3 Coding scheme 'attractiveness'

Our measurement is based on Kant who defined the principles of beauty and aesthetic value in the perceiver, and we therefore consider as important the participation of the individual in the process of evaluation. However, we will confront our results with normative measures of beauty derived from the writings by Plato, who believed that beauty exists for its own, independently from subjects. These measures capture beauty in terms of aesthetic attractiveness with complexity and order as components and have been defined by Birkhoff (1933) and Eysenck (1970). Complexity is seen as positive, as it activates the brain activity. The more energy I put into understanding something visual, the more beautiful it becomes up to a specific point, where complexity capsizes in chaos. We analyze complexity through diversity of buildings (building epoch, building types) and their formations.

The use of visual material employing the research technique of content analysis has been used in many studies. Beside the general criticism of pure 'quantification' this method has proved to be reliable for a qualitative interpretation, too (Lutz & Collins, 1993). Our analysis goes beyond the commonly applied method of content analysis (Sternberg, 1997) as it focuses on the content shown in the photographs and their derivative meanings, too. The interplay of elements and not the analogy of a form were what interested us. Typically the interpretation of visual images occur on three modalities at which the meanings of the picture are made: the site of production, the site of the image itself, and the site where it is seen by various audience.

In the current research we look only at the second, the image, and its compositional qualities, distinguishing three groups of criteria, namely those of content, spatial

organization, and way of picturing. The way the space is organized refers to two aspects: the organization of the space 'within' a picture, and the way the spatial organization of a picture offers a particular viewing position to its onlooker (Rose, 2006). The subdivision is important for several reasons. First, concentration purely on the content of photographs holds the risk to neglect the specific perspective of the observer which is relevant and tells its own story as will become clear from the results. Second, applying traditional content analysis, the focus is mostly on objects, i.e. explicit content, and not on things left out – space.

To sample the data, an online search was conducted to find representative websites. Twenty websites were selected and searched for photographs of Dubai taken in the last 4 years, and grouped depending on who made the photograph :

- professional : professional photographers working for photographic cooperatives like the agency Magnum (owned by photographer members) and not aiming to sell the location
- amateur (tourists) : amateur photographers where we gathered the photographs from websites like *flickr, google, smug;*
- projected (commercial orientated) : professional photographers working for photographic agency which the principle aim to sell for marketing proposes, for example *corbis* or *getty*. This group aims to project an destination identity.

The partition was not only necessary because reasons why the image is taken differ extremely but was also driven by our interest in the specific tourist view. There is a strong dependence between group 2) *amateur* photographs and group 3) *'projected'* photographs as amateurs tend to photograph what they already know from advertisement and marketing.

From each website up to 150 images (depending on disposal) were downloaded. To the circa 2000 collected images we applied a statistical *random sampling method* which selected 15 images/source. The data quantity resulted in 75 images/perspective (amateur, professional, projected) and 225 images in total. Having selected the samples of the photographs to work with, we mapped a set of categories for *coding the images*, which were developed in a previous research concerned with the evaluation of 'attractiveness' in European cities. Afterwards all photographs were coded by one coder in a short time span, diminishing thus the risk of an altering mindset.

Coding categories (for detailed description see Appendix Table 6):

1 History of place (historical significance)
2 Elements
3 Main motive
4 Content
5 Uniqueness

6 Crowdedness by people
7 Amenities & Elements for pedestrian
8 Public Art
9 Naturalness (presence of nature)
10 Light/light effects
11 Surprise
12 Spaciousness
13 Uniformity
14 Visual complexity
15 Level
16 Motive in foreground or background
17 Brightness
18 When taken
19 Vantage point

Not all categories would be considered 'enlightening' for the evaluation of an Arabic city, where the climatic situation naturally excludes some Western world urban features such as pedestrian amenities. We kept them in order to see how big might be the existing influence of global design rules. As tourists tend to take photographs during the day the *differences of night and day* were not highly valued.

Every object offers different meaning at different levels. In picture on a *Macro Level* (XL) they are associated with the key attributes of the natural setting of the city and have a more symbolic meanings. At an *intermediate Level* (M) objects reflect the building and street patterns and their formal aesthetics; and on the *Micro Level* (S) they make the sensory aesthetics of the environment recognizable by focusing on materials, textures etc.

4 Data analysis

The results of the frequency analysis of the 225 photographs analyzed confirm that there is a discrepancy between the publicity image and the way different groups of observers see Dubai identity. In our analysis focussing on cityscape, tourists like professional photographers see a Dubai that is different from the one in the prospectus, and from that found by Govers & Go (2005).

Overall, we observe as the top classified attributes the following: contemporary architecture, brightness (or daylight), general built environment and individual contrasting elements, and an intermediate view level. Most pictures share a view on the central object with no space captured and tend to have the motive in the background (with the exception of tourists). While 'projected' often catch complexity in their images distinguished by the presence of few people, photographs by tourists and professionals tend towards simplicity and contain views on streetscape (districts). Finally projected and professional differ with respect to the perspective, the first ones preferring above eye level view, the second eye level.

Table 1 and the picture illustrate the dominant view (across all groups) of Dubai.

source : unknown amateur picture

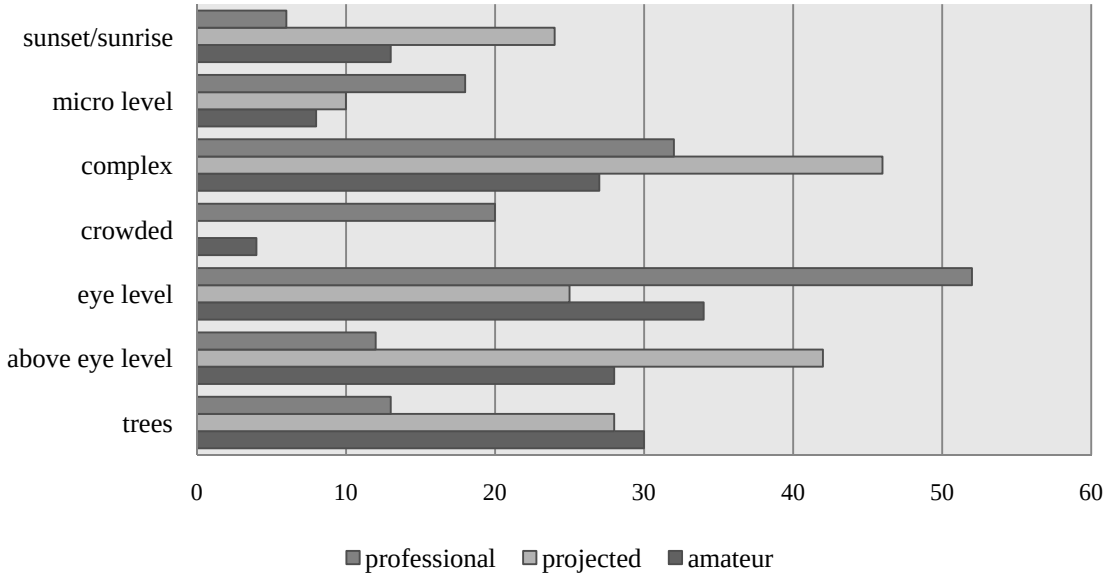
main attributes
contemporaneous
bright
general built
individual
day
intermediate level
central object
simplicity
district
background
eye level

Altogether this first analysis verifies that 96% of Dubai has been built recently (see for this and the following figures Table 7 in the Appendix). A vast majority of the photographs (83%) have the attribute 'built space', but miss the attributes of public space which describe urban life in Western cities. Public art (0%), amenities (1%), street events (1%) and lampposts (2%) are practically absent in the photographs. Regarding the way of picturing most of these photographs are taken at daylight, having the vantage point at eye level. For a place being built in the desert we found surprisingly often (36%) attributes with nature like 'trees' and flowers and *'overall vegetation'* (parks). Items characterizing the quality of space yield a further interesting result. Given that judgements on the quality of space are subjective, we have defined an easy common denominator, distinguishing between a *'uniform building scheme'* (repetition of the same building units or buildings with strong design guidelines) and *'individual'* building schemes (reflecting the free market situation). 76% of all photographs are coded with individual building styles. It is no surprise, therefore, that 58% of the photographs represent space focussing on a *'central object'* while *'open views'* characterize 29% and *'defined spaces'* only (13%). We conclude that, at least in the perception of our three categories of observers, there is little concern for space in Dubai.

While the dimensions of photographs taken by tourists, professional and commercial ('projected') photographers are remarkably similar as far as the dominating items are concerned, some interesting differences emerge. These regard the presence of trees, perspectives at or above eye-level, crowdedness, complexity, micro-level and photographs taken at sunset/sunrise as illustrated in *Table 2*.

Commercial commissioned photographers (projected images) take 25% more photographs of complex situations than tourists do. The images are captured more during sunset and sunrise with the vantage points above the eye level. Their professional assignment forces them to look for more dramatic situations and the most embellishing lights, which is the one of the sunset or sunrise. Professional photographer, in contrast to projected, tend to take photographs at eye level of crowded places, and they see less trees than the other two groups – a result of their quest for picturing real life in the city? As compared to professionals, tourists are more likely to perceive Dubai as a city with trees and tend to take photographs of peaceful atmospheres with the vantage point above eye-level and few people (their travel mates?).

Table 2 : Different perspectives of amateurs, professionals and projected



In order to get a more comprehensive impression of dominating dimensions in the photographs correlations among variables have been used to form clusters identifying hidden common dimensions. Given that all our variables are dichotomic (absence or presence of an item) we have chosen clustering variables rather than applying a principal component analysis.[1] We find four distinct dimensions the first three of which are described in *Table 3*. The results show the similarity among the three groups of observers as far as the relevance of dimensions is concerned, but we also can gain some additional insight. We call the dimension identified by the first cluster *"Cityscape"*. This dimension aggregates some of the most frequently present attributes on photographs and identifies therefore the dominant underlying dimension of photographs of Dubai. We describe it as a view on *'heterogeneous',' general built*' environment of *'contemporary'* architecture.

[1] The algorithm "size difference" of the SPSS package was used for this purpose. The detailed results of the analysis are available from the authors upon request.

Table 3: The 3 main hidden dimensions

	Dimension 1 **CITYSCAPE**	**Dimension 2** **PEOPLE**	**Dimension 3** **LANDMARKS**
All	*View on heterogeneous general built environment of contemporary architecture*	*Complex visual scene of peaceful districts at eye-level with the main motive in the foreground*	*Open views including icons, landmarks and trees above eye-level*
Amateurs **(tourists)**		*Peaceful districts at eye-level with the main motive in the foreground*	*visual scenes including landmarks and trees are viewed above eye-level*
Projected **(commercial orientated)**		*Complex visual scenes above eye-level with few people and the main motive in the foreground*	*Open views including landmarks, trees, an overall landscape and districts at eye-level*
Professionals	*View on general built environment of contemporary architecture*	*Complex visual scenes with few people and main motive in the foreground*	*Views on heterogeneous districts at eye-level*

The second hidden dimension, *"People"* groups variables of intermediate weight and characterizes a complex visual scene of peaceful districts at eye-level with the main motive in the foreground. The third dimension, *"Landmarks"*, represents correlated variables of low to intermediate weight and offers open views within icons, landmarks and trees pictured with a vantage point above eye-level. The famous landmarks and icons of Dubai are thus present, from a visitor's perspective[2], as the third most important dimension only. Overall, the typical Dubai picture therefore represents contemporary buildings, then streetscapes with few people (sometimes only the amateurs themselves), then landmarks and rarely art, culture, entertainment and events.

While the frequency counts and the clustering of variables can thus give a clear idea of the communalities among the photographs in terms of dominating items,

[2] Note that we consider all three categories as visitors, all be it in different ways and with different purpose.

they do not tell us much about significant differences among groups of photographs. E.g. the first above dimension contains items that are practically present on every photograph and hence do not make a difference. With a *TwoStep* Cluster analysis we have therefore clustered the photographs (cases) instead of the items (variables). Individual cases are combined to form clusters based on a nearness criterion. Variables that are not dominating the image of Dubai will discriminate more. We report in *Table 4* the three most important variables characterizing each cluster, where importance is a combination of the weight of the variable in the cluster according to the statistical procedure, and the weight of the variable across all photographs. The names of the clusters represent labels that have been chosen interpreting these three most important variables and indicate thus three distinct characters of views on Dubai that are otherwise rather uniform.

Table 4: Clustering Dubai photographs (all observers)

	Cluster 1	**Cluster 2**	**Cluster 3**
Name	Panorama	Landmark	Ambience
% of photographs	41	33	26
Variable 1	Open view	Above eye level	Defined space
Variable 2	Macro view	Landmark	Crowded
Variable 3	Surprise	Sunset / sunrise	Art / Culture

Looking at these clusters one has to remember, that independently from the membership of a picture to one or the other cluster, they will almost always contain contemporary architecture (the above hidden dimensions). The first and largest group of photographs distinguishes itself from the others by an open bird's eye view with sometimes surprising contents – we call it *"panorama"*. The second cluster, containing a third of the photographs is characterized by above eye level views on landmarks, often at sunset or sunrise – we call it *"landmark"*. Both clusters have in common that the most discriminating variable is the way of viewing rather than the (mostly identical) content. The third and smallest cluster contains photographs which are distinct with respect to the representation of space, sometimes but not always representing crowded streetscapes and art and culture – we call this cluster *"ambience"*.

So far we have been analyzing the beauty of Dubai as contained in the eyes of the beholder. We now want to confront this with a normative view. Attaching a value

to the pictures implies imposing a norm which permits – like in other rankings – for comparisons across cities. We apply two measures that can be found in the literature. The first one, developed by Birkhoff (1933) assumes that the aesthetic value increases with the order in the picture and with its simplicity. Birkhoff therefore proposes to calculate the measure *M* for the *aesthetic value* as the quotient of order (O) and complexity (C). A second measure, developed by Eysenck & Castle (1970) proposes in contradiction to Birkhoff to measure M as the product of O and C. Applying these measurements to data from picture content analysis and selecting as the indicator for order our variable *'collective scheme'* and for complexity our synonymous variable, we presented the values for the two measures(ordered by Eysenck 's measure) in *Table 5*.

Table 5: Aesthetic measure calculated on Tourist pictures

city	Total number of analysed tourist pictures	**O** (collective scheme)	**C** (visual complexity)	$\mathbf{M_{Birkhoff} = O / C}$	$\mathbf{M_{Eysenck} = O * C}$
Amsterdam	47	43*	53*	0.81	2279
Zürich	75	34	52	0.65	1768
Krakau	88	27*	53*	0.50	1431
Stockholm	75	26	35	0.74	910
Barcelona	40	13*	43*	0.30	559
Dubai	75	16	27	0.59	432

* as the available data is not equivalent to all cities, the numbers were calculated in relation to a total number of 75. This is used for the calculation of the aesthetic measure.

Comparing the two rankings we find as a first thing a surprising consistency among the two measures indicating that "order" seems to dominate, i.e. to be more discriminating than "complexity". This order is more present in the pictures taken by tourists to European cities – with the exception of Barcelona and Krakau. Secondly, Dubai ranks higher (4^{th} instead of last) when complexity reduces beauty rather than when it enhances it. Finally, Barcelona as a top destination ranks lowest among the European cities. Comparing now the two financial centres we note that Zurich ranks clearly higher than Dubai according to both measures (note that we analyzed the same number of photographs in each category for both cities). More significantly, the advantage of Zurich over Dubai is much more obvious for the measure

which gives weight to complexity.[3] However diversity is an attribute which is also created in the course of time and therefore instant cities like Dubai have not reached their full potential in this field.

Though the application of these measures serves mainly for illustration they are thought provoking. In a Birkhoff worldview beauty comes from order and simplicity, and cities ranking high should attract tourists with respective taste. Alternatively, a top rank in the Eysenck ranking indicates attractiveness for visitor segments with a preference for diversity.

5 Conclusions

The ambition in this paper was to measure the hidden dimensions of the urban beauty of Dubai in the eyes of the observers. Our analysis is not based on how we see Dubai but how a broader range of persons see it. We have performed a content analysis of 225 photographs using a set of 42 variables grouped in three modalities reflecting the content, the way of picturing and the spatial organization. The results of these measurements have been used to identify three hidden dimensions and three clusters of images, and calculate measures of the aesthetic value of Dubai.

A first important result concerns the presence of a dominating dimension in the large majority of photographs, namely a view on heterogeneous general built environment of contemporary architecture. The famous landmarks and icons of Dubai appear only in a third dimensions in order of importance, while art and culture and entertainment are not a specific feature of the photographs. The most discriminating variables are those measuring the way of viewing rather than the content. The largest cluster of photographs distinguishes itself by its panoramic view with some surprises. Observers do not seem to perceive the missing urban space as discriminating. Regarding the aesthetic value we find that professionals observe the highest degree of beauty, while amateur photographs of Dubai results in the lowest aesthetic value according to Eysenck i.e. if complexity is enhancing beauty, and Dubai ranks relatively low in the pictures of tourists according to both measures.

Without taking a definite position which calculated aesthetic value might be the better one, we find ourselves closer to the one proposed by Eysenck, which is more consistent with measuring attractiveness as defined by recent economic research on consumer cities by Glaeser (2001). Glaeser's idea is that a beautiful or attractive city is reflecting the diversity of its inhabitants as well as activities in a complex image. These results give indications for Dubai on the critical aspects for increasing attractiveness of the city via its quality of life. On a more general level our findings,

[3] Comparing across groups of observers (not presented here) we note that agencies catering for tourists take the relatively most complex photographs and thus rank low according to Birkhoff and high with respect to Eysenck. Professionals artistic photographers satisfy both aesthetic criteria while tourists tend to see beauty in simplicity.

based on the revealed view of a large group of observers with different perspectives, should help to orientate the urban development strategy in general and not only from an economic perspective.

We thus believe that our research based on a quantitative analysis of beauty can make a relevant contribution. Before proposing to apply these measures for management and marketing purposes, more research is needed. Future efforts should introduce another meta-level in the coding process, one that considers different perspectives in the judgmental process. As different coders interpret what seem to be the same code in different ways a sub-sampling of different coders seems appropriate. Also, rather than applying beauty norms from art history, it would be fruitful to have the pictures evaluated (in forms of rankings, willingness to visit/pay etc.) by control group so that the dimensions identified by our content analysis would become determinants of different kinds of beauty.

Nevertheless, we are confident that our analysis helps to empathise and visualize feelings different people have in Dubai, and give impulses for guiding development to invest in aesthetics. It should include ethnical, functional and physical (environment) diversity.

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Appendix

Table 6 : Detailed description of coding scheme

	Nr.	Category	Symbol	Description	Definition
CONTENT	01	**History of place**	**(A)** **(C)**	• 18./ 19. century • contemporaneous	The definition of the historical significance is based on the principle element pictured, not the most recent one.
	02	**Elements**	**(D)** **(E)** **(L)** **(N)**	• districts – characteristic area (streetscape etc.) • edge – lakefronts, ocean-front's, riverfronts, Harbor fronts • landmark • nodes - building plazas, squares, urban parks	In the case of 2 or more situations presented in the picture, the choice was made regarding where the focal point is.
	03	**Main motive**	**(C)** **(R)**	• art/culture *(historic site, art),* single building or object • religious place	"Historic site" might be viewed as opportunity to increase knowledge, whereby religious pilgrimage or places have an *unique psychological* attribute.
	04	**content**	**(E)** **(G)** **(C)**	• environment (*(physical settings : beach, geographical features, parks)* • general built form (*general building architecture, specific structure of interest)* • cultural & entertainment *(night club, sport, theme parks, events, festival, spectacle, Temporary Uses - Programming – Events, food, shopping area*)	
	05	**Uniqueness**	**(UB)** **(UF)**	• unique icons built, such as Sydney Harbour bridge • special events, like festivals	
	06	**Crowdedness by people**	**(R)** **(C)**	• restful/relaxing (0-2 persons) • crowded	

	07	**Amenities & Elements for pedestrian**	**(C)**	• cafes • kiosks & carts • pedestrian amenities • seating	
	08	**Public Art**	**(A)**	• public art	
	09	**Naturalness**	**(T)** **(O)**	• single trees/flowers • overall vegetation (park)	Value the presence of nature.
	10	**Light/light effects**	**(I)** **(L)** **(S)**	• installations / building lightings • lamppost • outdoor scones	
	11	**When taken**	**(D)** **(S)** **(N)**	• day • sunset/sunrise • night	
SPATIAL ORGANIZATION	12	**Spaciousness** ***(types of limitation)***	**(D)** **(O)** **(C)**	• deflected view / enclosed depth (narrowness) / closed form - defined space (strong physical form) • wideness and open view / visual scope *(panorama)*- scenery, more than one focus • central object, no space captured	
	13	**Uniformity**	**(I)** **(C)**	• individual freedom (Contrasting elements) • collective scheme (uniform), part of a bigger whole : situation	Individual freedom is for the sake/benefit of a higher and collective scheme, where the parts become something greater by contributing to a whole.
	14	**Visual complexity**	**(C)** **(S)**	• complex • simplicity	Complexity relates to number of different elements and their distinctiveness in one scene (one system). People notice variation in complexity – the interest, excitement, viewing time increase. Even if it is highly subjective, the notion of existence is possible. We aim not to quantify it.

WAY OF PICTURING	15	**Level**	**(XL)** **(M)** **(S)**	• macro level (bird view etc.) • intermediate level (street ambience etc) • micro level (one single object)	Big scale has the capacity to dislocate the body in a physical or mental journey – it is seen as positive.
	16	**Motive in foreground or background**	**(F)** **(B)**	• foreground • background	
	17	**Brightness**	**(B)** **(D)**	• bright • dark	Defined through atmosphere in the space (narrow street, bright buildings)
	18	**Surprise**	**(SU)**	• surprise • not surprising	Surprise effect is very hard to define, but we consider it as matter of content than form.
	19	**Vantage point**	**(A)** **(B)** **(E)**	• above eye level • below level • eye level	All space is organized around an oriented standpoint of a human body

Table 7 : Content Analysis Results (N=225)

		AMATEUR	PROJECTED	PROFESSIONAL	ALL	ALL (%)
CONTENT	contemporaneous	75	70	71	216	**96**
	18.century	0	5	4	9	**4**
	district	39	31	46	116	**52**
	edge	14	16	13	43	**19**
	landmark	21	25	14	60	**27**
	parks/plaza	1	3	2	6	**3**
	art/culture	0	4	4	8	**4**
	religious	3	2	2	7	**3**
	environment	3	4	5	12	**5**
	general built	71	69	63	203	**90**
	cult./entertainment	1	2	7	10	**4**
	icon	15	25	22	62	**28**
	events	0	0	3	3	**1**
	relaxing	35	38	33	106	**47**
	crowded	4	0	20	24	**11**
	amemties	0	0	3	3	**1**

	public art	0	1	0	1	**0**
	trees	30	28	13	71	**32**
	overall	1	6	2	9	**4**
	lampost	1	2	2	5	**2**
	installation	7	12	5	24	**11**
	day	54	45	60	159	**71**
	night	8	6	9	23	**10**
	sunset/sunrise	13	24	6	43	**19**
SPATIAL	defined space	9	8	13	30	**13**
ORGANIZATI-	open view	20	28	17	65	**29**
ON	central object	46	39	45	130	**58**
	individual	59	60	53	172	**76**
	collective scheme	16	15	22	53	**24**
	complex	27	46	32	105	**47**
	simplicity	48	29	43	120	**53**
	forground	40	37	33	110	**49**
	background	35	38	42	115	**51**
WAY OF	micro level	8	10	18	36	**16**
PICTURING	intermediate level	56	46	49	151	**67**
	macro level	11	19	8	38	**17**
	bright	71	71	71	213	**95**
	dark	4	4	4	12	**5**
	surprise	6	3	10	19	**8**
	eye level	34	25	52	111	**49**
	above eye level	28	42	12	82	**36**
	below eye level	13	8	11	32	**14**