

75. Towards a model of sustainable management of the singular buildings.

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Summary

We wonder in this paper if it is possible to establish models of management which allow to consider like sustainable the buildings that nowadays we call singular. To do it, we proceed to realize in first place a brief introduction of approximation to the concept of singular building and of the points of view of the collectivity with regard to the same ones. Later, we analyze with the available information several examples of singular buildings, and study between other concepts what role they represent in the means of diffusion and communication.

We do reflections on the possible sustainability and the adequacy to sustainable in some singular buildings. Like advance of future works of investigation, we realize a comparative analysis of investments and real reached aims, in relation to the initial pretensions of this type of interventions based on the works of formulation of control for anticipation costs (Revuelta P, Ramirez A, García P 2015). We choose two examples, to emphasize the most representative results and finally, we advance a analysis model between the costs and the services in which activities of marketing and iconic image by diverse suppositions are included.

We propose initial conclusions that drive us to think that the major cost of the singular building can be compensated with the social and economic benefits that its iconic value suitably spread contributes to the entire community, being between others, necessarily the commitment on the part of the leaders of the societies to support them and to spread them.

Keywords: Singular buildings, Sustainable, Global cost, Satisfaction psychosocial, Singular architecture.

0 Objectives

The singular buildings are architectures of forefront in which they meet reflected, the inventiveness, the creativity and a symbolic vocation. Any superficial analysis of these constructions induces us to catalogue them like non-sustainable understood with its own frame of reference. Is this true? Is sustainability possible in this type of buildings from its conception? Can they adapt the singular buildings to be sustainable?

1.- The principal aims of this work are to advance in the knowledge of the questions that relate the sustainability to the singular buildings, and the vision develops of these buildings in a more wide space, that is to say that of being able to measure its social impact and its economic repercussion of its area of influence, to come to conclusions that support our initial supposition, based on that the major initial cost of a singular building can be compensated by the social and economic benefits that contributes to the community, with its level as icon.

2.-This paper tries to be the initial point for future investigations based on the model of global cost (García F, Armengot J, Ramírez G 2015) and for study on anticipation cost already mentioned.

1 Introduction: Approximation to the concept of Singular Building

The architecture has been one of the more usual form of expression to create images of the future. The buildings have had the aptitude to evoke the aspect that the civilizations were offering and as the years went by, to reflect as a mirror what they were. The singular buildings are an example of not conventional constructions, they arise from a hypothesis of the future, compose the wild side of the architecture, suppose the liberation of the human fantasy and represent the challenging and experimental face of the architecture as discipline.

The constructions that we have inherited, have been almost exclusively singular buildings, temples, palaces and castles, destined to all the uses that history has provided them. The separation of the reality and the fantasy has been becoming increasingly diffuse due to the technological advances, projects that in previous epochs were filed for unrealizable today might have been constructed with certain facility.

2. The point of view of the Collectivity. Two big groups

From the social point of view, the singular buildings have always suffered critiques based on the opinions of the society, creating very intense addictions and oppositions. Not all the cities approach the construction and perseverance of this type of buildings in the same way; some of them are more inclined to the denial of a new symbol, whereas others assume it as something usual. On the basis of the observations and experiences we can consider two groups:

Proposal architecture. (Fig.1) Related to spectacular buildings in construction, with different form, majestic structure, new interiors, to whose completion a great event is foreseen and with habitually millionaires estimates. If it is successful it will be a transcendental building, which undoubtedly it will make us think and we will catalogue it as advance of the future.

"Rare" buildings.(Fig.2) There exists another group of buildings that for its form or final aspect we can consider them to be singular or rare. They arise from the caprice or the desire of innovation of the author, and are not the object of our presentation.

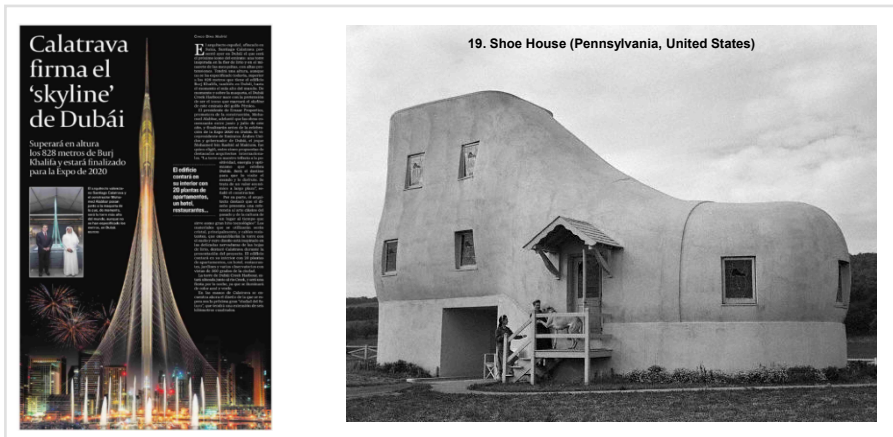


Fig. 1 (izq.) *Proposal architecture.* (Diario 5 días 13/4/2016)

Fig. 2 (der.) *Rare buildings.* (https://en.m.wikipedia.org/wiki/Haines_Shoe_House)

3 The Singular building like proposal architecture

Though some time ago globalization imposed in the architecture, the fact that strange proposals in architecture are not new: advanced the 12th century, the Cistercians extended his concept of the ideal monastery; later the Jesuits organized their own "architectural management " even in the distant colonies of the New World. Already in the 19th century the Neogothic cathedral turned into the emblem of the faith in the whole world, and with the modernity of the international style the planet covered of racionalist constructions. The singular buildings are unique, designed with exemplary sculpted volumes with the forms imagined by his creator; they lack of real references and allow that the illusion to materialize and take form. They are symbols of fiction supported on a futurist architecture, they have always been of great interest for the cinematographic producers, from Fritz Lang in "Metropolis" (1927), up to Ridley Scott's masterpiece in "Blade Runner" (1982).

4 The marketing and the diffusion across the means. Some examples

The diffusion though merchandizing (Fig.3) (Fig.4) (Fig.5), and the consolidation as necessary and representative image of background of the cities in the processes of massive communication (Fig.6)(Fig.7), suppose the loud knock necessary for the consecration of the singular buildings into Icons. Let's see some examples:

Merchandizing

- *Eiffel Tower, Paris* (1887-1889). The highest structure of Paris and the fifth one in France. At present, it is the icon building more visited in the world, with more than 6.700.000 visits every year. Its existence has been spreaded up over and over again through all the media up to turning into an icon for the whole humanity.



Fig. 3 Eiffel Tower: Marketing. (Agudo Martínez - Vázquez Sánchez - Lucas Ruiz)

-*Sydney Opera house (1957-73)*. Symbol of Australia and one of the most famous architectural icons of the 20th century. It is Heritage of the Humanity for the UNESCO. The number of visits a year go beyond 8 millions.



Fig. 4 Sídney Opera house: Marketing. (Agudo Martínez - Vázquez Sánchez - Lucas Ruiz)



Fig. 5 Tokyo Sky Tree. Another form of economic income. (Agudo Martínez - Vázquez Sánchez - Lucas Ruiz)

The diffusion through the mass media.



Fig. 6 TV Correspondents and the singular buildings like Icons. (<http://blog.rtv.es>)



Fig. 7 Headpiece of the Congress

5 The possible sustainability

We are used to relate in an immediate way a singularity or showiness of the buildings to its lack of sustainability, and in board outlines we have all assumed that no singular building is capable of going beyond or reaching some of energetic certification category, if the tools of measurement of international organizations as the World GBC (World Green Building Council) or Global BRE (Building Research Establishment) were applied to them.

Our paper does a reflection on the topic in the search of those key points that allow to distinguish in which cases a singular building can be considered as sustainable, useful and profitable.

At first, we can assume the hypothesis of which a sustainable building is that one that adapts its economic, energetic, residual costs to the needs of the society, which is profitable to the users and respectful to the future of the planet.

If we start from the already classic formulation from which the sustainability comes measured by the relation between the global cost (measured as arranged) of a building with the obtained social satisfaction, we can admit without initial argument, that a singular building has a global higher cost that the ordinary one for the service or initial normal use so to adjust the balance will have to produce an increase or new services respect to a normal equivalent building. Therefore we think that a singular building has to give more services that a normal building since the investment is higher. Where can or must these benefits be? Obviously in services that are big enough or in an image that manages to devote as an Icon.

6 Adequacies to sustainable models

Also they give themselves cases in which singular buildings turn into sustainable models. Some examples are: the Empire State Building (New York, 1931), was submitted to a global intervention for of improving the environmental quality and obtained the certification READ Gold; the building Taipei 101 (Taiwan) qualified as the most ecological tower of the planet or the Nest of Bird (Pekin) and its systems of solar power, water gathered from rain and reutilization of the warm air.

7 Comparative analysis of investments.

Now we explain a comparative inventory of big interventions (Fig.8), qualified as *masses phenomenon*, of last 20 years:

Table 1 Comparative of singular buildings. (Agudo Martínez - Vázquez Sánchez - Lucas Ruiz)

COMPARATIVE TABLE OF INVESTMENTS OF SOME SINGULAR BUILDINGS					
<i>Buildingo</i>	<i>Author</i>	<i>year</i>	<i>m2 / m.</i>	<i>Euros</i>	<i>Objetive</i>
*Guggenheim Bilbao Museum (Bilbao)	<i>F. Gehry</i>	1992-1997	24.000	86.000.000	ICON
Nest of Bird (Pekin)	<i>Herzog & Demeuron</i>	2003-2008	76.600	338.000.000	ICON
Agbar Tower (Barcelona)	<i>J.Nouvel</i>	1999-2005	(h) 145	132.000.000	ICON
*Tokyo Sky Tree (Tokio)	<i>Nikken Sekkei</i>	2008-2012	(h) 634	65.000.000	ICON
Metropol-Parasol (Seville)	<i>Jürgen Mayer</i>	2005-2011	10.500	86.000.000	ICON
Casa da Música (Porto)	<i>R. Koolhaas</i>	1999-2005	22.000	100.000.000	ICON
Maxxi Museum (Roma)	<i>Z. Hadid</i>	2003-2010	21.000	150.000.000	ICON
Ericcsón Globe (Stockholm)	<i>Svante Berg, Lars Vretblad</i>	1986-1989	9.500		ICON
Ciudad Artes y Ciencias (Valencia)	<i>S. Calatrava</i>	1994-2005	350.000	1.282.000.000	ICON



Fig. 8 Torre Agbar (Barcelona). Tokyo Sky Tree. y Metrosol-Parasol (Sevilla).
(www.27.issafe.co/barcelona3dias.com, www.obayashi.co.jp y José Fariña)

8 Singular buildings without iconic promotion

There also exist singular buildings that for diverse circumstances have not reached its consecration. An example of it can be the building *Ericssón Globe* (Stockholm), used as headquarters for the celebration of the Eurovision Festival in 2016, but by no means has it showed as an Icon: neither of the event, nor of the organizing country (Fig.9).



Fig. 9 *Ericssón Globe, Estocolmo.* (<https://Thrillcall.com>)

9 Summary of information of some singular buildings

The *Guggenheim Bilbao Museum*, it is one of the examples that has achieved the consecration as Icon building worldwide, and its references are the following ones:

- *Social Impact*
Foreign tourists in Bilbao increased 28 %, and up to today, it has received more than 15 million visitors. The people's participation in its educational activities was superior to 600.000 in the year 2011. It generates an average of 4.500 annual employments.
- *Economic Impact*
 - In the year 2011, the museum generated 311 million Euros, of which 27,9 millions (8,96 %) were invested in the museum itself and 283,2 millions were invested out of the museum, being the Hotel and catering business sector the one with the biggest impact.
- *Image of the city*

- It has turned into the image of Bilbao as media element with international repercussion that has done that the city and the territory form part of a network in the van of the innovation.
- Environment
The museum possesses a strict planning to prepare the pollution, to control the environmental impact and to minimize the generation of residues, managing to reduce 14,7 % its consumption of water, 9 % the consumption of natural gas and 6,75 % its electrical consumption, in the period 2006-2011
- Territorial Economy
Only in 2011, the museum has contributed to the generation of 274,3 million Euros of GDP, the maintenance of 5.885 employments and a few additional income for the Basque finances of 42,2 million Euros. This information represents 0,42 % of the GDP of Basque Country
- Patrimonial recovery
It has generated more than 3.173 million Euros, 37 times its cost

Another example of Icon worldwide is *Tokyo Skytree*. Its references are:

- Social impact
It is the new symbol of the Japanese capital city. Inaugurated in 2012, it has already exceeded ten millions of visits and the number of visitors of Tokyo Skytree already goes beyond 100 millions.
- Economic impact
The reservations related to the marketing already exceed the million. The government thinks that the Tokyo Sky Tree is going to generate an economic impulse of 174.6 billion Yens (1.700 million Dollars).
- Image of the city
The tower has turned into Tokyo's target image as media element of international repercussion that has done that the city is in the van of the innovation.
- Environment
Minato's town hall has approved strict measures to prevent new buildings from blocking the sights of the building, beside prohibiting to construct in its surroundings in a radius of something more than one kilometer.

10 Comparative of costs and building services according to its sustainability

Making a comparison between the costs and the services of the buildings applying the formulas mentioned in the Table 2, we obtain the results reflected in the Tables 3 and 4.

Table 2 Formulas about costs. (García F, Armengot J, Ramírez G (2015))

FORMULAS
Q g = Global cost corresponding to the life cycle of the building.
$Q g = Q i + Q o + Q d$
Q i = Cost of investment that in general includes the following costs;
$Q i = Q s + Q g + Q c$
Q s = Cost of the lot prepared to build.
Q g = Cost of management of the investment, projects, fees, rates, taxes.
Q c = Building construction.
Q o = Cost of operation of the life cycle of the building with the following paragraphs;
$Q o = q m + q e + q w$
Q m = Maintenance cost.
Q e = Energy cost.
Q w = Different costs, vigilance, cleanliness.
Q d = Cost of demolition included the recycling and waste treatments.
* There does not form a part of this formulation the amount of the financial costs.
* We have not even a model to measure the social impact of the investment.

Table 3 Costs and services in buildings according to its sustainability. (Agudo Martínez - Vázquez Sánchez - Lucas Ruiz)

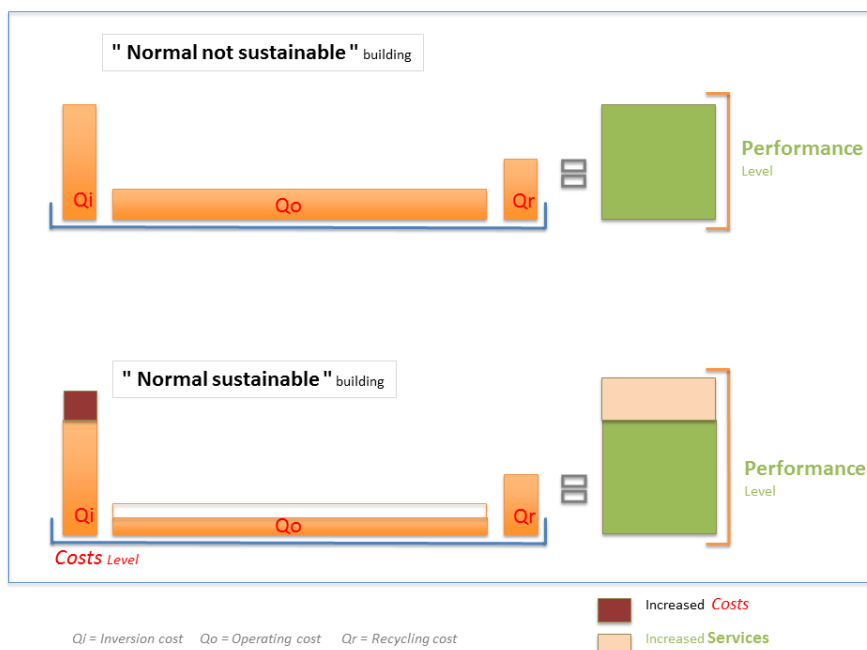
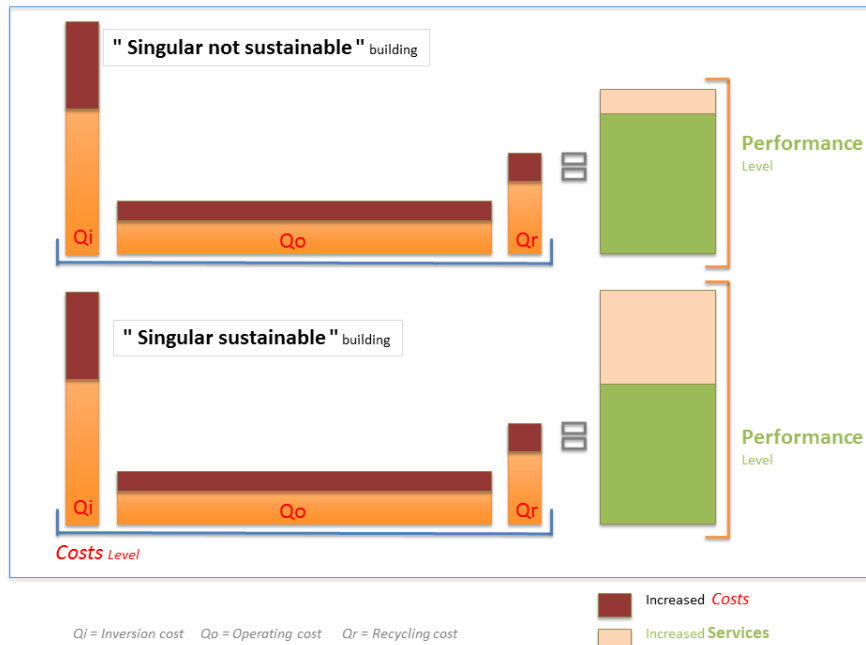


Table 4 Costs and services in buildings according to its sustainability. (Agudo Martínez -
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11 Conclusions

The conclusions obtained are the following ones:

- The singular buildings have been, are and they will be an icon heritage.
- The level as icon and its recognition of the values contributed by the building itself will have different levels of diffusion, - city, region, community, country and even world - but the diffusion of its value will not be exclusive of the building but of the commitment that its society has with it.
- In board outlines we think that at present the levels of Global Cost of the singular buildings are higher than those that we can consider to be ordinary.
- The bigger amount of the Global Cost, is compensated or has to be compensated by a higher social service that is mainly based in its symbolic value as proper or complementary economy power of the city.

- Is necessary to take into account that to promote, to spread and to support the value for being an icon of an alone building is not free but it increases the costs of operation.
- The project of a singular building can be sustainable if its higher level of global cost is compensated by an increase of the added value to the society that supports it as an icon.
- Is necessary to act in the model of management on three important factors:
 - a) Commitment of the leaders according to the area, of spreading, reporting and using of symbolic way of the building.
 - b) Steady diffusion, financed in the long term and included in the Costs of operation of the building.
 - c) Generate extra incomes for the commercial development of the singularity of the building.
- One more added value for the singular building, would be that the building itself was sustainable (as in *Empire State* or the *Tower Tapei*)

In this paper we have approached and tried to advance in bringing the current distance near between the considered singular buildings and the in force criteria of sustainability towards the buildings. We consider that from it, it is necessary and studies can be started that allow to measure the economic impact of a singular building that make able to compare it with its costs and measure the level of sustainability reached, by means of end of master works, monographs or doctoral theses. All this in the light of the analysis models of the life cycle cost and of anticipation costs.

12 References

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