# SELECTIVE WASTE COLLECTION AND E-GOVERNMENT: A REFLECTION ON THE INFORMATION ARCHITECTURE OF COMLURB'S WEBSITE SELECTIVE WASTE COLLECTION AREA

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## 1    Context

The increase in the purchasing power of the population and the speed of technological advances make consumption of new products grows considerably. As a result, a larger amount of waste is being generated, which leads to a question: how to dispose objects of different materials? In this context arises the selective waste collection, a practice in order to separate fermentable organic materials and recyclable matters, giving them the right destination. In the city of Rio de Janeiro, Comlurb is the municipal agency that provides urban cleaning services, in which the selective waste collection is included. Though there is an area on the company's official website with this topic, it is observed that many residents and condominiums are unaware of the service or have very limited knowledge. This research aims to improve the information architecture of the selective waste collection area in the Comlurb's website, in order to make these informations more findable and easier for the citizens. Throughout this paper, research techniques were used, always involving users and placing them as a fundamental and central part of the design process for an organizational structure, following the concept of User-Centered Design. The result was a huge volume of deep information and the discovery that although people sort the content in many different ways, they have conceptual similarities between them. This allowed the creation of 8 groups by subject, through an ambiguous content organization scheme, which is helpful when you don't know very well what or where exactly to search for desired information.

## 2    Method

In this research, we applied two techniques with user-centered design approach, considering the context, content and users: online questionnaire and card sorting.

First, an online questionnaire with 20 questions (6 open-ended questions, 12 closed-ended questions and 2 contingency questions) was sent through online forums, specialized websites and blogs as SíndicoNet[1] and Condomínios Verdes[2], social networks and mail lists. The target group was residents and building managers of buildings with over 3 floors in Rio de Janeiro city. The goal was identify people that have already accessed Comlurb's website and/or have interest on selective waste collection subject. The questionnaire was online for 15 days and followed a structure with more generic questions at the beginning and then going to more specific questions. This strategy aimed to avoid participants feeling uncomfortable with a more personal question. The questions were divided in 3 groups: Habits and general knowledge about the waste disposal (questions 1 to 6), Relationship with Comlurb's services and website (questions 7 to 12) and Personal Questions (questions 13 to 20).

After this data collection, individuals who matched 2 types of behavior, called real users and potential users, were recruited for remote, individual and open card sorting session composed of 30 cards with items related to the topic. The goal was explore selective waste collection website area and discover how people group specific content about this subject, how many different groups are created and which organizational schemes are most used. In total 16 people participated. Participants who were able to use the camera were asked to turn it on and use services as Skype or Google Hangout for the sessions. This was a way to allow them share their screen so the researcher could see their interaction. For those who were unable to use the camera or do not have such programs on computer, sessions were monitored by phone with the participants voicing their actions. In both cases, the think aloud technique was used. At the end of each session, a debrief through a post questionnaire was made to get more informations about the formed groups, the content used and the technique applied.

## 3    Results

The data collected with questionnaire revealed that most respondents have awareness of separating the organic and recyclable waste in their apartments. However, they do not always live in buildings that do the same. In general, participants considered the selective waste collection an important service provided by Comlurb, but they feel that the way the government treats the subject is insufficient or even, for some, nonexistent. Regarding Comlurb's website, only 25% of participants have already accessed and most of these separate the waste inside their residences. The main complaints about the website were the difficulties to find the informations they were looking for. Participants who did not access the website said that they do not have interest or feel no necessity for using it.

It was observed between respondents some kinds of behavior. Two of them were more relevant to this research:

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[1] http://www.sindiconet.com.br
[2] http://www.condominiosverdes.com.br

a) People that already accessed Comlurb's website for any other reason, regardless sorting their waste or not;
b) People that never accessed Comlurb's website and sort the waste in their homes, but the condominium doesn't do the same;

Individuals of these groups were selected for the card sorting sessions and created 92 different classifications that were standardized by the researcher in 8 groups according to the concept conveyed. Although there was a large amount of different labels for the categories, most users preferred to group the content by subject. This is an ambiguous form of organization, useful when people do not really know what or where exactly search for the desired information. The names of categories were standardized based on the labels used for the groups, the cards associated with these groups and the frequency with which a specific word or term appeared.

## 4    Conclusions

This work concludes that organize the content related to selective waste collection is not an easy task, even for individuals who separate the waste in their homes and live in buildings that do the same. In general there were many different labels and the concept used in many groups presented little differences. Some could even be inserted into others because of this similarity of concepts. It's possible to think that there are many doubts between people about selective waste collection service and practice probably because of a lack of previous information. An organization schema was suggested based on the results of card sorting, reflecting user's thoughts. The next step will be validate this structure with a closed card sorting in order to find out if such groups are in fact consistent with the mental model of most users.

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