

Digital Collections: Analysis of Collaborative Platforms

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Abstract. New information and communication technologies have changed the way people produce, remix and share data. The flow of ephemeral content, such as images, on social networks reveal the need to construct e analyze functional digital collections. The purpose of this work is to investigate the main standards established to build “good” digital collections and to apply the nine principles of NISO’s report A Framework of Guidance for Building Good Digital Collection (2007) in the analyses of three collaborative platforms of digital collections: “Pinterest”, “Arquigrafia” and “Street Art Rio”.

Keywords: Collections · Collaboration · Memory · Interface design · Usability

1 Introduction

The rise of technological development and ubiquitous computing has increased production, reproduction and dissemination of content, making it increasingly accessible. Image flow is an important part of communication in today’s digital environment, especially in social networks.

In this context, ephemerality is a relevant feature of images, as they get rapidly unavailable, except through search engines. It is relevant, then, to develop digital collections that preserve those images in order to keep their contribution to graphics memory.

The idea of an universal library with no limits of access has been envisioned since the library of Alexandria, in the Third Century BC. Nowadays, with internet’s potential of quickly disseminating and accumulating information, this idea does not seem so utopian [1].

The power of collaborative production can increase the growth and strength of digital collections. Users, especially from younger generations, have integrated digital technologies so completely into their lives, that they have been assuming a role as creators and collaborators [2]. The internet transformed users from passive receptors to active agents, free to choose what content they want to consume, how they are going to interact with it, and the space-time where that relation is going to happen.

Collaborative production networks do not work based on exchange value of products, what makes people more interested in investing their time contributing with

the creation of content such as entries on *Wikipedia* and boards on *Pinterest*. Some users make that because it is fun; others, to give back knowledge to society; and others, in order to be recognized as part of a global initiative [3]. The creation of collaborative networks contributes to the establishment of new ethical, technical and management codes. This work aims to contribute to the study of digital collections management, particularly collaborative platforms, by summarizing standards to create those platforms, and by analyzing three collections with different scopes: international, national and local.

2 Digital Collections

Digital collections are groups of objects that are selected, managed—in visual, and textual terms—to simplify their discovery, access and meaning to the user [1]. The digital environment provides innovative ways of dealing with data and consequently new ways of producing, reproducing and disseminating knowledge and information.

The emerging community that works with digital collections is systematizing standards of good practices since the mid-1990s, when the need for developing national archives appeared. First, libraries have grown and, with them, the collection of digital images and born-digital content. Since the early 2000s, the area has been strengthened by museums that are engaged in preserving digital art: “These distinct domains have been coming together with the common objective of preserving digital content for use by current and future users”. [1]

For this essay, the most suitable guideline for the analysis is *A Framework of Guidance for Building Good Digital Collections* (2007), because it is about practical principles of collection management, being better suited to an investigation about design, usability and interaction aspects. The principles of this framework will be presented as follows.

3 Methodology

For this research, the first step was to define criteria for the selection of digital collections that should be relevant to the analysis, which are: (1) being available on the internet with free access; (2) belonging to a collaborative platform; and (3) being from different structural realities to provide comparisons.

The second step was the selection of websites to be analyzed. The chosen platforms were (a) *Pinterest*, an international collection with very large content coverage; (b) *Arquigrafia*, an academic initiative operating within national scope (Brazil) with architecture-related content; and (c) *Street Art Rio*, an independent regional initiative (Rio de Janeiro) with specific content, covering only local urban art.

The parameters for the analysis of each website were determined based on the third version of *A Framework of Guidance for Building Good Digital Collections* that

defines international principles for what would be a good digital collection. By good, the report means “useful and relevant collections that served the needs of one or more communities of users” in relation to “usability, accessibility and fitness for use”. Besides the context of use, new issues became relevant in the matured digital environment, such as “reuse, repackaging and repurpose” [2].

The guides are not definitive because “every digital collection-building initiative is unique, with its own users, goals and needs” [2]. But some standards work as analytical tools to assess the existing collections and to guide the development of new ones. The nine principles presented by NISO are as follows:

1. Collection policy

The purpose of the organization behind the collection must be clear and explicit for the user. Even in cases where the users are stimulated to deposit their own intellectual properties, there are benefits from a clear, but fairly flexible, policy that will help to regulate the judgment of content relevance.

2. Description by metadata

The detailed description of the collected object must be available, to register and to access. It helps the users to be aware of the context; to find the collection on the digital environment; to understand and reframe the content; and to search specific objects among others.

3. Active content management

Collections must be curated and actively managed during its entire lifecycle, from the moment that the object is collected until its obsolescence. In collaborative platforms this area is particularly a challenge because the interface must persuade the user to register and update their own information in the most complete way.

4. Accessibility

Contents of a digital collection must be available with as little as possible usability impediments. In this area, three attributes are important: availability (through the web using known technologies); usability (learning time and easy use of the available functionalities) and accessibility (work in different browsers, operating systems and screen resolutions; different languages; and adaptability for people with disabilities).

5. Intellectual property rights

Collections must present the copyright policy over the rights of the original owner of source material, the permission to digitize and make the content available; and the permission of subsequent use of the materials. If the materials have no restrictions on use, such freedom must be clear and explicit in the website.

6. Analytics data

Platforms must have mechanisms to measure its use. The criteria and evaluation method will differ according to the objectives of the collection and to the answers for the questions: “who is using what, how and why?”

7. **Interoperability**

Collections must be designed to support interoperability, which means that they must have the ability to adapt their metadata to work in different devices, systems and applications.

8. **Integration with user’s workflow**

Websites must be constructed following the pattern of how users deal with that kind of information, making the interaction more natural, which makes it easier for them to contribute to the platform.

9. **Sustainability**

Digital collections must be sustainable over time which requires organizational, financial and technical perspective.

To conclude, the results were confronted to see the similarities and differences between the three different platforms.

4 Analysis

Pinterest

<https://www.pinterest.com/>

Pinterest is an online tool to make digital collections that help users organize, classify and share images they find on the internet with the index resource. In this case, the collection embraces a large number of subjects with boards personalized by the users. (Fig. 1).

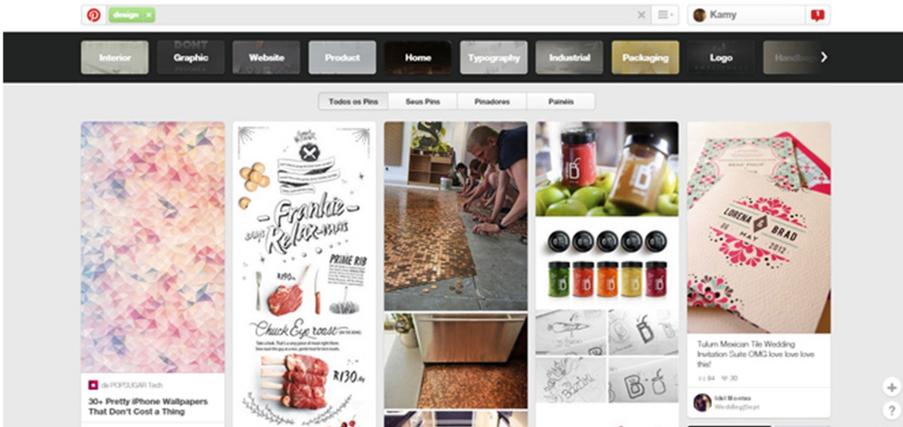


Fig. 1. Pinterest homepage when user is logged in. (Source: pinterest.com)

Principle	Analysis
Collection policy	Homepage, if user is logged in: pins from users/boards/keywords followed by the user.
	Info about the company: accessed through the Help section or an “about link” hidden in the search menu; clear information, illustrated by images and videos.
	Privacy Policy page: describes what kind of information the website can collect and how it can be used.
Description by metadata	All content can be identified with metadata: name of the board, image description and source. When you search for a tag, the website suggests other tags related to that content in order to maximize the experience.
Active content management	The content registered on the website is constantly managed by other users that can re-pin it with different metadata, like it and share it.
Accessibility	The website is available in thirty different languages.
	To access the platform, users must create an account with their e-mail or log in with their Facebook account.
	The interface is responsive to different screen resolutions and operating systems.
Principle	Analysis
Intellectual property rights	Copyright policy in accordance with the <i>Digital Millennium Copyright Act</i> of 1998.
	“You grant Pinterest and its users a non-exclusive, royalty-free, transferable, sub licensable, worldwide license to use, store, display, reproduce, re-pin, modify, create derivative works, perform, and distribute your User Content on Pinterest solely for the purposes of operating, developing, providing, and using the Pinterest Products. Nothing in these Terms shall restrict other legal rights Pinterest may have to User Content, for example under other licenses. We reserve the right to remove or modify User Content for any reason; including User Content that we believe violates these Terms or our policies.” [www.pinterest.com]
Analytics data	Analytics data about each pin: number of re-pins, number of “likes”, username of its first “pinner”.
	Data about users: number of pins, boards, likes, followers and following.
Interoperability	Adaptable for different devices: mobile, tablets, and other gadgets with <i>IOS</i> and <i>Android</i> system.
Integrate with user’s workflow	Includes widgets that make the experience more fluid, such as a “pin it” button users can install on their browsers to facilitate pinning, and widget for developers to add a “Pin it” button to every image of a website (Fig. 2).
Sustainability	The company behind <i>Pinterest</i> , launched in 2008, has a big financial, administrative and executive structure.

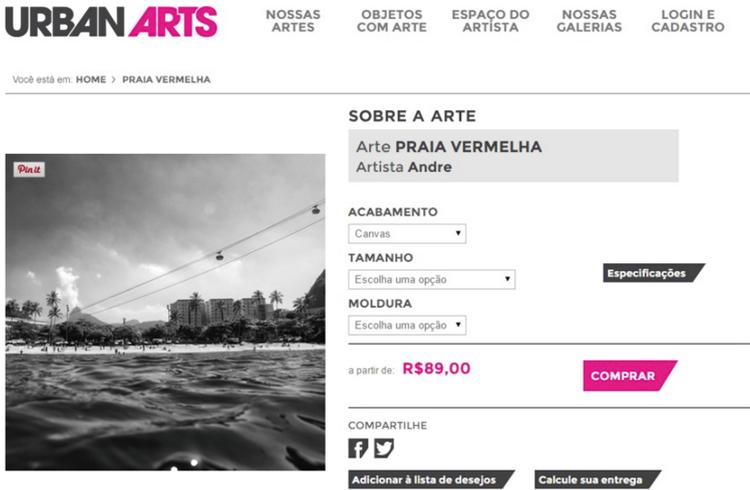


Fig. 2. “Pin it button” added into the image from another website. (Source: urbanarts.com.br)

Arquigrafia

<http://www.arquigrafia.org.br/>

Arquigrafia is a digital collaborative platform, launched in 2009 by Universidade de São Paulo (USP), with the purpose of contributing with the memory of Brazilian architecture by registering constructions and their modifications over time. The database is formed by the users, who are responsible to feed it with photographs and their cataloging information. (Fig. 3).



Fig. 3. Landing page of Arquigrafia. (Source: arquigrafia.org.br)

Principle	Analysis
Collection policy	No explicit and defined policy available. Website described as being “perpetual beta”, that is, in constant adaptation to the academic researches related to that.
	Information about who manages the platform and the copyright policy summarized in two sections: The project (“O projeto”) and Help (“Ajuda”).
Description by metadata	Images registered with metadata: name of the construction, description, image authorship, upload date, date the photo was taken, building authorship, date of construction, address, geolocation, evaluation and related tags.
	Information about users: name, profile photography, education data, and contact.
Active content management	Only users can edit their uploaded content, there is no constant management by other users or administrators.
Accessibility	Available in Portuguese only.
	Not adaptable to different operating systems or screen resolutions, neither to people with disabilities.
Intellectual property rights	Creative Commons 3.0 license: content can be shared and adapted, even for commercial use, provided that is given the “appropriate credit, used a link to the license and indicate the changes if were made”. [4]
Analytics data	Data about each image: number of visualizations, evaluations and comments.
	An automatic counter shows the total number of images uploaded to the platform.
Interoperability	Not adaptable for mobile devices yet (there is a plan to integrate the platform to Android/Google system so users will be able to capture, upload and georeference in real time).
Integrate with user’s workflow	Because of the lack of interoperability the website is not deeply integrated with the user’s workflow. To upload new information, users must access the platform directly and log in; there are no resources to expedite the access.
Sustainability	<i>Arquigrafia</i> is based in a university and is funded by public initiatives that allow them to hire private companies, for services such as code development, design and communications.

Street Art Rio

<http://streetartrio.com.br/>

Street Art Rio is an independent initiative, launched in 2014, with the purpose of mapping the work of local urban artists through a collaborative action. It is a movement to identify authorship, and catalogue places of urban art manifestations in Rio de Janeiro. (Fig. 4).

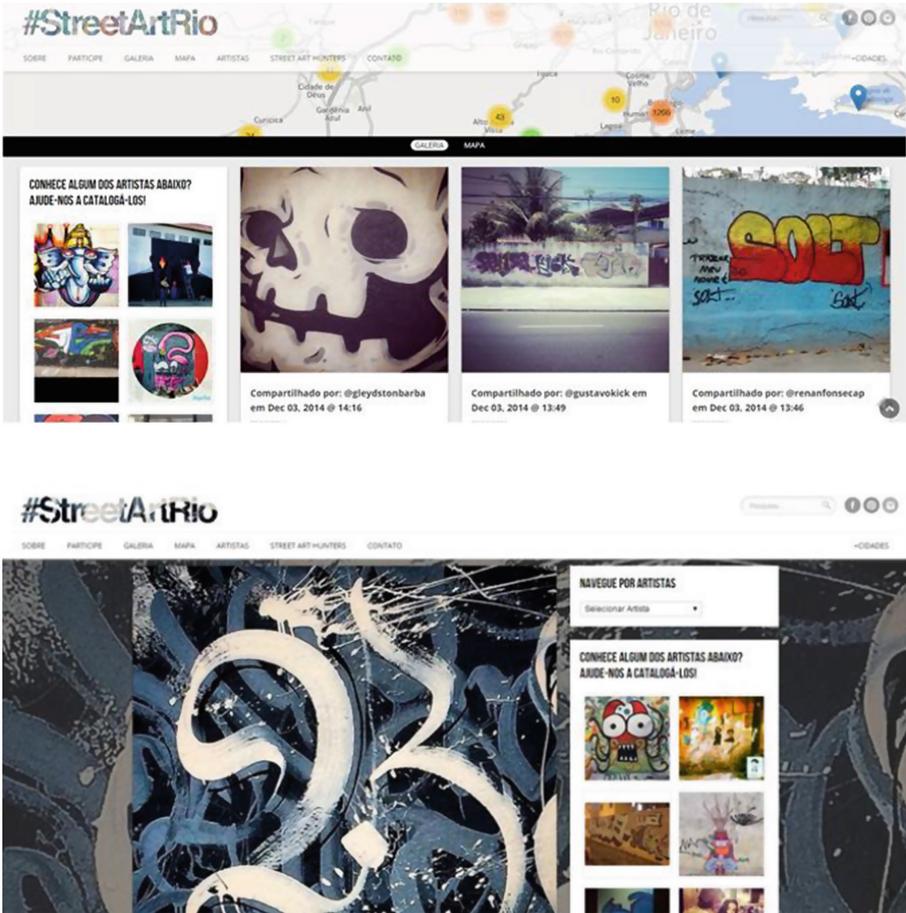


Fig. 4. Homepage and a work internal page of Street Art Rio. (Source: streetartrio.com.br)

Principle	Analysis
Collection policy	Collection purpose and movement goals are explicit on the website. The collection is used as a commercial tool by urban artists to propagate their work, as a collection by urban arts admirers, and as a hiring tool by companies that want to hire artists work.
Description by metadata	Image upload through metadata: users post an image on <i>Instagram</i> with the hashtag #StreetArtRio and indicate the precise location of it, then the image is automatically traceable by the platform administrators and can be added to the collection if it is relevant. Data available of each image: username of the user who posted, date and time that the photography was captured and published, filter

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Principle	Analysis
	used on that image, the artist and his related work, and a map with the geolocation.
Active content management	The content is constantly managed and curated (administrators must approve the information before it is published on the website).
Accessibility	Available in Portuguese only.
Intellectual property rights	There is no reference of intellectual property rights on the website.
Analytics data	Map with the number of tagged photos by location.
	Data for each image: number of views, likes and comments.
	Integration with analytics data from sharing on related social networks <i>Twitter</i> , <i>Facebook</i> , <i>Google +</i> , <i>StumbleUpon</i> and <i>Pinterest</i> .
Interoperability	The interface is responsive to different devices.
Integrate with user's workflow	The platform is very integrated with the user's workflow because the process of uploading an image is through <i>Instagram</i> , a mobile application that most of the users already have the habit to operate frequently.
Sustainability	Because this is an independent initiative, with no big company behind it, it is more difficult to guarantee the maintenance of the collection.

Comparing the three platforms, we can observe that *Pinterest* is the most developed one because it works with a big financial and organizational structure behind the collection. This support allows the website to be more adaptable to users' needs, to meet design principles and to provide a more complete experience integrated with different devices and systems. *Arquigrafia* has a very relevant content to the specific public of architecture because it is directly related to one of the most important Brazilian universities. Nevertheless, this platform is the most limited in terms of development, because of its dependence on different public initiatives, having to deal with bureaucracy, what considerably slows the process of applying any change to the website. *Street Art Rio* has functional features to meet users' needs, is integrated with daily use apps, and has an intuitive interface. As an independent initiative, the platform uses more simple development resources, but they are very adapted to its target audience.

5 Conclusion

In the digital environment, the reach of the content is massive, and, excluding the language and technological limitations, the capacity of producing and sharing information is growing exponentially. In this context, new dynamics of storage arise to preserve the digital data.

Observing the new dynamics through the three analyzed platforms, we conclude that the main obstacles to free development are the regulatory statements behind the

companies that run the collections. Private platforms are usually concerned not only with quality of design, but also with adaptability to user needs. *Pinterest*, being managed by a big company, includes several features developed especially for its global target. On the other hand, *Street Art Rio*, being an independent initiative, uses more integrated standard resources, allowing a flexible and optimized expansion at a low cost. Public platforms, such as *Arquigrafia*, may have broad access to financial resources, but must deal with academic and noncommercial aspects, which make them slower and less flexible, especially on usability and visual elements.

Furthermore, on the three cases, for being digital platforms, the collections are influenced by the technological convergence that helps the reduction of communicational limits. This aspect makes the development of a common language possible, allowing groups to connect, regardless of if it is international, national or local. It is important to create mechanisms to collect, catalogue and preserve that shared information, especially the graphic materials, in order to build a collective memory of digital-born content. Standards related to digital collections can be the basis to establishing guidelines for the analysis of usability, interactivity and design aspects.

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