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Standardization and the Neglect of Museum Objects:
An Infrastructure-Based Approach for
Inclusive Integration of Cultural Artifacts

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Abstract: The paper examines the integration of born-digital and digitized content into an outdated classification system within the Museum of European Cultures in Berlin. It underscores the predicament encountered by smaller to medium-sized cultural institutions as they navigate between adhering to established knowledge management systems and preserving an expanding array of contemporary cultural artifacts. The perspective of infrastructure studies is employed to scrutinize the representation of diverse viewpoints and voices within the museum's collections. The study delves into museum personnel's challenges in cataloging and classifying ethnographic objects utilizing a numerical-alphabetical categorization scheme from the 1930s. It presents an analysis of the limitations inherent in this method, along with its implications for the assimilation of emerging forms of born-digital and digitized objects. Through an exploration of the case of category 74, as observed at the Museum of European Cultures, the study illustrates the complexities of replacing pre-existing systems due to their intricate integration into the socio-technical components of the museum's information infrastructure. The paper reflects on how resource-constrained cultural institutions can take a proactive and ethical approach to knowledge management, re-evaluating their knowledge infrastructure to promote inclusion and ensure adaptability.

1.0 Introduction

Contemporary cultural heritage collections comprise an expanding array of born-digital and digitized items, far surpassing the mere aggregation of digitized documents and photographs. Managing these collections is complex due to digital media's widespread use in generating, sharing, and archiving personal and collective memories, further complicated by their ephemeral nature (Zuanni 2021). Discussions on cataloging practices in cultural heritage bear the potential to profoundly influence the integrity, equity, and accessibility of information. These issues include, but are not limited to, how information is selected, accessed, and consumed by the public; the potential for digital collections to inform and influence; and the evolving and interconnected nature of information and ethics in digital collections (Mindel 2022; Ekosaari and Pekkola 2019). Scholarly discourse regarding ethical decision-making in collections management primarily centers on well-resourced institutions, wherein catalogers and librarians can play their pivotal role in aligning daily practices within their organizations with established cataloging codes and guidelines (Martin 2021). Little attention has been directed toward resource-constrained GLAM (galleries, libraries, archives, and museums) grappling with issues such as disjointed digitization efforts, staffing shortages, and insufficient training that hinder their ability to attain a comparable degree of automation observed in well-known, well-endowed institutions.

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This paper investigates the inherent trade-off between ethical considerations and purported efficacy in integrating new forms of objects into a museum's documentation system. It examines the often-neglected aspects of repair and maintenance in museum documentation, which are critical for ensuring the continuity of the institutional fabric of the museum and the seamless operation of its public-facing activities, such as object display and audience engagement. Drawing on the case study of the well-established classification system and cataloging practices at the Museum of European Cultures (*Museum Europäischer Kulturen* – MEK), a medium-sized member of the National Museums in Berlin, the present paper demonstrates how the historical legacy of museum infrastructure and the inclination towards the existing standards can hinder the equitable representation of born-digital and digitized cultural materials.

The case study looks at the classification scheme implemented, as well as the uncertainties experienced by staff members when confronted with cataloging activities at MEK. We will discuss the limitations of the mixed numerical-alphabetical category system that has been in use since the 1930s, along with the delicate balance between ethical considerations and uncertainties arising from using an outdated standardized category system. To examine the ethical implications inherent in pursuing a more inclusive museum knowledge system, we build upon the arguments put forth by scholars in infrastructure studies, concerning the need to expand the "installed base" of infrastructure to overcome the institution's unwillingness to change. We propose that museums actively consider the perspectives of everyday staff members who engage in and sustain the daily functioning of infrastructure to reassess knowledge infrastructure and cultivate adaptability and interoperability of GLAM knowledge systems in the digital age.

2.0 Hierarchical Knowledge Structures in Museums

Museums are sites for the continuous production and circulation of knowledge. As for preserving knowledge, museum collections have been and continue to be used in exhibits to transmit research discoveries to a broader public and thereby popularize scientific knowledge. A collection is more than the sum of its parts, as museums recontextualize objects by removing them from their original contexts and placing them in the new context of a collection (Macdonald 2006, 82). Museum studies and heritage scholars have examined how collections evolved, revealing complex histories of acquisition (Pearce 1995), documentation (Turner 2020), classification and ordering (Oswald 2020), and valuation processes in the past. They identify several parameters through which institutional power structures and relations are defined: legacies of prejudice (Lynch and Alberti 2010), capacity and tendency to erase (Sandell 2007), or colonial

situatedness (Edwards et al. 2006; Edwards 2016)—all of which can be vital for the possible exclusions of minor voices and forms of practice.

Furthermore, museums are complex organizations that must balance the competing demands of preserving knowledge, representing distant cultures, and providing public access. This can be challenging, as the museum environment constantly evolves. Collet (2014) acknowledges that the resilience of museum environments is part of why studying how the museum environment affects the representation of distant cultures is necessary. This is because museums' primary mission as memory institutions is to preserve knowledge rather than create it. Adherence to the existing practices, as well as technical protocols and standards, is crucial for the effective functioning of the components involved in knowledge representation work.

Several factors have been highlighted in the literature as potential causes of ontological contradictions that arise when museum collections managers and conservation staff work with novel object types. The challenges museums face in accommodating emerging contemporary art forms are evidence of the ongoing socio-technical negotiations to integrate new components (Engel and Wharton 2014). The proliferation of new art forms has also made some components of technical infrastructure, such as metadata and database structure, to support data storage (Rinehart and Ippolito 2014; Engel and Wharton 2017) and staff skills obsolete (Wharton 2005). Many contemporary museums struggle to acquire, display, and preserve technology-based and time-based installation art. This complicates the documentation process as contemporary artworks frequently defy traditional classification schemes. Emerging uses for museum objects can lead to upending established classification schemes for collections management.

3.0 Adapting Collections Management: An Infrastructure Studies Approach

The study of how the museum's working environment impacts object representation has been fragmented and broken down into disciplinary silos. In recent decades, Science and Technology Studies (STS) has gained traction in examining cultural organizations as complex systems of socio-technical relations. Karasti and colleagues (Karasti and Syrjänen 2004; Karasti and Baker 2004) have proposed the "infrastructuring" concept to understand how infrastructures evolve, expanding beyond initial design constructs while remaining organized. This approach has had a significant impact on the examination of the mechanical components that support curatorial activities and how this support reflects the inner logic of museums as institutional structures and cultural mindsets (Macchia et al. 2014). Museum anthropologists have meanwhile studied the tensions

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between contemporary social practices and the traditional institutional infrastructure that underpins museum knowledge work separately (Krmpotich and Somerville 2016; Macdonald and Morgan 2019; Oswald and Tinius 2020). However, the role of the institutional infrastructure that influences the resilience of museum environments in responding to the new modes of knowledge production has received limited attention.

Infrastructure studies is a field of research that examines the social and political implications of the built environment. By focusing on how infrastructure shapes social relations, infrastructure studies can help museums better understand the challenges they face in managing their collections. One of the critical concepts in infrastructure studies is the notion of an "installed base." The installed base refers to a built-in platform on which infrastructure grows (Star and Ruhleder 1996); it is a backbone that supports a particular set of activities and can act as a facilitator for an organizational transformation (Andersen and Jansen 2012; Aanestad et al. 2017). Within the museum context, the installed base includes not only the artifacts themselves but also staff routines and habits necessary to care for objects (Kist and Tran 2021). When new components are added to the installed base, such as new technologies or new ways of representing knowledge, it is important to consider the potential impact on the existing infrastructure. For example, the introduction of new technologies may require changes to staff training or routines. Similarly, the development of new ways of representing knowledge may require changes to the way artifacts are displayed or interpreted. Failure to comply with existing standards when incorporating new components into the installed base of infrastructure could result in disruption of daily operations.

Jackson et al. (2007) investigate the cumulative aspect of infrastructural development, as well as the breadth and depth of its connections to the technical and social worlds. The growth of infrastructure is, therefore a potentially transformative process. This process is redistributive in nature since it may "advantag[e] the work or life worlds of some" or may "alter, threaten, or degrade those of others" (Jackson et al. 2007). By carefully considering the potential impact of new components on the installed base, museums can minimize disruption and ensure the long-term sustainability of their collections.

In the following case study, we will examine the knowledge infrastructure components, specifically directed towards the enduring utilization of standardized tools and systems within MEK, a museum member of the National Museums in Berlin. This investigation focuses on an in-depth analysis of category 74 within MEK's system. Initially designated for photographs, this category has since evolved into a wide range of born-digital and newly digitized materials. By delving into the institutional legacies encompassing de-

partmental systems, operational authority, and staff habits and routines about object management, valuable insights are gleaned concerning the multifaceted layers that constitute museum operations.

4.0 The Complex Case of Category 74: Embeddedness and Resistance to Change

4.1 The Museum's Institutional Complexity

The National Museums in Berlin consists of seventeen museums and four research institutes. Among the *Staatliche Museen zu Berlin* (SMB) members, MEK is the only museum dedicated to "lifeworlds in Europe"—particularly the living situations and cultural exchanges in and around Europe from the 18th century to the present day (Tietmeyer 2013, 61). Officially formed in 1999, this museum was the result of a merger between the former Museum of German Folklore (*Museum für Deutsche Volkskunde*) and the European collection of the Ethnological Museum (*Museum für Völkerkunde*). The Museum of German Folklore resulted from the unification of two institutions in 1992: the Museum of Folklore in East Berlin and the Museum of German Folklore in West Berlin. [1] During the 1980s, these organizations expanded their collecting beyond pre-industrial country life and craft culture by focusing on industrial-era cultural transformation and urban life (Museum of European Cultures 2019, 5). Due to its collection's 150-year dynamic history, which attests to profound historical, scientific, and political shifts, MEK carries along with its development a complex institutional history with a collection of cosmos that has evolved over time (Figure 1).

The museum houses today around 287,000 ethnographic objects and testimonies about cultural history. The current holdings of MEK include approximately 225,000 objects from the former Museum of German Folklore and 40,000 objects from the former European collections (Department Europe) of the Ethnological Museum in Berlin. These two major groups of objects are cataloged in two distinct ways. The first category system applies to the approximately 40,000 objects of the former European collections of the Ethnological Museum in Berlin, which were classified according to the traditional ethnographic approach based on so-called regions and ethnic groups (Karasek and Tietmeyer 1999, 18). Its catalog numbers began with a code of geographical location. For example, the initial 'III d' means that the object came from the state of Thuringia. This system was used to catalog the objects of the Museum of German Folklore in its early times. Later, the Museum of German Folklore changed the entire system, whereas the Ethnological Museum (with its Department Europe) maintained its region-based catalog management.
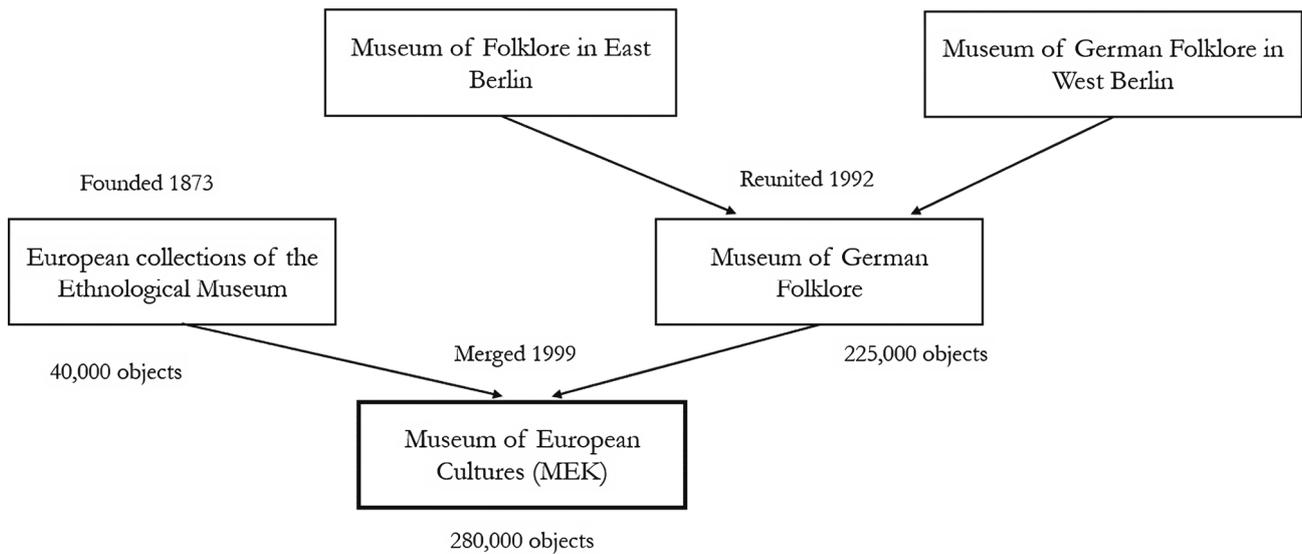
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Figure 1. Outline of the museum's institutional history

The second category system encompasses the remaining objects, a substantial portion (approximately 225,000 items) of which have their origins traced back to the former Museum of German Folklore. This grouping is structured around themes drawn from aspects of everyday life, incorporating items such as children's toys, ceremonial artifacts, and women's attire. The cataloging system assigns identification numbers commencing with the overarching numerical classification of the subject. The underlying framework for the MEK collection methodology reveals that some aspects of its prevailing categorical structure were inherited from index cards associated with pre-1945 holdings (Museum of European Cultures 2019, 9). Until mid-2021, when this study was concluded, the museum continued to employ this cataloging approach, extending its application to all newly acquired objects. The process of categorization and classification imposed on the extensive array of ethnographic objects housed within the museum's holdings consequently engenders notable complexities and challenges, which will be discussed below.

4.2 Cataloging Methods and Challenges at MEK

As Förster (2014) cautiously points out, the presentation of objects in ethnological museums is derived historically from anthropological modes of classification but also practically and empirically from the fundamental functioning of the institution regarding how artifacts and specimens have been and should be collected, classified, and stored in order. Here, we look closely at the second grouping method at MEK, following a numerical category system (Table 1). Each main subject has sub-divisions for sub-themes. This category system, introduced in 1935, is still used for upcoming objects until the current day and concerns most of the museum's holdings.

Table 1 shows the broad themes within the current category system. The group's descriptor refers to diverse domains related to cultural artifacts, quotidian existence, and societal norms to which each object within the museum's collections can be assigned. These descriptors cover specific areas of interest that garnered prominence within the societal fabric of Europe, spanning from the mid-19th century to the early 20th century. The culmination of this time frame corresponds with the establishment of the numerical category system in the 1930s, a system that continues to be employed at MEK. These expansive categories were conceptualized in a way that they could encapsulate the distinctiveness, diversity, and utility of life experiences across Europe; within this contextual framework, each artifact becomes an "object cosmos," a microcosm with the potential to unveil intricate historical and social narratives that interweave throughout the European landscape (Tietmeyer and Ziehe 2008; Buchczyk 2022). The descriptors, composed of concrete, tangible nouns, signify the cultural milieu and its corresponding sub-domains wherein these objects reside or the prevailing conceptions they emblemized at the time. In the 1930s, the collection focused mainly on rural-centric themes, aligning with a newly emerging nationalistic narrative where the objects were utilized within "the context of Nazi Germany folklore to symbolize ethnic nationhood" (Buchczyk 2022, 566).

The stringent naming method, as manifest in Table 1 and Table 2, entails that every newly registered object must be accommodated within the confines of these broad catego-

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Numerical Category System at MEK

1 Settlement and house types	36 Playground equipment
2 House and yard parts	37 Music and noise instruments
3 Apartment and room parts	38 Model and shapes
4 Heating and fireplace	39 Pastries and sugar confectionery
5 Lighting devices	40 Tools
6 Furniture	41 Professional tools and utensils
7 Containers	42 Professional devices
8 Vessels	43 Weapons
9 Small devices	44 Guild and commercial equipment
10 Kitchen utensils	45 Law and administration
11 Farm and livestock equipment	46 Trade and transport
12 Field and garden equipment	47 Time and weather meters
13 Laundry devices	48 Dimensions and weights
14 Hand tools	49 Medicine
15 Flax and hemp device	50 Popular belief
16 Spinning and weaving	51 Church objects
17 Home textiles	52 Ritual objects
18 Textile samples	53 Courses of the year
19 Cloths	54 Life cycle
20 Lace and insets	55 Death and burial
21 Trims and ribbons	56 Field crops and garden products
22 Rope, knotting, and braiding work	57 Material samples
23 Laundry	58 Illustrative material
24 Baby equipment	60 Museum history
25 Men's clothing	61 Operations
26 Women's clothing	62 Writing and books
27 Children's clothing	63 Pictures from German museums
28 Fur clothing	64 Pictures from foreign museums
29 Clothing accessories and footwear	65 Visual folk creation (East Germany)
30 Jewelry	66 Commercial graphics
31 Plastic folk art	67 Documents
32 Painted folk art	68 Entertainment devices
33 Graphic folk art	69 Electrical devices and accessories
34 Handicrafts	70 Sport
35 Toys	74 Photographs

Table 1. The numerical category system used for the broad themes of the collections (author's translation). Source: Booklet "Systematik – Katalog," Museum Europäischer Kulturen, 2014.

ries. The explanatory terms serving as narrower descriptors convey *a priori* categorical information about a subset of objects belonging to a larger group. In this classification system, the subdivisions of category 74 and those of other categories are assigned with letters, arranged in alphabetical order, and points to different themes or subjects of "photographs." Establishing this naming convention was intended to bolster the classification system's precision concerning the objects' subject matter. For instance, category 74 F is specifically designated for "portrait photos" (*Porträtfotos*), while H is allocated for "children photos" (*Kinderfotos*), and W is exclusively reserved for photographs featuring animals (*Tiere*). (It is worth noting that the letters A, B, C, etc. do not directly correlate with the initials of the original German terms.)

The current classification system employed by the museum exhibits certain limitations. While exemplifying an elevated level of granularity, this approach to identifying sub-

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74 Photographs

A	Aerial photography		P	Collections / Bequests
B	Cityscapes			Official letters
	Tourist attractions			Picture sheets
C	Architectural photography			Projection equipment
	House types			Documents
D	Family photos			Drafts/drawings
	Wedding			Flags
	Christmas			Commercial graphics
	Birthday			Graphics
E	Group photos			Peepshow images
F	Portrait photos			Paintings
	Studio shooting			Measuring device
G	Individuals			Morality sign
H	Children photos			Musical equipment
	School			Panoramic pictures
	Children's birthday			Posters
I	Job operations			Collections
	Factory photos			Signs
	Farm work			Carvings
	Work clothes			Cupboards
J	Labor movement			Toys
	Union work			Carpets
K	Public life			Costumes
	Railway station			Doors
	Commerce			Event programs
	Pub / Restaurant		Q	Landscape photography
	Showpeople, circus		R	Military / War
	Social facilities			Fascism
	Street			War postcards
	Theater		S	Leisure
L	Folk festivals			Club
	Customs			Holiday
M	Youth movement / Youth culture		T	Genre photos
	Youth groups		U	Reproductions
N	Way of living			Maps / Papers
	House interiors			Catalogs
O	Technology			Price lists
				Newspaper clippings
			V	Exhibitions
				State Museums
				State Museum for Prehistory
				Photo exhibition
			W	Animals
			X	Photo and film material
			Y	Transparencies
			Z	Photo albums

Table 2. Groups and sub-groups in category 74 (author's translation). Source: Booklet "Systematik – Katalog," Museum Europäischer Kulturen, 2014.

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categories nonetheless needs more flexibility when accommodating new types or shared attributes of object families. The current catalog system does not lend itself well to integration with other knowledge systems, even those utilizing similar classification schemes. While the system can be expanded by incorporating additional numbers or characters as necessary, the practice of generating new categories as the need arises poses a constraint on the system's interoperability. The museum's approach to classification involves sorting objects into 70 broad categories, with a conspicuous absence of categories 59, 71, 72, and 73, and a final category of "photographs" assigned the number 74 (see Table 1 above). This absence of categories highlights that category 74 was introduced later to accommodate the classification of new types of artifacts, including later born-digital and digitized materials, which were included under the umbrella of "photographs." MEK staff observed that all newly acquired digital and digitized items were being placed under the predefined category 74. Jana, a museologist at MEK, acknowledged the issue and identified it as a common challenge faced by museums in Germany:

> We struggle a lot with born-digital and digitized materials because there is no adequate place for them in the current system. Not only MEK does. A lot of German museums are trying to deal with this. (Email correspondence, March 2021).

By relegating category 74 to the end of the system and isolating it from the other categories, this system marginalizes an entirely new generation of born-digital objects and digitized materials and jeopardizes their authenticity. These objects are grouped together in this final category, which does not reflect their intrinsic characteristics accurately. The staff knows that classifying born-digital content as "photographs" is incorrect, but no other classifications are more appropriate. The case of category 74 shows how standardized tools and procedures at the core of knowledge representation relegate essential entities to the periphery. Being added as the final item of the long-established category system, category 74 was initially used for photographs and has been titled the "photograph" category ever since. However, it in fact covered everything from born-digital to newly digitized materials. The category's location in the periphery of the system undermines the authenticity of the whole new generation of digital objects being added to it ("there is no adequate place for them"). In addition, museum staff who deal with documentation carry out the entry addition, editing and revision but were not involved in the selection process, i.e., to determine what is significant. With (1) the exclusion of everyday staff's know-how and (2) the rigid boundaries of professional roles set by the organizational structure, the existing standards become over time quasi-standards: norms and rules are taken for granted.

5.0 The Legacy of Standardization

5.1 'Real' and 'Authentic' Museum Objects: Challenges of Museum Documentation

The MEK's complex institutional history has resulted in an organization of subject terms that need to be clarified and updated, despite being appropriate at a particular time. The *a priori* classification system utilized by the museum has a significant limitation in that it cannot account for all possible significant properties of a primary group since some properties may be unobservable at the time of construction. In situations where a new object cannot be classified using existing broad and narrow terms, new categories or subcategories must be introduced. As Professor Elisabeth Tietmeyer, the museum director, notes, the observable objects at the time of the system's creation belonged to a "totally different world." This limitation may result in the inability to classify objects adequately, leading to an incomplete understanding of the museum's collection.

What is considered a standard in one locale, with specific organizational work and production, can be a source of confusion and disarray in another (Star 1991; Gasser 1986). In the current era of widespread digitization, this system also has severe shortcomings in dealing with born-digital items and digitized content. Due to the use of *a priori* knowledge, the system is not meant to include all possible—collectively exhaustive and mutually exclusive—forms of legitimation. The *a priori* system is in direct contrast to content-based recognition, which is gaining popularity for digital materials because the latter builds its classification hierarchy not from linguistically defined properties (high-level content) but rather from visual properties by means of exploiting visual genus-differentia (low-level content) (Giunchiglia and Bagchi 2022, 91).

Though often regarded as sort of "ordinarily invisible" (Bowker and Star 1999) activities, or the "fringes" between fields (Star 2002), documentation work keeps the institutional fabric from fragmenting in ways that could encourage user mistrust and disengagement. Documentation work in a museum is shaped by working conventions of multiple lines of work: conservation, preservation, photography, and curation (Tran 2021; Kist and Tran 2021). The category system as a whole and category 74, in particular, were not developed by isolation. They emerged as a product in use through constant collective reworking and accommodation (Bowker and Star 1999). The numerical category system has persisted over time and has been used until the current day. While the museum's category system establishes a standard that all staff must adhere to, this last category becomes a source of uncertainty and ambiguity for the MEK's personnel. They found doubts about classifying born-digital materials using the same category system for traditional forms of content.

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The unequal weighting of digital-born and newly digitized artifacts within the museum context brings to light the ongoing discourse surrounding the perceived value of born-digital objects and the criteria used to distinguish between "real" and "authentic" museum objects. Object-focused material culture discourses have traditionally relied on the material/immaterial binary to conceptualize the value and meaning of digital objects, limiting the potential value attributed to such artifacts (Crimp 1993; Fyfe 2004). Consequently, the status of digital-born and, to a lesser extent, newly digitized material as mere "visual surrogates" is determined by the physical object standpoint, which asserts that their digital counterparts are of lesser value. Some scholars in the field of digital cultural heritage have challenged this viewpoint and argued that digital artifacts possess their own inherent value and can serve additional functions beyond mere reproduction and interpretation (Cameron 2007). These scholars contend that curatorial selection processes exert significant influence over the objects and enact a set of social relations that define what is considered "real" and "authentic."

The use of highly detailed terminology in the category system employed at MEK (Table 2) attests to the significance and relevance of expert knowledge during this system's development and widespread use. Assigning appropriate categories and subcategories to museum objects requires staff to possess specialized knowledge in areas such as materials, artistic traditions, and architectural sites, thereby creating a distinct boundary between knowledgeable and skilled staff. Shapin (1989, 562) previously noted this distinction between knowledge and skill Click or tap here to enter text.in his analysis of seventeenth-century laboratory settings, where he acknowledges a division between scientists, who possess authority over technicians, and technicians, who are skilled agents in the laboratory. The numerical category system was designed in a manner that only museum workers with specialized expertise in pre-industrial country life and craft culture possess the necessary knowledge to assign appropriate categories to objects. Considering that staff members with various specializations may jointly assume documentation duties at MEK, it is comprehensible that a photographer proficient in digitization could encounter perplexity when confronted with the craft culture-oriented category system. Employing rigid knowledge representation techniques could hinder these staff members' involvement and interaction in the museum's day-to-day operations.

5.2 Challenges of Adapting Categorization Systems for Digital and Born-Digital Content

The case study of the MEK collections underscores the importance of adapting categorization systems to accommodate digital materials and born-digital content. It highlights the need for a more inclusive and flexible approach that allows for the active involvement of staff members with diverse expertise. The analysis of the MEK's category system, especially category 74, highlights two reasons why replacing the existing system with an alternative is difficult: its embeddedness in a complicated socio-technical arrangement and its on-the-fringe placement. Initially reserved for photographs, category 74 became a catch-all for all things digital, including born-digital and newly digitized materials. The analysis of standardized category systems at MEK shows that the expansion of infrastructure or phases of infrastructural development should be compatible with current work practices and require minimal changes to the technological base. The analysis shows how the meaning and construction of object categories and subcategories are entangled as they interact to form a "flat set of compatibilities" (Bowker and Star 2000, 158). This set of compatibilities enables the construction of rich and nuanced narratives about what occurred prior to the scaling up of infrastructure, narratives that are not determined by dominant entities and voices within the organization. Employees who have knowledge of the materiality of objects were not involved directly in the negotiation of object authenticity, and neither were they invited to have a voice on how to represent that knowledge.

Amidst the categorization challenges faced by staff, a fundamental issue stems from the inadequate classification of non-standard yet pervasive entities. Born-digital materials and digitized museum objects, in contrast to their physical counterparts, often find themselves excluded from proper classification, potentially leading to their eventual marginalization. The situation mirrors Paul A. David's notion of an "irreversible situation" (1985), where entrenched practices resist change due to the high costs of switching from established tools or standards. Similar to the typewriter's entanglement with the QWERTY keyboard layout, MEK's category systems were intricately woven into its institutional fabric, rendering the prospect of adopting a new system dauntingly impractical, particularly in the face of mounting expenses. Consequently, the prevailing cataloging practices at the museum, having endured for decades, assume a sense of permanence that is challenging to overcome.

While Jana acknowledged the necessity of a systematic change, such an undertaking would demand substantial time and human resources, presenting a considerable impediment to the ongoing efforts of the museum to make most of its holdings publicly accessible online. In response to inquiries regarding the apparent lack of attempts to modify or replace the current system, Jana posited that the task of effecting a change across a repository comprising 287,000 distinct objects is of a scale that necessitates the implementation of some automated supporting processes:

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And with inventing a new system: every object has its number written on to identify it. If we invented a new system, we would have to change it for each of the 287.000 objects, it would be a mess. Our numbering system is already one of the most complicated in SPK because of the two museums reunited in 1990 and the different kinds of systems we already had before. I think we'll have to wait until every object has a barcode or something similar, before trying to invent another system. (Email correspondence, March 2021)

Introducing a novel barcode system, although potentially entailing initial expenses, offers a hopeful avenue for MEK staff to accelerate the verification of object details. This, in turn, streamlines the arduous process of maneuvering through the complexities of the museum's catalog systems. (Two numbering systems should be somehow reconciled if the museum's holdings are to be reorganized.) However, implementing "a barcode or something similar" is merely a stopgap measure, addressing immediate concerns. A more enduring solution, hinted at by a MEK museologist, involves conceptualizing and establishing a new category system. This ambitious undertaking would necessitate a comprehensive reclassification of all 287,000 objects, encompassing the rectification of inaccuracies on born-digital and digitized materials. Otherwise, if a partial modification is anticipated, it is worth noting that a significant majority of objects (225,000) would continue to reinforce the dominance of the prevailing category system. While this halfway-through approach has the potential to rectify the previously neglected types of materials, the issue of erroneously cataloged objects endures owing to the acceptance of the existing standard; as scholars in infrastructure studies observed, standards carry considerable "inertia" and can be "very difficult to change" (Star and Ruhleder 1996; Bowker and Star 2000).

At MEK, this inertia of the installed base stems from limited resources and weak incentive structures. Despite recognizing the mistake with category 74, the museum staff hesitated to propose a local solution, believing it to be too messy and implausible. "It would be a mess" is the result of neglect and marginalization, perpetuated by accepting ineffective standards without questioning them. Consequently, the ill-structured category system remains the default in the newly installed MuseumPlus RIA documentation system, with no one taking responsibility for making changes. This absence of proactive measures leaves future staff members to continue to face the same challenges.

As Bowker and Star (1999) suggest, classification can become a spatial and temporal segmentation of the world. The analysis of the MEK's category system in this article reveals the entanglement of meanings and constructions within the system and the challenges associated with introducing new categories. The established cataloging practices, deeply embedded within the institution, present a significant barrier to change. More specifically, the numerical category system being used at MEK has defined the boundaries of what constitutes authentic objects. All digital material and digitized resources are classified as "photographs." The improper grouping and forced displacement of category 74 have created ambiguity for staff members in their daily activities. When an infrastructure system learns to recruit new members, this process always occurs in the background, where the spatio-temporal boundaries are re-created and negotiated. Any technical solution aimed at integrating these neglected entities (i.e., introducing a new barcode system) will not change their qualities.

The inadequate use of standards and standardization, as outlined above, demonstrates how museum knowledge systems may be unwilling to embrace in-the-margin visions. [2] Category 74 is the last category in the system, but it is also the one that is utilized most frequently by present collecting practices at MEK. As failures happened and infrastructure was on the verge of collapse, the improper usage of the tool became apparent. As a result of its merger into new epistemic categories of entirely different form and nature, category 74 ceased to operate as intended. Many new types of objects are not—nor merely—"photographs." No new subcategories have been formed within the umbrella term "photographs" to accommodate the additional object types. The taken-for-granted nature of such tools and standards not only impairs the ability of the merged parts to adjust and co-evolve mutually but also hinders the institution's willingness to adopt new perspectives on membership and inclusiveness. The relationship between the entire category system and the world in which it enacted meaning and function is eroding, and the ordering function of the system is losing relevance. Being a socially constructed product, the category system is incapable of expressing itself and its constituent parts; therefore its ordering function changes from transparency to opacity.

6.0 Conclusion

This paper explores how standardization and passive reliance on existing institutional infrastructure can lead to the neglect of catalogue entries, cataloging terms, and museum objects, ultimately excluding new members and marginalized visions from knowledge systems in museums. It shows that artificial boundaries imposed by standardization and complex institutional history can hinder new digital adoption and the fair representation of novel generations of cultural materials. The case of Museum of European Cultures in Berlin is particularly significant as a small-scale museum institution with an extensive collection that requires a more adaptable and interoperable classification system. The examination of its collection underscores the imperative of

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evolving categorization systems to encompass digital and born-digital materials, necessitating a more inclusive and adaptable approach involving diverse expertise among staff members. The paper suggests that museums need to re-evaluate their knowledge infrastructure to ensure inclusivity and make it more adaptable and interoperable, especially for small-scale institutions like MEK, which face unique challenges due to their disproportionate holdings and limited resources. The established cataloging practices, deeply embedded within the institutional infrastructure, present a potential barrier to change.

The study emphasizes how the engagement of neglected categories and their interwoven relationships with subcategories exemplifies the challenges and potential of transforming object categorization, offering the possibility of narratives emancipated from dominant institutional forces. The entrenched inertia stemming from standard acceptance and resource limitations within MEK poses a significant obstacle, with immediate measures such as barcode implementation serving as interim remedies. However, pursuing a sustainable solution necessitates conceptualizing and implementing a new category system, involving substantial reclassification efforts and rectifying inaccuracies while recognizing the resistance that standards can impose. Paying attention to the marginalization of non-standard entities and the limitations of traditional systems is crucial for addressing these challenges and ensuring a more effective and inclusive classification of objects in the digital age. Category 74 within the MEK's category system shows how standardized tools and procedures at the core of knowledge representation relegate essential entities to the periphery. The appearance of these "fringes" could be subtle, their use evokes uncertainty, and the work on them could be easily treated as taken things for granted. These "fringes" are far from the center but not hard to reach. They are, and will be, affected by people's actions.

Endnotes

1. MEK's complex institutional history spans from the founding of the Museum of Folklore in 1873 to the reunion of the two folklore museums in East and West Berlin in 1992. Additional details can be found at https://www.smb.museum/en/museums-institutions/museum-europaeischer-kulturen/about-us/history/

2. It has been widely discussed how enumerative classification schemes lack hospitality to new combinations and constrain how the classification evolves. S. R. Ranganathan wrote in his *Philosophy of Library Classification* (2006) that the discovery of new knowledge cannot be anticipated in an enumerative system. See also Glushko (2020).

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