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Information as compost: decentring humans in information practices research

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Abstract

Introduction. Information practices research remains largely focused on human activities and interactions, separate from broader environments. Although some approaches emphasise contextual, sociotechnical aspects, the agencies and affordances of other nonhuman beings, objects, and/or environments remain underexplored.

Analysis. Seeking different approaches in order to attend to the entirety and complexities of environments and relationships involved in information practices, two studies where such needs arose are presented as examples: explorations of the information practices of environmental sound recordists and of vehicle residents.

Results. Through engaging with theoretical approaches from other disciplines, the study examples highlight the importance of recognising information and related practices as always in states of decay and renewal, reliant on and in relation with all components of a particular environment.

Conclusion. Preliminary theoretical implications focus on the importance of considering relationships with nonhuman elements and actors alongside sociotechnical perspectives through the concept of information composting. Practical implications ask researchers to further attend to implicated environments and constituent actors/elements when seeking holistic and situated understandings of interactions with information.

Introduction

Despite attention toward a broadening range of constituent elements (e.g., social, cultural, economic), information behaviour and practices research often remains focused on individual human (inter)actions with/through external things (Buckland, 1991; Savolainen & Thomson, 2022), within 'contexts', and rooted in individual goals and desires. Several approaches do emphasise an increasing variety of contextual and sociotechnical aspects of information practices, with resultant (often metaphoric) concepts including information landscapes (Lloyd et al., 2013), information horizons (Sonnenwald, 2005), and information worlds (e.g., Ndumu, 2019). Additionally, affordances and agencies of technologies and systems in the constitution of information practices have been acknowledged (e.g., Huvila, 2021), and there has been an increasing attention devoted to sensory and embodied information experiences, incorporating more environmental factors (e.g., Keilty, 2018; Ocepek, 2018). However, the agencies and affordances of nonhuman actors (e.g., other animals, plants), other elements (e.g., geographic or atmospheric features), and/or broader environments, and how these relate to information practices, remain underexplored.

Minimising the roles and agencies of nonhuman actors/elements in information research may create epistemological limitations through artificial distinctions and binaries between elements and actors (Costello & Floegel, 2021), reinforce existing approaches to understanding and interacting with environments which view nonhuman beings/materials as resources for human use and consumption (Alaimo, 1994; Plumwood, 1991), and perpetuate perceptions of technologies as neutral tools (Noble, 2012). Increased recognition of human and nonhuman actors' and elements' ontological and epistemological hybridity may encourage further moves away from objective research ideals, suggest new critical approaches to understanding information interactions, and support shifts toward holistic information practices research (Nam, 2024; Polkinghorne & Given, 2021). Seeking to broaden attention to the entirety of terrains where information practices are constituted and enacted, we discuss two studies where participants' practices appear as overtly intertwined with nonhuman actors and elements. In this paper, we refer to situated places, including their actors (human and nonhuman inhabitants), and elements (natural and technological) as environments.

Background

Physical space, or a person's environment, has often been considered as a context or setting for information behaviour/practices research (Agarwal, 2017). This perspective suggests how place enables or constrains information access (Gibson & Kaplan, 2017) and how place and information influence, and are influenced by, human behaviour (Sonnenwald, 1999). Temporality and the social nature of human interactions in specific locations or environments shape information flow (Fisher & Naumer, 2006), and social practices construct meanings attached to places and environments (Cox & Fulton, 2021). Yet, far from static (Demeritt, 1994), environments, information activities, and meaning-making emerge through evolving relations and everyday interactions (e.g., snapping the perfect nature photograph or seeking safe parking) (Corbett & Loukissas, 2019).

Information practices literature, when highlighting nature and environments, has primarily addressed information related to environmental concerns. Practices such as recycling, composting, and energy efficient product use (Haider, 2011), climate change communication (Graminius, 2020), sustainable information practices and technology use (Nathan, 2012), and environmentally-friendly living (Haider, 2016) have been considered. Researching biodiversity citizen science, Ekström (2022) highlighted the variability of information practices involved in engaging with environmental information, systems, desires, and material objects. Additionally, information research involving multispecies family living (Solhjoo, 2022) suggests the importance of looking to a broader range of nonhuman actors/elements. However, direct interactions with

environments are rarely discussed in information practices literature. To deepen conceptualisations of the environment in information practices, we thus turn to other theoretical perspectives foregrounding the co-constitution of humans and nonhumans.

Perspectives from other disciplines

Several theoretical/methodological standpoints look beyond human-focused understandings of meaning-making and knowledge production, emphasising the entwinement of all actors/elements in any situation. These include: situated and embodied approaches, highlighting agencies of all objects, technological, biological, or otherwise (e.g., Haraway, 1988); ecological perspectives which understand broader networks or infrastructures as inseparable from people/groups, related actions, technologies, and surrounding environments (e.g., Puig de la Bellacasa, 2016; Star, 1999); and, standpoints which decentre human control and exceptionalism to attend to interspecies relations, dependencies, and productivities inherent to human being, knowing, and doing (e.g., Tsing, 2012). Haraway's conceptualisations of cyborgs (2016a) and composting (2016b) also suggest new ways of understanding and knowing through the hybridity of natures, cultures, and technologies (Huvila, 2021; Wilson, 2009).

In this paper, we specifically draw from the ways soil and compost have been explored, highlighting how all (healthy) life and related activities necessarily exist in states of interdependence, care, and obligation (e.g., Puig de la Bellacasa, 2019). Cycles of composting, living and dying, growth and renewal, can be crucial metaphors for reframing human-nonhuman relationships and for more holistic perspectives on the nature of and contributing factors to human activities. This broad conceptualisation of composting may suggest new approaches to understanding information practices and experiences.

Case study examples

To further explore processes of decay and renewal and the decentring of humans in information practices research, we present examples from two studies: qualitative explorations of the information practices of environmental sound recordists (Stewart-Robertson, 2025) and vehicle residents (Montague, 2025). Particularly, this paper asks: in what ways do the two example studies highlight the interrelatedness of all actors and elements in shaping environments and related information practices? We then examine how positioning humans as always in relation with/to the many active and agentic components of any situation might broaden conceptualisations of information practices.

Case study 1

Uses of environmental sound recording in producing scientific/ecological knowledge have expanded dramatically (Ritts & Bakker, 2021), and rapid shifts in related technologies (Gibb et al., 2019) have increased access to environments and created possibilities for massive data collection and automated analysis. While providing crucial information for understanding, monitoring, and documenting environments and their inhabitants, related information practices and knowledge production activities remain little understood.

To build understanding of the complex situations and information activities involved, Stewart-Robertson conducted in-depth interviews (31) and ethnographic observations (8) with 31 researchers from a range of approaches (e.g., bioacoustics, ecoacoustics, acoustic ecology) and collected a variety of related discourse materials (e.g., recordings, technical manuals, webinar videos). Analysis was done using situational analysis mapping (Clarke et al., 2022; Friese et al., 2021) and grounded theory coding (Charmaz, 2014). Through mapping techniques, all actors (e.g., people, organisations, other animals) and elements (e.g., environmental features, technologies) were assessed non-hierarchically, helping build understandings of constituent relationships (see Figure 1).

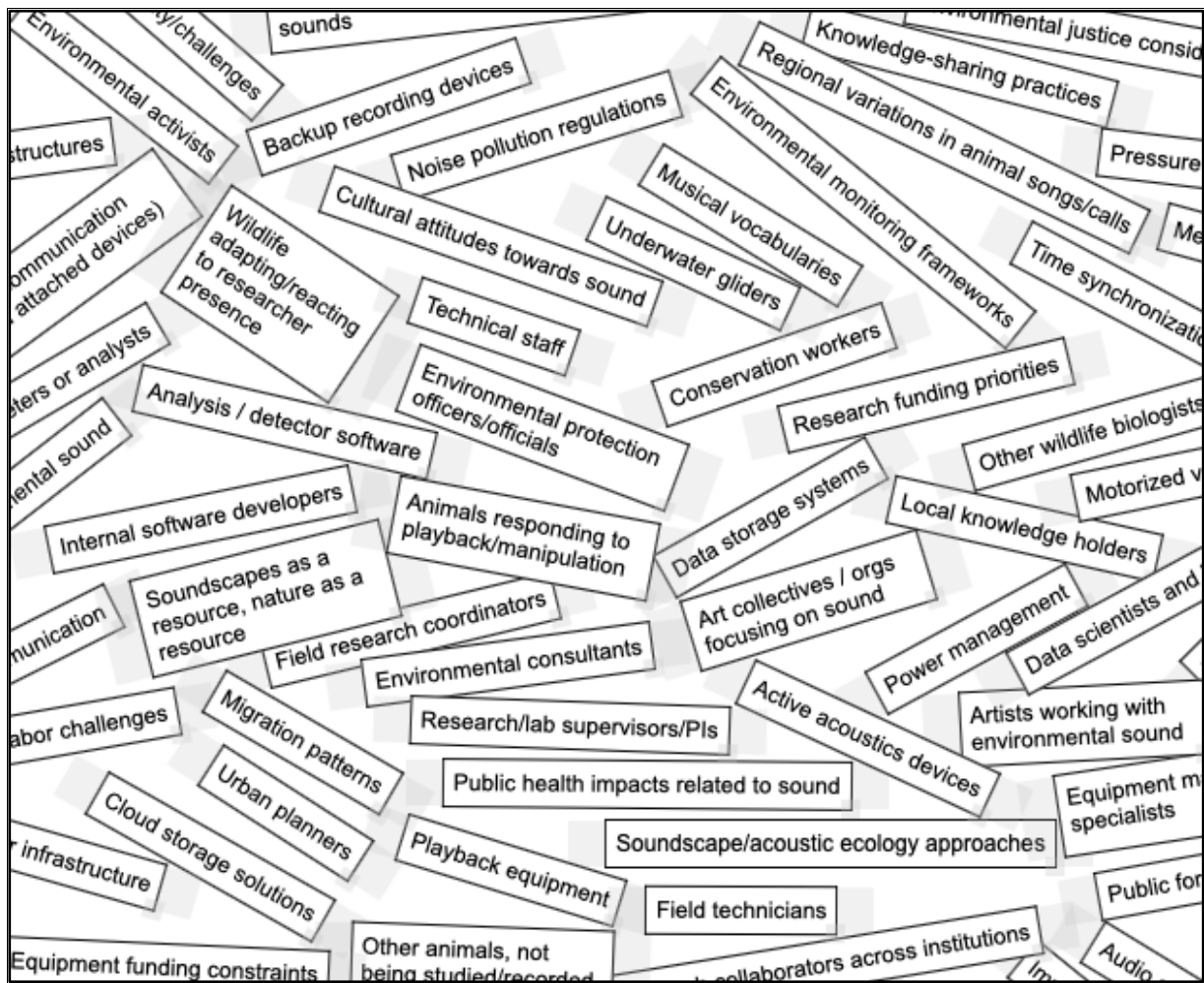


Figure 1. Portion of messy situational map of environmental sound recording practices, displaying related people, organisations, discourses, technologies, and nonhuman animals.

Preliminary findings highlighted how participants' specific skills and literacies for seeking and identifying information from environmental sounds emerged through, and were inseparable from, the complex relationships involved. These relationships comprised actors, elements, and discourses drawn from surrounding environments and geographies, animal behaviours, embodied knowledges, local communities, government regulations, technological affordances, and aesthetic/affective affinities (among others). For example, 'Jazmin', using sound technologies to seek information related to the movement of underwater sediment, described making research decisions, such as choosing recording sites, based on a range of variable environmental and logistical features. By highlighting the roles of such aspects as convenient water access, cable lengths, mooring portability, sand composition, and tidal dynamics, 'Jazmin's' account illustrated some of the ways environments—including features and inhabitants, together with sociotechnical aspects—are involved in the evolving reconstitution of information activities. The diverse elements that either exist within or are required to interact with those environments, combined with the overtly shifting character of many of the environmental components themselves, reveal information practices as continuously forming, reforming, decaying, and renewing through those evolving inter-element relationships.

By bringing themselves into relation with the complexity and variability of various habitats, participants' information experiences and practices, the environments themselves, and the

resulting knowledge produced were also constantly reshaped. For instance, several participants shared information through playback techniques (e.g., reproducing pre-recorded sounds), to seek information from elicited responses of animals and/or to assess human impacts on animal behaviours. Participants also described shifting microphones, based on technological specifications and environmental characteristics, to highlight certain sounds, choosing locations based on anthropogenic sound sources, and making decisions through their own physical abilities and interactions with environments (e.g., their own height and reach relative to surrounding flora). In such situations, lines between seeking, sharing, using, and creating information become especially opaque, and the ways in which information and related practices shift, fracture, and renew through present relations is highlighted.

Case study 2

Montague conducted mixed methods, ethnographic research exploring vehicle residents' information practices. The aim was to understand the relationships among vehicle residents, their most utilised resources, and how their geographic mobility and immediate environments—often based on law enforcement and the disputed legality of vehicle residency (Giamarino et al., 2022; Pruss, 2023)—impact information access.

Data were collected in two rounds, through ethnographic fieldwork, in Santa Cruz, California, and near the California-Arizona border. Methods included information horizon interviews (Sonnenwald et al., 2001), guided tours of participants' vehicles (Thomson, 2018), and photographs of participants' vehicles and immediate information spaces (Hartel & Thomson, 2011). Information horizon interview maps and photographs were analysed using inductive analysis (Corbin & Strauss, 2015), and audio transcripts of information horizon interviews and guided tours were analysed using abductive analysis: a back-and-forth process between research evidence and theory (Tavory & Timmermans, 2014, Thompson, 2022).

Round two included 25 participants, all from various backgrounds. Results pointed to participants' information resources, access, and activities as directly tied to their environments (Montague, 2025). Figure 2 depicts 'Bernice's' information horizon interview map. During the information horizon interview, she referred to the desert's beauty while situating herself within the actual landscape (see stick figure), surrounded by natural elements also representative of information resources. Illustrating a landscape inspired by *The Lord of the Rings* and drawing the foundations of information access, mountains represent information resources about safe parking places, with iOverlander, the highest peak, as the most valuable. 'Bernice' highlighted some of the overt ways in which interactions with environments constitute information practices. For instance, barriers to information access in remote areas explained why paper maps were a necessary information source, always kept in her vehicle.

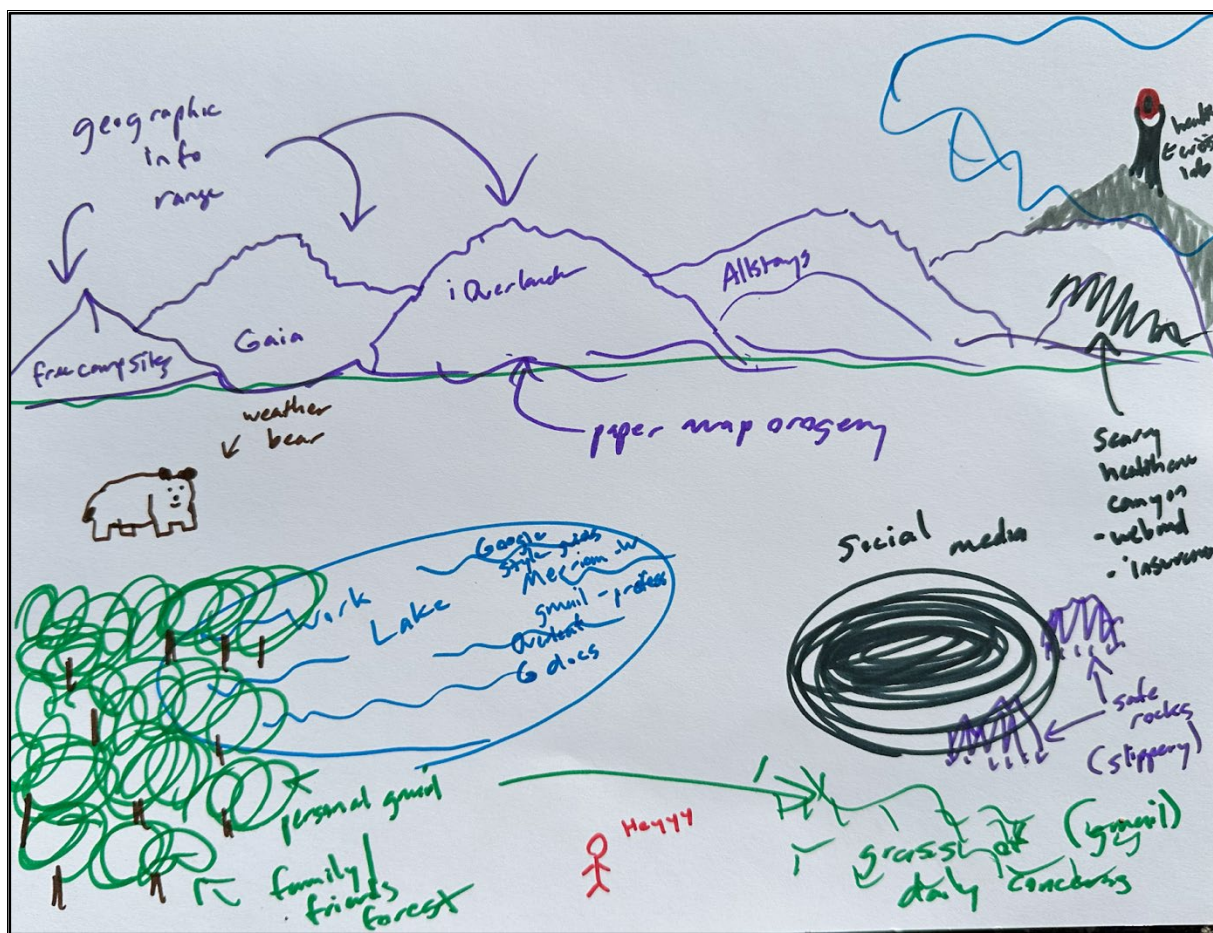


Figure 2. Depicts 'Bernice's' information horizon interview map, illustrating how she considers her environment when assessing available information resources.

Round two findings corroborated those from round one: social factors and parking policies force vehicle residents to the margins (e.g., public land depicted in Bernice's map in Figure 2) (Montague, 2024), while also pointing to more in-depth understandings of the processes and relations unfolding throughout vehicle residents' information practices. Vehicle residents access and require place-based resources for their continued survival (e.g., parking laws), yet shifting locations, environments, and related actors/elements complicate access and use. For instance, parking and parking laws appear as both information activities and resources existing through specific environments. However, environments, as information sources, are continually reconfigured through vehicle residents' mobility, hindering or affording access throughout these environments. Technological affordances also shift through combinations of discursive and environmental elements (e.g., parking laws push vehicle residents out of cellular/Wi-Fi connectivity), reshaping vehicle residents' environments and hindering access. Thus, vehicle residents' information needs and access influence their geographic movements, their environments shape their information practices, and those information practices impact their relationships with various actors and elements, reconfiguring their environments. Such processes highlight the relational interdependence of vehicle residents' information practices with environments and their constituent components; the decomposition and renewal of vehicle residents' information practices occur with/through their environments, echoing the cyclical, relational, multi-actor dynamics of soil fertilisation and conditioning.

Discussion and conclusions

Both examples—seeking and creating information through sound across shifting environments and iterative processes of reforming information landscapes through mobility—highlight the situatedness and fragility of information and related practices. Building from these findings and inspired by Haraway (2016b) and Tsing (2015), we conceptualise information composting to describe activities and interactions within information practices and experiences. For Haraway (2016b), compost-composting emphasises the becoming-with of humans with other interconnected actors/elements, processes of transformation, decay, and renewal inherent in all life/matter. Composting, always active, involving and reliant upon multiple relations, in ongoing states of de- and recomposition, may be understood as an apt analogy for the complexity, non-linearity, and contingency of those information activities understood as comprising information practices. The overtly environment-entangled information practices present in both case studies foreground the interrelatedness of all actors, elements, and activities in a situation. Information composting therefore suggests a direction for moving beyond understandings of information and related activities as static, linear, or discrete, and toward recognising them as always linked to dynamic and local assemblages. Table 1 elaborates on some of the processes highlighted through an information composting-practices perspective.

Decomposing	Existing information practices break down under changing environmental-sociotechnical conditions
Mixing	Heterogeneous actors/elements (e.g., soundscapes, sensor outputs, embodied knowledges, information resources, institutional norms) combine in unpredictable ways
Re-aggregating	New information, understandings, and practices emerge from novel aggregations/assemblages
Renewing	Practices continually (re)cycle, forming or recreating as people and activities move through/with different information environments, tools, and networks

Table 1. Terms and explanations for processes of information composting.

A composting lens foregrounds the inseparability of human activities from interconnected more-than-human communities/environments, where social, technical, and natural are inextricably intertwined. Thus, we suggest information practices, viewed as sociotechnical practices (e.g., Tuominen et al., 2005), must also be socionatural. Understanding doings and sayings with information, as in explorations of everyday life practices (Savolainen, 2008), should ask how those activities also exist through/with other life practices and their socionatural surroundings. Human information interactions are never only human.

Derived from the above case study examples, Figure 3 diagrammatically presents the various processes through which information sources and practices are always reconfigured with and across environments. Preliminary theoretical implications suggest information composting as a way of thinking through the importance of considering environments holistically, alongside sociotechnical perspectives, while simultaneously emphasising the precarity of and processes of decay-transition-renewal always present within information experiences/practices (Stewart-Robertson, 2022). In presenting this concept, we ponder how such attention might lead to new understandings of information practices and new research avenues.

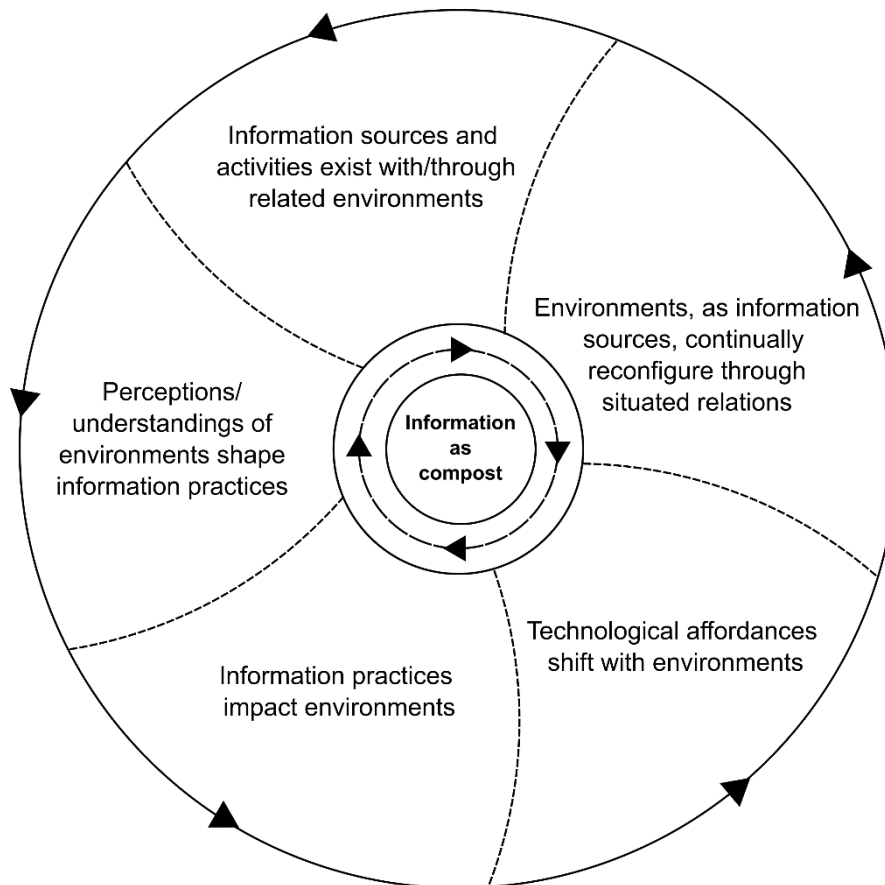


Figure 3. Visual representation of information as compost, through interconnected elements and processes in constant states of decomposition and renewal.

Practical implications suggest researchers attend to all actors/elements, including those of the ‘natural’ world, in information practices studies, system analyses, and design. Related research might build on existing work related to information transitions (Montague, 2025; Ruthven, 2022; Willson, 2019) and fractured information landscapes (Lloyd, 2017) to explore processes of decay and regeneration as constant and embedded in every information activity (albeit differentially). Future work will expand on information composting, building deeper understandings of how information practices decay and renew across situations. In doing so, we aim to engage other perspectives on relationships to and with land/place/environments absent from normative approaches to information practices and the environment.

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