Architectonic Brand Valuations using PICANICO: 
A Tag-Based Machine Learning 

Zenovia Toloudi

Abstract—Brand is a set of attributes associated to an object. In architecture, such an object can be a building, an architect, a firm or a process of practice. Architects may be able to control the act of constructing their identity (branding). However they are not able to control the perceived identity (brand) by others. This probably happens due to the lack of methods or tools to quantify information related to architectural identity. This paper explores a direction to empirically evaluate the architectural brand by using computational methods like PICANICO in order to investigate the awareness, reputation and differentiation among architectural firms.

Key Words—Brand, identity, machine learning, tagging.

I. INTRODUCTION

Globalization has raised the need to generate strong identities for individuals, nations, organizations, products, and companies. The results of the increased competition are: multiple choices for product purchases and a wide diversity of ideas and promises. Differentiation becomes hard. Therefore, it is difficult to compare features and benefits among choices. People need believes, meanings, religions, or just shortcuts that can lead them to a successful personal selection [1], [2].

In architecture, identity has been usually associated with the popular terms of iconic, star architecture, signature building and others.

In this work I will introduce and use another term, borrowed from business world, that of brand. The concept of brand, similarly to DNA, reconnects the notion of image with the fundamental values of the object rather than being restricted to the surface, style or look. There are brands that are strong but do not rely on profound characteristics, either because the main value of the object is hidden (ingredient brand) or because it is changing continuously (technology markets).

The underlying purpose of this research is to bridge the demand for name and identity with the traditional values architects are trained to think, develop and use.

A. Definitions

The definition of brand depends on the various contexts within which it emerges.

1) Abstract World- No Context

Identity is a set of personal characteristics by which an individual is recognizable or known. They constitute the condition of being oneself and not another [3].

2) Product Industry

Every brand is represented by brand elements like name, URL, logo, characters, slogan, package and other that communicate the company’s identity to its audience. Sometimes the brand concept is mixed up with these brand elements. But brand is not only that. For Keller, Brand refers
to the awareness, reputation or prominence created around a *brand* [4].

Birak Libai defines *brand* as a set of associations related to an object from a particular source. These associations are tied to the *brand elements*. Through them customers construct the associations for the company or product. If all these are strongly connected, people like the *brand* and select it. In away, *brand* is a promise that the *brand* and its products will meet the expectations generated over time.

In this paper I define and use the word *brand* as a set of attributes, associated with an object (product, person or service).

According to this definition, *branding* is *brand*’s action or process. If *brand* is about perception, *branding* is about creating this perception.

3) Architecture

Since *brand* is a term used in the business world, it is reasonable to wonder how it can be transferred to architecture and what are the implications it will bring. Should architecture considered a *service* or a *product brand*?

Architecture is a discipline that offers buildings to clients. Since architecture addresses both product and service, therefore it relates to *brands* and *branding*.

As a *product brand*, the architectural firm differs from the industrial *product brand* in two very important aspects: its products (buildings) last longer and they affect not only their user but also the citizen [5].

As a *service brand* and similarly to other *service brands*, the architectural firm needs to clearly position itself in the market. It is pivotal for the *service brand* of architecture to clarify to both clients and others the exact services it is offering and the particularities of its contributions. Services are less tangible than products but architecture privilege in delivering a rather permanent and concrete product in the end of the services process. The service of a tailor or of haute couture provides a very efficient paradigm in the understanding of architectural services.

The *brand* of the architect or the firm is called *architectonic brand* and is the set of attributes related to the work of the architect or the firm.

The attributes emerge either from the firm’s architectural values by the owners, partners, employees or by the associations built by the various agents related to the firm like clients, users, collaborators, academics.

The *brand elements* for the architectural firm range from name, logo, and website to drawing style, photography or text style of the work, and others depending on the level of innovative promotion of the firm.

The process, including conscious or unconscious mechanisms like marketing, promotion, and others, of associating the architect’s work with the *brand* is defined as *architectonic branding*.

B. Problem Statement

While architects control the construction of their *identity* (*architectonic branding*), however they cannot control how this *identity* is perceived by their users (*architectonic brand*). Therefore, the feedback process between the firm and its environment cannot work. One of the main reasons that disconnect this loop is the lack of an objective tool that quantifies information and data of the nature of the *architectonic brand*.

C. Proposal

This research explores a direction to evaluate and measure the *architectonic brand* through the use of PICANICO, an interactive machine learning of architectural taste. PICANICO investigates the awareness, reputation and differentiation of the firm among other ones, as this is perceived by others. This work is an experimentation of the possibility to quantify preference and popularity.
D. Research Value

The outcome of this approach can provide an analysis and metric tool of the architectonic brand strength in different firms. Furthermore, it can help architectural firms to understand better how they are perceived by others in order to improve their brand image and associations.

Brands are not valuable only for the clients but also for the firm itself. Understanding the value of brands for different agents may affect the importance given to it.

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II. MATERIALS AND METHODS

The methodology is based on case studies in which the brands of different types of architectural firms are analyzed, measured and compared to each other. For the analysis, measurement and comparison, a two-fold process is followed: a. development of PICANICO tool to statistically measure the architectonic brand and b. interpretation of the results of the measurements.

A. Tool Description

This paper presents PICANICO, an interactive, machine learning tool that gradually “learns” user preferences by classifying their choices in a database of images of buildings. The concept to be learned by this machine is a building I like. PICANICO tries to guess the architectural taste of the user by proposing similar images based on positive samples ranked by the user.

1) Tagging

Each image is described as a vector of attributes which are all contained in a database. The values of these attributes are assigned through tags. For example, an image can be described by the following 5 attributes and each one can be assigned by one of the values in the brackets:

- GEOMETRY: {box, curve, fold, 0}
- USE OF: {technology, decoration, nature, 0}
- STRUCTURE: {complex, simple, 0}
- LIGHT: {color, shadow, 0}
- MATERIAL: {wood, concrete, stone, metal, glass, 0}
2) Process

This tool has been developed in tcl/tk language. The goal of the tool is the categorization of similar photos. The photos with all but two attributes the same, are called similar. This definition can change for photos having exactly the same or less than two attributes different.

To be more precise the process goes as follows: By pressing the button random show of the tool, the first image appears randomly to the user. After the appearance of the random image there are three options for the user to select: no, yes, so-so.

3) Yes

Every image is a vector of five attributes and has the name of file: att1 att2 att3 att4 att5. In case the user clicks the yes button the procedure goes as follows: The program reads one by one all the vectors of the file and checks which vectors have three of the five attributes the same (or those that have two different attributes). If it finds a similar vector, it keeps it in a list. Once the tool has checked all the vectors, it shows the list with all the selected vectors to the red box on the right as in Figure 12. Then it shows another similar image with a new list of the similar ones.

The random selection is happening through the initial list, which is the whole image database. However, if the initial list changes with the new one which is smaller, there will be eventually a very small group of exactly similar images. Until this point the program does not know how to learn, but through successive yeses, it acquires a small number of possibilities. This means it has rejected those that are not similar.

B. Tool Possibilities.

The significance of this methodology is based on the following qualities:
It gives statistical information about the preference, awareness of architectural firms based on the user input (initial sample and feedback).

It can be used within each case study to reveal coherence among the projects of one firm or among case studies so as to identify a cross-pattern of differentiation between competitors.

It can be used as a questionnaire for quantitative research.

It categorizes photos of similar content.

It is a consistent methodology where image (as tool) measures the image (as brand).

III. RESULTS AND DISCUSSION

There are two types of results expected to come out of this research: one has to do with the architectonic brand and the other one has to do with the PICANICO tool itself.

A. Brand or Not

Does every architectural firm constitute a brand? Is there a brand or not? How strong is one brand? How the brand of a firm relates to the other architectonic brands?

B. Tool Further Development

While developing PICANICO there are some issues that need to be taken under consideration. This may help towards the improvement of the tool, process and measurements. The improvement revolves around three major areas:

- Tagging
  - Towards a non-linear, bottom-up system
  - Need for a better description and organization of the attributes and associations

- Evaluation
  - Towards statistical information
  - Need for bigness: size of database and number of users

- Feedback
  - Towards a better description of users likes
  - Need of personalized profile

IV. CONCLUSION

PICANICO measures the brand, the perceived architectonic identity. Another level of exploration in this field relates to architectonic branding: the strategies that create the brand, the links between the associations and the object. The application of branding strategies to different types of architectural firms might have different effectiveness to their brand strength. Is there one best strategy to achieve architectonic branding?

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REFERENCES


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