Finding the Invisible – Quantifying the 'urban beauty' of Dubai via content analysis of photographs

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Abstract

The quality of urban reality is regularly quantified in at least two contexts: regarding inhabitants in the form of *Quality of Life indices* and regarding tourists in the form of *Destination Rankings*. While these measures seem to be of relevance for explaining and guiding residential location and destination marketing they fail by definition to account for un-measurable dimensions of urban reality such as culture, atmosphere and aesthetics. The latter, here termed *'urban beauty'*, is the object of this work, with the ambition to measure the un-measurable. We have performed a content analysis of 225 photographs 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 three underlying dimensions, derived from the 42 variables, and three clusters of images. In addition we calculate a measure of the aesthetic value of Dubai. The main result is a dominating dimension, 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. Regarding the two *aesthetic values* we find that professional photographer observe the highest degree of beauty, while amateur photographer the lowest if complexity is enhancing beauty. In comparison with Zurich Dubai ranks low according to both measures and across all groups of observers. 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 finding 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 a prevalently tourism marketing perspective.

Keywords: content analysis, photography, attractiveness

1   Introduction

In *Mercer's Quality of Living Reports,* cities in Western Europe, North America, Australasia and Japan dominate the top of the rankings. Almost half of the 30 top-scoring cities surveyed are in Western Europe, with Zurich scoring highest for overall quality of living. Dubai does not appear on this list. We are asking why, as Dubai has excellent scores with respect to tourism and the economy and its economic strength should enable it to achieve high votes for its attractiveness as well in the future.

Quality of living is a complex phenomenon and the Mercer index includes political, social, economic and environmental factors, personal safety and health, education, transport and other public services. Those functional key drivers let one anticipate a physical appearance, but do not determine it. From a broader urbanistic perspective quality of living includes the physical setting of a city and its aesthetic evaluation. Aesthetic quality is part of utility of cities. It makes them more useful, creates fascination and inspires inhabitants and visitors to characterize their city as beautiful and attractive. Certainly it is hard to argue about aesthetic quality as it deals with subtle shades, harmony and equilibrium of a whole variety of visual elements, however this is not a valid reason to exclude it from the evaluation, even though it is challenging to measure it. Is there an *'urban beauty'*, and can it be traced in this new constructed world? In Dubai all construction is constrained by economic reasoning, as it was always, and no owner follows the idea of identification with its property anymore (*"From Palladio's time forward … the creation of houses which could reflect the ideals of their owners became a central ambition of architects throughout the West.",* de Botton, 2002).

The absence of a real public critical mass in a monarchical regime leads to a single view of development. His Highness Sheikh Mohammed bin Rashid al Maktoum's vision for Dubai is doubtless one with the best intention. However whether those planned clusters of different functions, parks, waterway do or not do allow future mixed development, they are necessary for growing off interaction and spontaneous needs. In 1961 urbanist Jane Jacobs explained that only cities functioning as 'open systems' attract talented people from various backgrounds and stimulate their creative capacities. People from varied cultural and professional backgrounds already come together in Dubai, but can they really generate a new city by only being consumers?

We expect Dubai to have a very specific beauty – driven more by an economic rational than by aesthetic urban paradigms. We propose to measure and explain this specific urban beauty in quantitative terms, based on revealed preferences 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 definition of an attractive 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 (Appleyard, 1970; Francescato & Mebane, 1983; Harrison & Howard, 1972; Milgram & Jodelet, 1976). Controlled experiments using a statistical technique called cluster analysis also confirm the validity of the five elements (Aragones & Arredono, 1985; Magnana, 1978)"* (Nasar, 9). 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. Furthermore the expertise of neuroscience (John Zeisel, ANFA) were considered as if for example says that *'landmarks'* enhance the memorability of an environment and reinforce the positive sense of place.

Previous research by Govers & Go (2005) has analysed photographs from "official" websites like Dubai Tourism, Dubai E-Government, UAE Ministry of Information and Culture, Abu Dhabi Chamber of Commerce etc. and found among the most frequent items restaurants, bars and discos, shopping malls, spa facilities and the Old Fort, which are clearly motivated through the destination marketing for the tourist market. The research proposed here analyzes the content of photographs along more dimensions than Govers & Go. We use three perspectives: amateur photographers, commercial photographers, and artistic photographers, rather than just relying on the tourist one. Similar to Govers & Go, we analyze correlations among picture attributes using cluster analysis to discover similarities and differences among the observer groups. Our coding scheme permits us to calculate an aesthetic measure for Dubai and Zurich, and compare it across the different groups of observers. This is the first time to our knowledge that these measures have been calculated in this context.

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 Middles East. But the descriptions of Dubai vary responsively who says it. 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 it's 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 of 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 normally public, urban space. Everybody follows the free market requests with one-sided 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 are serious problems 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'

Derived from the writings by Plato, who believed that beauty exists for its own, that is independent of subjects, or by Kant, who defined the principles of beauty and aesthetic value in the perceiver, we consider as important the *participation of the individual* in the process of evaluation. But what we find today beautiful, might have been ugly yesterday. Taste changes over time. Therefore it does not make sense to speak about distinction between the beautiful and the ugly. The distinction stays forever, the only change is on the line where we fix our parameters. Beauty is broad concept which includes many different subjects and feelings. We will capture beauty in terms of *aesthetic attractiveness* with complexity as the most important component of it. Measures for this have been defined by Birkhoff (1932) and Eysenck (1970), where complexity and order are seen as positive, as

they activate the brain activity. More energy I put to understand it, more beautiful it becomes, certainly only till a specific point, where complexity capsize 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 as 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 :

1) <u>professional</u> : professional photographers working for photographic co-operatives like the agency Magnum (owned by photographer members) and not aiming to sell the location
2) <u>amateur</u> : amateur photographers where we gathered the photographs from websites like *flickr, google, smug*;
3) <u>projected</u> : 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 necessary, because reasons why the image is taken differ extremely. There is a strong dependence between group 2) *amateur photographs* and group 3) *'projected' photographs* as tourists 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 confirm that there is a discrepancy between the publicity image and the way different groups of observers see Dubai identity. Tourists like professional photographers see a Dubai that is different from the one in the prospectus, and from that found by Govers & Go (2005).

Table 1 gives an overview on the 10 most important attributes in every group of observers and over all 225 photographs analyzed (in every column the attributes are ordered by importance starting from the top).

Table 1: The most important attributes by group and overall

| Amateurs	Projected	Professional	All
contemporaneous	bright	contemporaneous	contemporaneous
bright	contemporaneous	bright	bright
general built	general built	day	general built
individual	individual	general built	individual
intermediate level	complex	individual	day
day	intermediate level	eye level	intermediate level
simplicity	day	intermediate level	central object
central object	above eye level	district	simplicity
foreground	central object	central object	district
district	background	simplicity	background
background	relaxing	background	eye level

As a first result we observe an important homogeneity across groups with regard to the top classified attributes. Contemporary architecture, brightness (or daylight), general built environment and individual contrasting elements, and an intermediate view level are the dominating elements of the photographs. The lower part of the table contains similarities and differences. All perspectives share a view on the central object with no space captured and tend to have the motive in the background (with the exception of amateurs). While 'projected' often catch complexity in their images distinguished by the presence of few people, photographs by amateurs 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.

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%) present 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 amateur, 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*.

Table 2 : Different perspectives of amateurs, professionals and projected
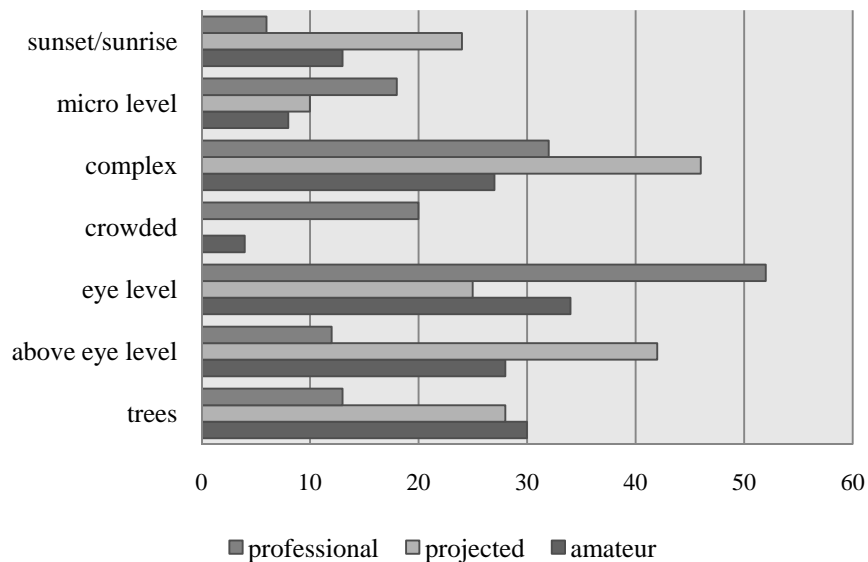
As compared to professional, amateurs photographers are more likely to perceive Dubai as a city with trees and tend to take photographs of peaceful atmospheres with the vantage point above eye-level. Commercial commissioned photographers (projected images) take more photographs of complex situations than amateurs (25% more) do. The images are captured more during sunset and sunrise with the vantage points above the eye level. Their professional assignment force 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.

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. 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. The procedure results in four distinct clusters and permits the identification of distinct dimensions for the first three. These 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 *"Contemporary 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.

The second hidden dimension, *"People in District/City"* 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 & Icons", 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, as the third most important dimension only. Overall, the typical Dubai picture therefore represents contemporary buildings, then streetscapes with few people (sometimes only the tourists 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, they do not tell us anything 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.

Taking all three groups of observers together, an optimal number of 3 clusters of similar size is identified. 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 3: The 3 main hidden dimensions

	Dimension 1	Dimension 2	Dimension 3
All	**Contemporary cityscape** *View on heterogeneous general built environment of contemporary architecture*	**People in district/city** *Complex visual scene of peaceful districts at eye-level with the main motive in the foreground*	**Landmarks & Icons** *Open views including icons, landmarks and trees above eye-level*
Amateurs	**Contemporary cityscape** *View on heterogeneous general built environment of contemporary architecture*	**People in district/city** *Peaceful districts at eye-level with the main motive in the foreground*	**Landmarks** *Complex visual scenes including landmarks and trees are viewed above eye-level*
Projected	**Contemporary cityscape** *View on heterogeneous general built environment of contemporary architecture*	**People in district/city** *Complex visual scenes above eye-level with few people and the main motive in the foreground*	**Landmarks & icons** *Open views including landmarks, trees, an overall landscape and districts at eye-level*
Professionals	**Contemporary cityscape** *View on general built environment of contemporary architecture*	**People** *Complex visual scenes with few people and main motive in the foreground*	**District** *Views on heterogeneous districts at eye-level*

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 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"*.

We have thus a demonstration of the relevance of the way of viewing and the spatial component. Dubai is mainly viewed either from above, if it's panorama, or below, if it's landmarks. Those relations do not differ from the common presumptions. Only the smallest cluster takes a closer view of crowded spaces. Observers do not seem to perceive calm and peaceful space as something differentiating neither details (as pictured often in very closed shoots) as discriminating. We conclude, therefore, that above all consumers and their commercial counterparts see Dubai as contemporary built structures seen from far without people, culture or urban spaces.

Trying to attach values to the beauty of Dubai in the eyes of the three groups of observers we apply two measures that can be found in the literature. The first one, developed by Birkhoff (1933) implies that the aesthetic value of a piece of art increases with the order in the picture and with it's 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's assumption that simplicity defines human perception to measure *M* as the product of O and C. Applying these measurements (for a first time to our knowledge) to data from picture content analysis and selecting as the indicator for order our variable *'collective scheme'* and for complexity our synonymous variable, we find the values for the

two measures as presented in *table 5*. The values are confronted with those of Zurich, calculated in our ongoing research.

Table 5: Clustering Dubai photographs (all observers)

	Amateur		Projected		Professional		All	
	Dubai	Zurich	Dubai	Zurich	Dubai	Zurich	Dubai	Zurich
O (collective scheme)	16	34	15	45	22	42	53	121
C (complexity)	27	52	46	74	32	66	105	192
$M_{Birkhoff} = O / C$	**0.59**	**0.65**	**0.33**	**0.61**	**0.69**	**0.64**	**0.50**	**0.63**
$M_{Eysenck} = O * C$	**432**	**1768**	**690**	**3330**	**704**	**2772**	**5565**	**23232**

A first observation on the results is that among the three groups, the professionals observe the highest degree of beauty according to both measures in Dubai but not in Zurich. Amateur photographs for Dubai result in the lowest aesthetic value according to the measure of Eysenck, i.e. if complexity is enhancing beauty, while they are very close to the value of the professionals, if, according to Birkhoff, simplicity is a relevant aesthetic quality. Agencies catering for tourists take the relatively most complex photographs and thus rank low according to Birkhoff and high with respect to Eysenck. We conclude that while professionals satisfy both aesthetic criteria, amateurs tend to see beauty in simplicity while promoters see it in complexity. Comparing now the two cities we first note that overall 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. While Zurich outperforms Dubai also in all three categories of observers according to the Eysenck measure, Dubai obtains a slightly higher value in the Birkhoff measure of the professionals – i.e. when beauty is order and simplicity, professionals see it in both places.

5   Conclusions

The quality of urban reality is regularly quantified in at least two contexts: regarding inhabitants in the form of *Quality of Life indices* and regarding tourists in the form of *Destination Rankings*. The measurable dimensions of urban quality relate to various aspects of hardware (infrastructure, buildings, parks, tourist attractions) and software (prices, land uses, events, environmental quality).

While these measures seem to be of relevance for explaining and guiding residential location and destination marketing they fail by definition to account for un-measurable dimensions of urban reality such as culture, atmosphere and aesthetics. The latter, here termed *'urban beauty'*, is the object of this project, with the ambition to measure the un-measurable.

Our ambition is therefore 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. Compared to Zurich Dubai ranks low according to both measures and across all groups of observers. The reason being less observed order and complexity.

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, 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 a prevalently tourism marketing perspective.

We thus believe that our research based on a quantitative analysis of beauty can make a relevant contribution. The question remains, what you can ever know about the beauty of a foreign country as our understanding of the universal unit is always filtered through the places where we live and where we travel. The search for the *one source* of beauty, which has exert the speculation of philosophers, architects and economists through the ages, seems unrealistic as each culture defines beauty in different ways. But in all it represents the same positive emotions and life values. The universally invisible concept of beauty unites people worldwide, and brings happiness, hope, comfort, dignity and respect in its different expressions. What does a picture show, might seem a very obvious and simple question, though definition of the principle element varies from viewer to viewer. In content analysis the concept of reliability is crucial. Therefore future research 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.

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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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, oceanfront'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	

Table 6 : Detailed description of coding scheme

	11	**When taken**	**(D)**	• day	
			(S)	• sunset/sunrise	
			(N)	• 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 ORGANIZATION	defined space	9	8	13	30	**13**
	open view	20	28	17	65	**29**
	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 PICTURING	micro level	8	10	18	36	**16**
	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**