Organization of User-Generated Information in Image Collections and Impact of Rhetorical Mechanisms

Ina-Maria Jansson

Uppsala University, Department of ALM, Thunbergsvägen 3H, 752 38 Uppsala,
<ina-maria.jansson@abm.uu.se>

Ina-Maria Jansson is a doctoral student at the Department of ALM at Uppsala University, Sweden. She has a master's degree in library and information science. Before becoming a doctoral student, she worked as a library assistant at Uppsala University Library and as an archivist at Västerås City Archives. Her research interests are crowdsourcing in the cultural heritage domain, knowledge organization and digital heritage. In her thesis, she studies the impact of institutional information structures on crowdsourcing.

Abstract: To collect information with crowdsourcing is a popular method for cultural heritage institutions. User comments in free-text format are especially propagated as empowering users and their influence on cultural heritage. However, in adjusting user-created information to suit the collection management system in use, rhetorical mechanisms of the system have impact on the moderation of the information. This article investigates how rhetorical mechanisms of information systems influence user-generated information and users' possibilities of impacting heritage collections. The results are based on twelve interviews with professionals working with administration of user-comments in cultural-heritage image collections, covering six different systems. Several rhetorical mechanisms of the systems were identified based on professionals' statements about how systems affected decisions made in the moderation process. This article shows that the design of collection management systems can cause user-generated information to be discriminated and lead to decreased data reliability, searchability, and even loss of crowdsourced data. In particular, personal memories and perspectives are among the types of information that are most negatively affected. To conclude, collecting user comments is a problematic method to use in adding multiple perspectives to cultural heritage collections and demands carefully designed collection management systems in order to avoid distortion of user-created information.

1.0 Introduction

"Write a comment," "Leave more information" or "If you want to tell anything, you have the possibility of writing a comment under the description of each image." These are requests you might encounter when browsing an online image collection of a museum or an archive. For a person visiting the collection, this can be perceived as an invitation to add childhood memories, correct erroneous information about the image, share expert information about cars and whatnot, or maybe help the museum to identify that person in the image that you recognize as your old grandma. You write your comment, add your name and e-mail address, press the "send" button, and suddenly, you have made your mark on the collections. Or at least, that is how it might appear. The way your contribution is received and valued will have an impact on how, or even if, it is going to

be included in the collections. That organizational systems have a mediating effect on the information that is organized within the systems is a view held by many in the field (see for example Bowker and Star 1999; Beghtol 2001). As argued by MacNeil, regarding finding aids for cultural heritage collections, such as collection management systems (CMSs) as generic forms belonging to a genre, is to assign them a rhetorical influence on how the collections they organize are communicated and perceived by an audience (2012). Feinberg has explained (2007; 2009a; 2010; 2011; 2012) how catalogue structures and information systems can be seen as a genre of their own, and how they can influence their content through different rhetorical mechanisms. For example, they may form logical arguments, appeal to the ethos of their audience or structure information through an authorial voice. These rhetorical mechanisms shape all information added to the systems, which

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also includes non-professionally created data, such as user comments. It is against this background that this study aims to find out what happens to user-generated information when it is absorbed in CMSs by investigating the organization process of user-generated information contributed via crowdsourcing to heritage collections. It is done by applying a theoretical framework, stating that information systems shape their content with rhetorical mechanisms. Through interviews of professional administrators of crowdsourced data, mechanisms in six different CMSs will lay ground for the results of this article. More specified, the research questions for this present study are:

– How is user-generated information incorporated in existing collection content?
– How is user-generated information affected by rhetorical mechanisms in information systems?

The incorporation process is studied through interviews of Swedish professionals, working with CMSs in use at Swedish cultural heritage institutions. However, this is not seen as a limitation for applying the results on systems and crowdsourcing projects outside of Sweden.

In the literature discussing user participation and cultural heritage, user participation and crowdsourcing are sometimes talked about interchangeably although they have slightly different meanings. In this article, crowdsourcing refers to an online process managed by an institution, referring to a certain task and leveraging the engagement of an online community. In line with Brabham, crowdsourcing refers to a top-down structure and a relationship between user and organization (2012). User participation, on the other hand, is in this article used as a broader term, including offline activity and projects without a well-defined task.

Although crowdsourcing appears in many contexts, image collections will serve as a framework for studying crowdsourcing in this article. To a higher extent than textual material, images invite people to engage in multifaceted discussions, storytelling, and sharing of associations and opinions and are, therefore, especially appropriate as a backdrop for studies of user participation. Focusing on user contributions made to image collections also facilitated collection of research material because the engaging effect of images also renders image collections more common as crowdsourcing projects.

2.0 Background

User participation, as a way to collect information, has become increasingly common in the last decade (Simon 2010). It has been argued (Van Hooland 2006; Krause and Yakel 2007; Peccatte 2011; Zinkham and Springer 2011;

Gorzalski 2013; Farley 2014; Gregory 2015) that cultural heritage collections and finding aids, such as museum catalogues, can be given extended value through user annotations. User annotations can also provide new context and authentic voice (Yakel 2011) and make cultural heritage collections more inclusive of various perspectives (Anderson and Allen 2009; Light and Hyry 2002). However, the importance of academic studies on how these user annotations are moderated and incorporated into current classification structures has been pointed out by, for example, Van Hooland (2006) and MacNeil (2012), although such calls have garnered little attention. Indeed, the inclusion of user annotations and comments involves moderation such as selection, organization, and editing, all processes where the rhetorical mechanisms discussed by Feinberg have an impact on the final result.

Also to be kept in mind is that changed ways in information-collection practices also call for changed ways in organization of information. Lauruhn and Groth point out information from non-professional contributors as a main source of change in the design of knowledge organization systems (2016). Despite their observation, the same collection-management systems that are used for storing professionally created data are also often employed for crowdsourced data, without any adjustments for information created by non-professionals. Consequently, user comments have no given place in most information-system structures (Yakel 2011), despite the fact that a deliberate structure for user-created information is pointed out (Ridge 2013; Owens 2014) as necessary for building a well-functioning crowdsourcing project.

As already been pointed out, and according to, for example, Feinberg, no information system is neutral but rather imposes a view on its information content (2007). The rhetorical mechanisms constructing this specific view also construct the conditions for valuating and documenting user-generated information. For example, in judicial documents, authenticity and reliability both rest on documentation of specific elements, which are constructed with rhetorical mechanisms and evaluated with diplomatics. How diplomatics can be applied to evaluate documentation quality of non-professionally created information will be explained and applied further on in this article.

Well-known institutions like the Library of Congress, the National Library of New Zealand, and the National Archives of the Netherlands, are just some examples of institutions that collect photographic metadata via crowdsourcing (Zinkham and Springer 2011; Liew 2014; Van Hooland 2006). The widespread combination of crowdsourcing and image collections indicates that images are especially suitable for inspiring users to share information, memories, and their own approaches to images. Based on studies of user comments provided to the image

database of the National Archives of the Netherlands, Seth van Hooland classified user comments provided to image collections in six categories (2006):

– correctional (corrections of erroneous factual data as date or name);
– additional (addition of new data to complete the information about the image);
– memorial (sharing personal histories or memories);
– judgemental (positive or negative judgements about the image or about specific circumstances displayed);
– critical (critique of the image being displayed or falsely rendered, like negatives being reversed by mistake); and,
– communicative (questions to users or staff or replies to earlier comments).

Van Hooland's classification illustrates the variety of user-generated information and in what way users can add value to image collections. A main body of literature on crowdsourcing and user participation in the heritage sector (Cook 2001, 15; Oomen and Aroyo 2011; Phillips 2014) has planted the image of crowdsourcing as a useful method for heritage institutions to include diversity, knowledge, and experiences of their users and thereby democratize their repositories. From the user perspective, participation is often framed with a discourse of empowerment, depicted as being the key to ordinary people's involvement in domains that previously were closed to them (Huvila 2015, 372). The wording "closed to them" in this case refers to archival collections in the extensive debate calling into question the neutrality of archivists and other heritage professionals. Based on their prerogative of constructing and describing collections, archivists are said to create a biased notion of the past by re-enacting existing established power relationships in society. This bias is reflected in the selection, appraisal and mediation of records but maybe foremost in the absence of archival records concerning certain people or phenomena, symbolizing the absence of social or ethical groups in collections of cultural heritage (Blouin 1999; Cook 2007). Dewitt pointed out (2009) that the absence of elements in textual generic forms (in this article these forms are represented by CMSs) is as much a statement as the presence of them, both shaping the message of the final product.

It is against this background that the involvement of users to claim the ground of their own heritage is perceived as a possible remedy to a bias in the power structures of heritage collections. Free-text comments are especially advocated as an effective tool to include narratives and understanding of collections from multiple perspectives (Light and Hyry 2002; Anderson and Allen 2009). However, few reflections are made on how user comments are received and incorporated into the existent collections or what implications the information structure of collection catalogues have on the data they host. In previous research describing and discussing various crowdsourcing initiatives, the main concerns of receiving user-generated information seems foremost to concern validation of user-generated information and operability between systems used to collect comments and systems used to store them. Only some texts touch on the importance of a sufficient information structure in order to be able to incorporate user-generated information.

Validation of user-generated information was discussed as a potential problem from the very beginning of heritage institutions' use of crowdsourcing. For example, difficulties in judging the credibility of user comments that conflicted with each other or with original information about the collections was pointed out as a problem by Oomen and Aroyo (2011). One possible method of assessing data quality or relevance of information is the application of peer control of user contributions, where participants themselves are encouraged to validate information in online discussions (Peccatte 2011). Such a solution, on the other hand, requires a separate field dedicated to comments and that all comments be published and accessible online. Furthermore, if that is the only method used for evaluation, without any mediating hands from professionals, this commentary infrastructure also has to be included or satisfyingly incorporated in the catalogue structure. Another solution is to allow for a heritage professional to select and edit information from comments and incorporate them in the collection catalogue (Peccatte 2011). That method might be preferred if comments are only submitted hidden from other participants and only accessible to administrating professionals. The methods demand either careful information design or professional activity and surveillance; in any case, incorporation of user-generated information is adjusted to the existent system structure.

Often, external applications such as Tumblr (Sherratt 2011) or Flickr (Zinkham and Springer 2011; Peccatte 2011) are used for crowdsourcing initiatives due to their already large user communities and technical averages. Although this might seem a clever idea at first, interoperability between such an external interface and a CMS could pose other problems than if a specially designed crowdsourcing tool that is adjusted to, or part of the CMS, were used. For example, if there is no integration between the crowdsourcing tool and the CMS, CMS content may not be allowed to be mirrored online. Thus, in order to include user-generated information in the CMS and in addition update the information online, the whole collection has to be exported online all over again, merely to update one resource. At the same time, user comments that are not incorporated in the CMS at the point of up-

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date, can then be erased. One example of deficits in communication between an internal system for image metadata and an external application is the Flickr project *PhotosNormandie*, where the community discussion was lost when captions were updated in the application. This resulted in the loss of both important information rendered by the discussion and validation of this information (Peccatte 2011).

References for crowdsourced data, such as provenance, are identified as crucial to ensuring data quality when assimilated into cultural heritage collections (Oomen and Aroyo 2011). Provenance supports the transparency of information and is essential to protecting information authenticity. "Transparency and attribution related to the narrative activity associated with the materials will be critical for preserving the authenticity of the materials themselves versus subsequent additions about them" (Anderson and Allen 2009, 395). Although there is an awareness of the importance of provenance, it can still be a challenge to describe provenance. An example is the problem with connecting a user's corrective comment to the right data post in a case where the link for submitting corrections is general for the whole collection and not associated with any particular post (Sherratt 2011).

3.0 Rhetorical mechanisms and diplomatics as a theoretical framework

The theoretical approach of this study is based on the view of information systems as forms of writing in their own genre, thus shaping the incorporation of user-generated information in accordance to the genre (Feinberg 2009b; Andersen 2015). By studying the assimilation process of user comments, an understanding of the forming process of user-generated information will be acquired. In addition, a framework building on diplomatic principles is used in order to further discuss how rhetorical mechanisms influence information. This complements genre-adapted thinking with a more idealistic approach with outlined requirements for accomplishing information authenticity, as suggested by Foscarini (2012).

Although information systems are designed by multiple creators and not written by a single actor as most textual documents are, systems can be thought of as documents, able to adapt to a genre to communicate a message (Feinberg 2009b; 2015). This message is expressed through rhetorical mechanisms and manifested in system design, selection, arrangement, description, and provision of access to information (Feinberg 2009b). In other words, through their structure and design elements, information systems express a specific view on their content, which also shapes new material that is incorporated in the system. In the organization process of user-

generated information contributed to the CMSs studied in this article, rhetorical mechanisms influence the final results of the crowdsourcing activity.

Feinberg has explored types of rhetorical mechanisms of information systems in a series of articles, covering genre adaptation (2009b), ethos (2009a; 2012), logic arguments (2010) and authorial voice (2011). These are the mechanisms that will be investigated in the present article, in respect to how they influence organization of user-generated data in information systems.

Looking closer on each type of mechanism, starting with logical rhetorical arguments, they are formed in at least two ways: by structure, expressed in the categories and category relations included in the system, or by the resources reflected in the system, consisting of the objects the system holds and the categories they are assigned (Feinberg 2010). Logical arguments, together with other decisions and elements of a system, form both the ethos and the authorial context of that system or information structure. Both concepts are synthetic, which means that both the ethos and the authorial voice of systems are aggregated through administrative decisions and structural elements which all together shape a general impression of the system.

Ethos is in this article connected to believability of systems. Even though ethos can be used in information systems to appeal to common values of an audience, assuring them of your goodwill on their behalf, the audience does not have to agree with the message in order for it to be a manifestation of ethos (Feinberg 2009a). They only have to find it reasonable and understandable. For example, the use for ethos in CMSs may be to convince the audience of its genuine, institutional quality. Users do not have to be convinced of the truth of all information the system conveys, but the ethos should at least impose believability in order for users to take the information seriously and find it worth considering.

Just like ethos, authorial voice is synthesized by several elements of the system that together form the unique "personality" of a system similar to a narrative voice in some literature genres. System-specific concepts, expressions, or biases are evidence of authorial voice. The voice may, but does not have to be, consciously constructed. It is the perceived experience of the user that defines authorial voice (Feinberg 2011).

While Feinberg herself primarily focuses on the functionality of rhetorical mechanisms in the design of new systems, she also argues that they can be used for critical inquiry of system elements as a technique for system evaluation. She describes it with an analogy of how different aspects of a building can be evaluated, for example by its structural integrity or its architecture (2011). However, not only to evaluate the system but to enable a discussion

of the impact the system has on user-generated information, information quality needs to be evaluated somehow. In the present article, diplomatic principles are applied to evaluate and discuss how incorporation in the CMS affects information quality of user-generated information. Diplomatics is thus used to complement the rhetorical genre perspective. Diplomatics can evaluate the quality, reliability, and authenticity of information, while genre theory can provide the wider discussion base to explain why these diplomatic properties of a document are missing or divergent (Foscarini 2012). The birth of diplomatic principles is traditionally ascribed to seventeenth-century France, where it provided methods of assessing the authenticity, reliability and information quality of judicial documents. By studying practices of document creation and elements as signatures, seals, or structuration of a document, diplomatics can be utilized to determine whether a document is authentic or not. In a similar way, quality of user-generated information added to CMSs can be evaluated in respect to documented provenance, date of creation, and estimated correctness or believability. From the very start of heritage institutions' use of crowdsourcing, registration of the provenance of user-generated data has been a concern (Oomen and Aroyo 2011). Provenance, together with other contextual metadata, is central to establishing reliability and authenticity of information (Foscarini 2012). Likewise, Duranti points to the completeness of a document as one of the foundations for the reliability of its information. Completeness is reached (Duranti 2002, 26) if "the record possesses all the elements of intellectual form necessary for it to be capable of generating consequences of reaching the purpose for which it is issued." Such elements are date of creation, name of creator, the action the record relates to, and the archival bond to other documents (Duranti 2002, 26). In the present study, the concept of records refers to user comments, and "the purpose for which it is issued" refers to the purpose of complementing information about items in the collections.

4.0 Method and material

The research design of the project was explorative and used a qualitative, interpretive method to answer the research questions. The internalization of user comments and the effect of the CMS on that process was studied by way of twelve semi-structured interviews with fifteen employees working with administration in the CMS in use at their institution. The interview questions focused on the reception of contributions and collection systems structure but also covered topics such as work activities. The interviews were carried out during the spring of 2016 and lasted between fifty and one hundred minutes.

Nine interviews were made by telephone, three face-to-face with the informant. Three of the interviews were conducted with two persons at the same time, in cases where responsibility for image and comment administration was shared.

All user-generated information that was submitted to the CMSs had to be collected by methods that conformed with the definition of crowdsourcing stated earlier in this article. Therefore, systems (and informants) were selected on the basis of how institutions used their CMS to encourage user activity. In addition, the institutions should have enough experience of crowdsourcing in order for their employees to be able to answer questions about different variations of user comments. Thus, the selection criteria for studying a system were that the institution that used it should provide:

a) open web access to objects in their image collections, including metadata;
b) a call for visitors of the online image collection to contribute with information to the published images;
c) Web functionality such as a commentary field, a form or a link to a form where visitors can add this information online, in connection to the archive website; and,
d) Substantial experience of user contributions, added via the functionality described in b.

Although several Swedish institutions fulfilled these criteria, this article does not claim to contain all institutions that were qualified to be included in the study. Moreover, some CMSs were more common than others, wherefore there were some preponderance of the most common CMS in the study.

4.1 Case systems

All in all, six different collection systems for images were included in the study: Collective Access, Sofie, Primus, Svenskt kommunalt bildarkiv (SKOBA), Cumulus and Windows File Explorer. They were all in use at Swedish cultural heritage institutions. They collected, presented, and stored user comments differently, however all systems had the purpose to manage images and metadata. Photographs in the range from the nineteenth century to today were in the majority, but other types of images like drawings, prints, or building plans were also included.

Invitations for users to participate could be found either in connection to each image or as a general invitation on the main-menu page of the online collection. Only one of the studied websites makes a remark on their website that they will also publish comments that contradict each other, that they do not have any possibil-

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ity for checking the facts of user-generated information, and that they will administrate comments as soon as possible. Otherwise, the institutions never address the question of the moderation process for comments.

4.2 Institutions and informants

Image collections can be found in museums, archives, and libraries, but at the time of the collection of research data, no library institution was found that fulfilled the selection criteria. Consequently, museums and archives are included in the study but no library.

In total, twelve institutions were included in the study; eight museums and four archives (Table 1). Institutions varied greatly in size and span of their agency, from small, municipality-based organizations to national agencies. Some institutions were specialized, with collections focused on one main domain, while others had more diverse collections but only with connection to their local city or region. One institution was self-sustaining, while two depended partly on public subsidies. The rest were publicly financed. Respectively, the image-collection websites where the crowdsourcing took place were also very different; some were small, others voluminous; some had collected comments for many years while others had nearly just begun, all with different levels of activity (Table 2).

4.3 Ethics

In agreement with the informants, interviews are anonymized and names of interviewees replaced by numbers. Some of the informants were the only ones administrating the CMS at their institutions, so institutions too are anonymized and represented by Latin letters. A few of the systems studied were uncommon in Sweden and, therefore, to link a system to an informant would expose them the same way as naming them. Consequently, the systems are represented with names of Greek letters.

Collection management system (CMS)	Institution	Informant
Alfa	A, C, E, F, I, K, L	1, 2, 4, 6, 7, 12, 14, 15
Beta	B	3
Gamma	G	8, 9
Delta	H	10, 11
Epsilon	J	13
Zeta	D	5

Table. 1. Collection management systems, institutions and informants.

Institution	Number of images published online	Current system online (years)	Contributions/month* (intervals of 1 – 25, 26 – 50, 51 – 100, >100)
A	210 000	2	1 – 25
B	35 000	2.5	1 – 25
C	112 000	0.5	51 - 100
D	5 000	0.5	1 – 25
E	6 000	2	1 – 25
F	86 000	2	51 – 100
G	48 000	7	26 – 50
H	146 000	8	>100
I	148 000	3	51 – 100
J	19 000	10	1 – 25
K	201 000	7	1 – 25
L	367 000	7	1 – 25

Table 2. Scope and activity in the online image collections. *The intervals are wide for two reasons. The first is that the flow of user comments could be very uneven depending on the season or the release of new images. The second is because not all institutions kept track of their incoming comments and could not provide exact numbers.

4.4 Coding and observations

Qualitative content analysis was applied to find patterns in the organization of user contributions, especially decisions that were influenced by system design. This was done according to an inductive, comparative approach, where coded categories were derived based on the interview material (Hsieh and Shannon 2005). Not only manifest content was coded, but also latent meanings in the dictums. Furthermore, connotative coding, connecting latent messages in separate parts of an interview, was also applied (Drisko and Maschi 2016, 65). Coding was carried out in ATLAS.ti, a software for coding analysis. All interviews were transcribed and coded by the author. Besides interviews, observations were made of crowdsourcing functionality, invitations for users to participate and user activity in the image-collection websites of the participating institutions.

5.0 Findings and discussion

Analysis of the empirical material reveals that rhetorical mechanisms of CMSs influence the selection, description, arrangement, and access of user-generated information. Different types of user-generated information were influenced in various ways by rhetorical mechanisms wherefore the comment categories identified by Van Hooland (2006) are used in the discussion to separate the types.

Rhetorical mechanisms in the organizational schemes of the CMSs studied have two consequences. First, they

cause certain categories of user-generated information to be discriminated from incorporation in the CMS. This can be explained by the influence of the system-rhetorical mechanisms imposed on information resources (Feinberg 2010). Especially memorial, judgmental, and additional information is often opted out. Secondly, CMSs tend to undermine the trustworthiness of user-generated information because of the typical limitations of the systems in supporting structured documentation of the reliability, provenance, and authenticity of the user-generated information. These problems of distinguishing different types of data result occasionally in a parallel management and storage of user-generated information, which leads to constrained access, searchability, and even permanent loss of user-generated information. The findings are summarised in Table 3.

Identified impact of rhetorical mechanisms	Description
Discriminated information	User-generated information that is not included. Mainly caused by logic arguments, either resource-related or structural. Manifested in fear of noise and institutional approach. Also encouraged by ethical argumentation.
Loss of reliability	Insufficiencies in information completeness and levels of trustworthiness. Both structural and resource evidence.
Insufficiencies in preservation and searchability	Insufficiencies in migration possibilities and connection between image and comments. Limited search for comments stored both internal and external of CMSs.

Table 3. Impact of rhetorical mechanisms on moderated user-generated information.

The two main consequences, namely discriminated information and reliability loss, will now be discussed in more detail, followed by a discussion of preservation and searchability of user-generated information.

5.1 Discriminated information

For this article, the concept of discriminated information was introduced, referring to user-generated information that is not incorporated by professionals in a CMS. The main cause of this discrimination is the absence of a suitable data field where the information can be registered. Most salient among discriminated information were memorial and judgmental comments but also observations and facts concerning peripheral content or facts about aspects other than the main motif of the image.

Contradictory to associations relating to the concept of discrimination, most professionals had a positive approach to the categories that were most discriminated against. The informants experienced joy, enthusiasm, and admiration of expert knowledge possessed by users, for example, informant 11: "I'm happy the comments are added. They give life to the website. It shows that people know a lot." The shared memories made the images come alive and granted them a deeper and more affectionate dimension, stated by informant 8: "It's nice that it triggers so many feelings in people. It's the photos above all that brings out the memories, people become happy." This kind of information also created enhanced value for subsequent visitors of the image collection and provided them with information about other dimensions of the motif (such as smell) that could not be found in the existing image descriptions (informant 8).

5.1.1 Inter-post and intra-post resource arguments

Despite the professionals' appreciation of the users' memories and personal histories, this information was rarely included in the CMS (for example reported by informant 8, 9, 11 and 14). According to the professionals, the discrimination against memorial comments results from the fact that there is no place for these kinds of comments in the system structure.

> 14: But it [memorial comments] isn't anything we include in the database in any way, because there is no good field … we don't know how to add it or what we should call it.

The absence of a data field for "associated memories" or "experiences related to the image" rules out memorial information as an information resource. According to Devitt (2009), the absence of a data field is as significant as the presence of it and following Feinberg, the inclusion and arrangement of categories is a form of logical argumentation that shapes the interpretation of the category (Feinberg 2010). Thus, this absence of structural space for memorial comments is the evidence of a logical rhetorical mechanism, imposing limitations of the resources allowed in the system and persuading the professionals that, despite their opinions, memories do not have a place in the collections. However, user-generated information that was not included in the CMS was often stored somewhere else (informant 9):

> That you could feel the smell of chocolate next to a certain store, that they went shopping there as kids, together with their grandparents. I don't add that information, but I keep the comments … And those

comments, maybe it would have been nice to have them [in the CMS] but we have chosen not to add them.

In conformity with memories, peripheral information (e.g., information about something in the image background or some anecdote about a depicted person) was also discriminated. For instance, this example from one institution that had a collection of boat pictures:

> 7: And here, there is information about that this ship has also been about on something else. That information … is not connected to the object, but to this other ship that is named here. Unfortunately, our possibilities of storing this information are restricted, other than in free-text format and unfortunately, we don't value free-text format that highly. It's hard to search in general and especially in this system [Alfa] …That is typical example of information that we can't really handle.

This quotation illustrates not only how the structure and connections between database posts in the CMS form logical rhetorical arguments for not including user-generated information (see for example (Feinberg 2010)) but also how internal fields within a database post work the same way.

5.1.2 Fear of noise as a resource argument

Discriminated information was described by one interviewee as noise that complicates information searches. Noise is a concept in information retrieval research, usually defined as the irrelevant search hits generated in a search (see for example Rowley and Farrow 2000).

> 5: Then one would get many hits, if the text is very long. That's why I call this information noise. You have to clear it away. One could imagine a possibility for the public to directly add information [to the collections] …. That would mean that the precision we want … disappears because there is too much irrelevant information.

The informant is talking about information in free-text format and depicts incorporation in the system of such information as undermining precision in an information search procedure. She states that in order to maintain system relevance, information that causes noise has to be kept away from the system. However, the informant does not reflect over the fact that it is not the information itself that causes noise but rather its poor structuration. As Feinberg pointed out, structural evidence, or the ar-

rangement of categories within a system, is a logical rhetorical argument (2010). However, in this case, the argument is expressed through arrangement of information within a category and not between categories. All the same, just as logical rhetorical arguments cause some types of user comments to be rejected, the fear of noise could be interpreted as further evidence of logical arguments in the systems.

5.1.3. Institutional approach in creation of authorial voice

Organization of user-generated information is also complicated by institutional profiling and organizational objectives and goals. This forces professionals to keep the institutional approach at the top of their minds and constantly ask themselves whether the user-generated information is in line with the special orientation of their organization. Even though it seldom led to information being rejected, the subject of a comment decided how much time professionals could spend on verifying comments and how information was registered.

> 15: You try to think about the mission of the museum, so to speak. We're not a car museum, then to waste time on controlling every car [image in the collections] is not as relevant as if it had been about the history of a workplace or people in the images … If it's clothing, which is one of our topics, if you've made comments about, like, textiles, then it's worth spending more time on it because that's one of our main areas. So, that's how you can think.

Institutional profiling thus influences the organization of user-generated data and contributes to an aggregation of bias towards information that suits the organizational profile. A prioritization of what topics that are important and worth spending time on is thereby communicated through selection, description, and arrangement, something that is symptomatic of authorial voice (Feinberg 2011). The rhetorical mechanism of voice also establishes a closer connection with users that would have been alienated with an emphasis of car-related content but who shares the visions of clothing as an interesting topic, thus creating a narrative that evokes identification of the users (Feinberg 2011).

5.1.4 Believability through ethos

The interviews make evident that professionals feel responsible for all information connected to their institutions, including user-generated information. Nevertheless, a clear separation of user-created and professionally created data on the image collection website is proclaimed

by several of the informants. This is explained to be necessary in order to protect institutional credibility and legitimacy. According to the informants, the audience of the museums and archives studied expects heritage institutions to be in control of their data (informant seven). In order to uphold their authority as information experts, professionals have to make sure that the CMSs communicates reliability, relevance, and objectivity. As a rhetorical mechanism, ethos can be used to convince an audience of credibility and generate a believable character of a classification system by aligning it with existing values of the audience (Feinberg 2009a; 2012). As illustrated in the quotation below, some user-generated information is rejected, because it does not confirm with institutional credibility and the image of institutions as information experts. This is a way to create ethos and to make a persuasive impression of knowledge authority.

> 14: A person that has fishing as a special interest and comments that "in these lakes [in the image] you'll find good fishing!" That's a clear example of something we can't incorporate. Having the museum say there are plenty of fish in this lake.

Rejecting irrelevant or ambiguous information to be assimilated with metadata was a method to convince the audience of believability of the CMS and ultimately believability of the institution itself. Yet, this sets up a conflict between controlled and brief information on the one hand, and extensive stories, inspirational facts, trivia, and personal user memories on the other. As been noted earlier in this article, these latter types of comments make the collections "come alive" and become more interesting. The conflict reflects the duality between a catalogue and an online exhibition, a result of the digitization and internet publication of the catalogue:

> 15: In the beginning, the collection management system was a catalogue for us, that a visitor could search, too. But now, it's more like, I don't know, another way for the visitor to access the museum, and then it's something else totally. Then there has to be much more contextual information, many more interesting and fun things in order for you to stay on the website, compared to when it was just a catalogue.

To conclude, this duality complicated the question of how to communicate ethos, in the sense of convincing an audience. Users not only have to be convinced about information credibility but also, as informant fifteen says, convinced about the entertaining aspects of information in order to stay on the site.

5.2 Rhetorical influence on authenticity and reliability, demonstrated through diplomatics

The interviews also provided information about how CMS design influenced not only the selection of user-generated information but also its quality. Through the use of principles of diplomatics, it is here illustrated how a CMS design affects the authenticity and reliability of user-generated information with rhetorical mechanisms.

In the interviews, it was found that both discriminated information and elements of user-generated information already manifested in the database often suffered from lack of any capability to document the provenance of information. There was no structured space for provenance (such as name of the contributor or a contributor's relation to the information provided); neither were there data fields for contextual information (such as the date the commentary was made), in connection to those fields that professionals used to incorporate user-generated data. However, system Beta had automatic capture of names of contributors and the date when the comment was supplied. This, together with a clear distinction of user-generated information, made a structural rhetorical statement that Beta was a system that took user-generated information more seriously than other systems did.

Unlike Beta, systems Alfa, Gamma, Delta, and Epsilon all relied on manual inclusion of provenance data. A "provenance-field" could exist but then often as a general field, relating to the whole post and not specific information elements of the post. Informants described how they often had to work around the problem by writing provenance data in, for example, the field "other information." This caused an arbitrary registration of provenance and different registration of quality and format, depending on the professional who registered the information. Informant 13 remarked that this is a consequence of the professionals' limited time for registrations and that provenance registration is made only in exceptional cases. Hypothetically, a separate data field dedicated to provenance in connection to all information elements of a post would communicate a message of provenance as something more than an exceptional notation left for special occasions, transforming it into an incorporated part of the system.

Besides provenance, contextual information about the situation where user-generated information was created, and for what purpose, was insufficiently documented. Even in cases where provenance was noted, evidence often was missing that could have distinguished pieces of information submitted with crowdsourcing methods (and how these methods shaped the piece of information contributed) from information already stored in the CMS. So was name and information about the registering professional.

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Documenting the professional's part in registration, selection, or appraisal is recommended (Cook 2007) for transparency in the decision of forming and incorporating data in a collection. Interviewees could themselves recognise such documentation as a relevant idea, at the same time as one of them remarked that, in that case, they should consequently log all changes and information updates made to the catalogue by professionals, not only updates of user-generated information (informant eight). To some extent that may be true, but one difference between information contributed by professionals or by external users is that without documentation of provenance and context, information will be assumed to be of professional origin, added by a person that is in daily contact with the collections and well aware of requirements of information quality and controlled facts. A supposed "institutional trust" thereby risks spilling over on all information in the CMS, unless it is comprehensively registered. Furthermore, in an organization that increasingly works with user-contributed data, information is probably changed and updated more often compared to an organization that does not especially invite users to partake. Consequently, crowdsourcing entails an increasing need for opportunities to document information provenance as much detail as possible to assure information reliability.

Detailed provenance documentation implies, among many things, documentation of "levels of reliability." That (Duranti 2002, 26) "Reliability is a question of degree" is a statement especially valid for user-created information. Drop-down menus, suggesting different reliability levels, do exist in system Alfa, but they were not available for use in all of the data fields, something that the interviewees said limited their opportunities to satisfactorily register information. For example, information in the field "date" could be marked with the reliability-labels "assumptive," "assured," "ascribed," "unsure," or "according to false tradition," thus providing the possibility of controlled ambiguity. According to the professionals, such labels were also needed when registering other types of information, such as the location of the image motive. However, because the reliability of levels-menu was field-specific, it could not be connected to the "location" field, neither to any other data field in need of nuanced reliability. In Alfa, this caused a work-around solution where the degree of reliability of user-generated information about location was written in the field for general notes. In other systems without any formal levels of information reliability, user-generated information that could not be guaranteed to be fully accurate is more often repelled by professionals.

In the absence of levels of reliability, the authorial voice of the CMSs studied express a view of system content as unnegotiably true, trustworthy, and institutionally con-

trolled. In other words, no degree of reliability is needed, because all information is supposed to be true. Even though this kind of argumentation is a classical Aristotelian fallacy, and although it is not an intended message of the system design, authorial voice is defined as the impression of an external spectator (Feinberg 2011).

As mentioned, the rhetorical effect of no levels of reliability is that some information is excluded from being incorporated by professionals. This can diminish some of the effects of the collaborative information work offered by crowdsourcing methods. Informant seven, one of the interviewees working with Alfa, tells a story of how dubious or erroneous information provided by users, such as falsely naming a portrayed person, have provoked other users to correct the information. That would hardly have happened if the erroneous information had not been published in the first place. By allowing CMSs to communicate controlled ambiguity, systems become more transparent and expands the space of user-participation. Having shown how system rhetoric impacts the selection and description of user-generated information, we will now discuss access to and preservation of this data.

5.3 Preservation and searchability

This article has exposed how user-generated information is discriminated against throughout different rhetorical mechanisms. In the end, this rejection has consequences for how user-generated data can be accessed and used in the future.

System	Storage place for non-included information	Search functionality of non-included information
Alfa	Web server	Online search
Beta	All comments included in CMS	All content searched simultaneously. No separate search of comments.
Gamma	Paper	Manual. Contributions are stored chronologically.
Delta	Web server and separate register file	Online search or file internal search
Epsilon	Paper	Manual. Contributions are stored chronologically.
Zeta	Separate register file (Excel document)	Separate file search

Table 4. Preservation and searchability in systems.

5.3.1 Storage and preservation

With some user-generated information being discriminated against, it follows that user-generated information

is being remitted to be stored outside the CMS, whether for logical, ethical, or authorial arguments. In only one of the case systems (Beta) is user-generated information directly included in the CMS. Storage and search functionality of the systems are declared in Table 4.

In Alfa, comments preserved on the webpage appeared to be stored within the system. This assumption was prompted by a mirroring of comments in the commentary field to another database field in the CMS. This design apparently confused professionals working with Alfa; even though their answers about preservation of user-generated information were uncertain, it was clear that several professionals had the impression that all comments were preserved in the CMS. However, according to the system developer, the comments are stored only on the image collection website, not in the system itself. In a hypothetical migration to another CMS, comments would be separated from other information in the CMS and stored only if the website is preserved.

When professionals who thought comments automatically were preserved were informed about the situation, they were surprised and troubled. They had based their current administrative practice on the belief that the CMS stored the comment. They had manually included some corrective or additional comments anyway, but, for example, discriminated information had been left without action. By displaying user comments in the midst of information that was preserved within Alfa, the system provided a false logical argument and the impression of commentary inclusion (Feinberg 2010). This rhetoric enforces a deceiving message of system omnipotence and control of user contributions that is strong enough even to convince people working closely with the system. Even though there is no actual intent on the part of those who designed the system to create this misconception, the users' belief is enough to prove a convincing message (Feinberg 2011).

Another solution for preservation of discriminated information was to print the comment on paper and store it at the office (practiced at institutions G and J). Others stored comments outside of the collection system in Excel documents (Zeta). Besides these storage methods, all institutions had parallel storage of incoming comments in their mailbox, where either the original comment or a notification mail about new comments was sent.

Even though parallel systems may work for some time, it is not a sufficient permanent solution to preserve user-generated information. Saving information only on the website or in the mailbox, instead of integrated in the collection database increases the risk of ultimate information loss. In an upgrade of the website, the information can easily be lost. Some of the Alfa users had witnessed comments that had been accumulated for years

suddenly disappearing without backup when they upgraded the collection website. Delta users told about their fear of losing comments that were now stored only on the website, due to a coming web and CMS upgrade.

Migration possibilities for crowdsourced information are closely connected to how the information is structured. In Beta, the commentary field is directly connected to the CMS, and all professionals needed to do was to approve comments in order for them to be stored. This meant that the contributions were incorporated in the image collection system and thus easily migrated together with other image metadata. However, Beta is an exception, and in all other systems, professionals left many comments unattended, so the information never entered the collection system at all. Information stored outside a CMS is more vulnerable, because it is not submitted to the same routines of preservation (like backup and migration) as information inside a CMS. A system that is integrated with the main collection database is also fundamental for reliability (Duranti 2002, 27). Taken together, rhetorical mechanisms of a CMS affect storage and preservation possibilities of user-generated information by discriminating information to become included in the system.

5.3.2 Searchability

Besides having an impact on preservation, discriminated information is also a source of difficulties in the searchability of user-generated information preserved outside of the collection database.

Information only available via the commentary field online (systems Alfa, Epsilon) is not available for a thorough search of all comments at the same time. There is no functionality allowing a search within the commentary field. Using the web browser functionality for searching within the webpage only works for one image object at a time, and then only finds the comments related to that specific object. The users of system Zeta receive comments on email and then add them to an Excel document, which later is edited and exported as metadata for the images when there is no time to publish them. Delta users collect comments in a separate register. Comments could thus be separately searched, all at once, in both Zeta and Delta. Information preserved on paper (systems Gamma and Epsilon) could be sorted either in chronological order or by order of the object number of their corresponding image object. Thus, to find a comment, one had to know the date it was created or the object it was created about. That limited the possibilities of answering questions like, for instance, all comments with the word "car" (a popular topic among contributors) or all comments made by a certain user.

Additionally, not only discriminated information is difficult to search but also user-generated information included in the CMS can be hard to find, compared to professionally created information. The reason for this is discussed in section 5.2, namely the lack of linkage of user-generated information to user provenance, thus tossing it into a textual haystack of free-text information that cannot answer questions such as what user contributed what kind of information.

Finally, storing crowdsourced information only at the website, in a mail inbox or on paper also entailed the risk of losing the connection between comment and collection object. Despite the metadata being preserved in one of those media or digital environments, the data was separated from the image object in the collection database. Even though there still might be an object reference number in the data, referring to the image, these solutions made it complicated to go from the image to a corresponding comment. Institution ten sorted the printed comments chronologically, but the informant remarked it would have been much more practical to have them sorted by image reference number. Anyhow, a broken connection between image and contribution means an important automatic mechanism of preservation is lost.

6.0 Conclusion

This article has shown that rhetorical mechanisms, as defined by Feinberg, impact user-generated information incorporated in CMSs through selection, description, arrangement, and access. Through adaptation of genre and rhetorical arguments based on logic, ethos, and authorial voice, system structure causes resource discrimination, loss of reliability, and decreased access and possibility of preservation for user-generated information. The conclusion to be drawn from the presented observations is that the system design creates isolation of crowdsourced metadata and hampers inclusion. This is due to the lack of allocated space for user-generated information and a want of structural data elements needed for reliability and searchability. Without dedicated data fields and structure for the memories, peripheral and associative content and opinions that users provide, much data is rejected from incorporation in institutional heritage collections. Information authenticity, reliability, and searchability were documented by chance in some systems, which left it up to the motivation and daily mood of the moderating professional whether data connected to reliability was added at all or left out because of stress or inattention. Consequently, this poor structure of reliability data degrades the value of user-contributed information. Being deprived of authenticity, crowdsourced information cannot become part of the collections on the same basis as other information. The ultimate consequence

is loss of user-generated information and the multitude of experiences and perspectives that users contribute to the collections.

As earlier noted, no information system is without bias. Although this article has dealt with user comments made in regard to image collections, the results are also applicable to other types of collections that are enriched with free-text annotations. No matter what the collection type, transparency of the moderation process is always required when external participation is solicited, and it may prevent user contributions from being rejected as a result of biased knowledge structures that communicates a sceptical approach to user contributions. Incoherency between the invitation to participate and the appreciation of the contribution will confuse a potential participant and make crowdsourcing of user annotations less probable to fulfil its aim. Currently, users can easily get the wrong impression of how their contributions will be received. When collecting free-text comments with crowdsourcing, institutions are recommended to be more transparent about what kind of information they are looking for. Following the advice of Lauruhn and Groth, institutions need to adjust the design of their CMS to adapt them for user participation. A holistic and coherent call for user participation, based on institutional resources and internal prioritization and organization of knowledge, would therefore be recommended for every heritage institution, that wishes to work with user comments.

In investigating many of the misgivings about selection, reliability, and provenance discussed in research in the last few years, this article has focused more on the mediating role of the CMS than on the mediating role of cultural heritage professionals themselves. It thus complements studies about archivists' authority and worldview in shaping cultural heritage collections (Light and Hyry 2002; MacNeil 2005; Yakel 2011), but it also negotiates and shifts the focus away from the impact of individuals' mediation to the power of organizational systems over institutional collections and heritage. This does not mean that archive and museum employees have no responsibility for the message of their institutions. Rather, this article demonstrates that organizational systems play a more active part than was previously realized and should be the subject of further research in the fields of crowdsourcing and knowledge organization.

Finally, one might dispute if the free-text format should be a recommended method for heritage institutions at all? Compared to more organized methods like transcription or themed inquiries, free-text information demands considerable attention and effort from administrators, not all of which can be solved by good design and adjustments of information systems. However, despite some disadvantages, free-text comments are also a

crowdsourcing method that indeed is on the terms of users. No matter what ideas, experiences, opinions, or content a user feels are worth adding to archives and collections, they can be added through textual comments, which makes the method just as user-inclusive as many heritage institutions aspire to be.

To further study how institutions and users can work together to make more multifaceted and inclusive cultural heritage collections is an important task for coming research. Especially interesting topics are how professionals perceive the design of classification systems and collections management systems but also how users perceive communicative messages of institutional information systems.

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