

# Boundary objects in information science research

An approach for explicating connections between collections, cultures and communities

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## ABSTRACT

Boundary objects (BO) are abstract or physical artefacts that reside in the interfaces between organisations or groups of people. The concept of BO, introduced by Star and Griesemer in an article in 1989, has been used in a broad variety of studies in different research communities from management to computer science and different fields of information science. The aim of this panel, composed of experienced BO researchers, is to provide an overview of and introduction to the state of the art of information science research informed by the theory for the researchers and practitioners participating in the conference; to illustrate the variety of studies and contexts in which the notion of BOs can be found useful in explicating connections between collections, cultures and communities; and to push forward the state of the art of BO-oriented information science research by discussing new empirical and practical areas of interest and the theory itself.

## Keywords

boundary objects, information science

## 1. INTRODUCTION

Boundary objects (BO) (Star 2010; Star & Griesemer 1989) are abstract or physical artefacts that reside in the interfaces between organisations or groups of people. They have the capacity to bridge perceptual and practical differences among communities and facilitate cooperation by emerging mutual understanding (Karsten et al. 2001). They negotiate meaning between groups of people and provide means to explain how and where communities, cultures and

information infrastructures are connected and disconnected. The theory of boundary objects was originally introduced by Star and Griesemer (1989) in their study on information practices at the Berkeley Museum of Vertebrate Zoology. They described boundary objects as translation devices and argued that shaping and maintenance of boundary objects is central to developing and maintaining coherence across communities. In a later text, Star (2010) emphasized usefulness (at particular levels of scale) as a central premise of BOs and extended the contextualization of the BOs in the cycle of standardization (making and collapse of standardised objects and systems), emergence of residual categories (categories including not elsewhere categorized or none of the above,) and the consequent surfacing of intermediary objects to facilitate cooperation. Studies have shown that different artefacts may function as BOs, including visual representations (Henderson 1991), cancer (as a conceptual artefact) (Fujimura 1992), technical standards, geographic information systems (GIS) (Harvey & Chrisman 1998), activities (Macpherson et al. 2006), group affiliations (Lindberg & Czarniawska 2006) and documents (Østerlund 2008).

The concept of BO has been used in a broad variety of studies in different research communities from information systems and computer supported co-operative work research (Lee 2007; Lutters & Ackerman 2007) to management (Kuhn 2002), archival science (Yeo 2008) and library and information studies (Albrechtsen & Jacob 1998; Lund 2009). The original article from 1989 has been cited in Google Scholar almost 4500 times in January 2014 and 1388 times in Web of Science (with 167 in 2012 compared to 53 in 2005) telling something about the influence of the theory. In addition, a large corpus of literature discusses boundaries and boundary crossings using related concepts such as boundary spanning (e.g. Carlile 2002; Gasson 2006; Levina & Vaast 2005), boundary-work (e.g. Faraj & Yan 2009) and boundary negotiating artifacts (Lee 2007). In information science research, BOs have been discussed in the context of document studies (e.g. Huvila 2011, 2012; Lund 2009), information practices and work research (e.g. Huvila 2013; McKenzie & Davies 2010), knowledge organisation (Albrechtsen & Jacob 1998; Jansen 2013), community information (e.g. West-

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brook & Finn 2012) and social informatics (e.g. Fleischmann 2006; Worrall 2013b).

The aim of this panel, representing scholars from different areas of information science who have conducted empirical and theoretical research guided by the theory of BOs, is 1) to provide an overview of and introduction to the state of the art of information science research informed by the theory for the researchers and practitioners participating the conference; 2) to illustrate the variety of studies and contexts in which the notion of BOs can be found useful in explicating connections between collections, cultures and communities; and 3) to push forward the state of the art of BO-oriented information science research by discussing new empirical and practical areas of interest and the theory itself.

## 2. LAYOUT OF THE PANEL

The panel starts with a short presentation that introduces the concept of boundary objects and its origins to the audience. After the presentation, all panelists give a lightning talk of a case study of using BOs in different areas of information science research with a specific focus on the theoretical and practical benefits of the approach in the context of the specific study. After the lightning talks, the panelists are asked to give short, one minute reflections of how and in which area of research or practice they would push the state-of-the-art of BOs in the field of information science. During the final part of the panel, the audience is asked to join the discussion with panelists on BOs, their use and usefulness in information science and technology research. The discussion is led by the moderator and facilitated by a set of questions based on the panelists' presentations.

The presentations follow a double trajectory of exploring the use and usefulness of the notion of BOs in different areas of LIS research (including Hourihan Jansen in knowledge organisation; Worrall in social informatics and digital libraries; Huvila, Westbrook and McKenzie in the different context of information practices, activities and behaviour; and Anderson in the interface of IT and IS) and the various significant aspects and characteristics of informational BOs (including Huvila: authorship; McKenzie: temporality; Worrall, Anderson: technology; and Westbrook, Huvila, and Hourihan Jansen: authority, control) in different areas of IS research.

## 3. PANELISTS AND THEIR CONTRIBUTIONS

### Isto Huvila, Åbo Akademi University

Isto Huvila discusses the notion of BOs in the context of his research of documentary practices in archaeology. His analysis shows how archaeological investigation reports function as devices of control and hegemony between different stakeholder groups in the field of archaeology (Huvila 2011). The writing of a report is an act of attempting to seize control over the meaning and significance of a particular archaeological site. The authorship of the report makes the document a particular type of BO and influences the ways how the boundaries are negotiated and traversed between communities (Huvila 2012).

Dr. Isto Huvila is a senior lecturer in information and knowledge management at the School of Business and Economics, Information Studies, Åbo Akademi University in Turku, Finland and an associate professor at the Department of ALM (Archival Studies, Library and Information Science and Museums and Cultural Heritage Studies) at Uppsala University in Sweden. His primary areas of research include information and knowledge management, information work, knowledge organisation, documentation, and social and participatory information practices. Huvila has given numerous invited talks and published broadly on the topics ranging from information work management, archaeological information man-

agement, social media, virtual reality information issues to archival studies and museum informatics.

### Theresa Dirndorfer Anderson, University of Technology Sydney

Theresa Anderson discusses boundary objects as a notion, which resides in the interface of human-computer interaction (HCI), computer supported cooperative work (CSCW) and library and information science. Anderson has drawn on the concept to study systems, people, projects and documents, using the BO as an analytical tool for examining the ensemble of people, information and technology. She has, for example, studied how the concept can be applied to explicate the functioning of a research project (Light & Anderson 2009) and, for instance, from a conceptual perspective in the context of information science as a notion that can help to identify various types of informative artefacts as socio-material forms (Anderson 2007). Anderson finds the boundary object concept particularly fruitful for recognising informative artefacts (books, documents, records, citations or other informative representations) as socio-material forms. She draws on notions of inscription and alignment closely associated with the boundary object construct to position these representational devices as central actors in the structuring of practices and technologies as alignments of both material and discursive practice. In this way the focus turns from representation as mental activity to inscription as social activity. In her presentation she will discuss how the interdisciplinary contexts of the notion can be helpful in framing and reframing central concepts in information science research.

Dr. Theresa Anderson is a senior lecturer and faculty member at the Centre for Creative Practice and Cultural Economy, University of Technology Sydney. Her research explores the relationship between people and emerging technologies. She has a particular interest in examining ways information systems and institutional policies might better support creative and analytic activities.

### Eva Hourihan Jansen, University of Toronto

Eva Hourihan Jansen presents new findings from fieldwork she conducted at a career mentoring program for skilled immigrants to Canada throughout early 2014. Her study focuses on a standard occupational classification system used to deliver the program and is among few taking an ethnographic approach to research in classification and knowledge organization. She approaches her study sensitized to concepts of culture, including boundary objects, with an interest in interpreting her participation in fieldwork. Her contribution to the panel will be to interrogate the explanatory power of boundary objects in the context of this inquiry into standardized occupational classification.

Eva Hourihan Jansen is doctoral candidate at the Faculty of Information, University of Toronto. She is interested in what happens at the intersections of knowledge organization systems and information practices. Currently she is studying a standard occupational classification system as a way toward understanding and articulating ways that people relate to and make meaning with it in their workplace.

### Pam McKenzie, The University of Western Ontario

Pam McKenzie discusses the ways that everyday tools such as calendars, planners, lists, and reminders function as temporal boundary objects (McKenzie & Davies 2010; Yakura 2002) for orchestrating complex activities with multiple timelines. She shows that the creation and use of temporal BOs embeds considerable information management work: the categorization of temporal units, the development and communication of working taxonomies, and the documentation and management of temporally-related information. Studying temporal BOs shows how everyday 21st century home

life is itself complex, shaped by institutional as well as domestic temporalities and requirements.

Dr. Pam McKenzie is an Associate Professor in the Faculty of Information and Media Studies at The University of Western Ontario. She is interested in social, material, temporal, textual, and interactional aspects of information creation, seeking, sharing, and use, in the intersections between information work and caring work, and in gendered and embodied information practices, spaces, and places. Her research focuses on the ways that individuals in local settings collaboratively engage in information practices and the ways that those practices are embedded in broader discursive and social contexts.

#### Lynn Westbrook, University of Texas

Dr. Westbrook is an Associate Professor in the University of Texas School of Information. She will share her research on the use of information documents as boundary objects between professional sets of authoritative responsibility for women in crisis. The formally crafted print materials distributed to "crime victims" in domestic violence situations explicitly and implicitly define levels of engagement for the government (as an abstract entity) and social network of service providers. Dr. Westbrook has published extensively on women in domestic violence contexts and is currently working on information issues in the cervical cancer experience.

#### Adam Worrall, The Florida State University

Adam Worrall will present on the use of the boundary object concept and theory in social and community informatics research, focusing on his recent study exploring the roles of social digital libraries as boundary objects within and across communities. He asks whether and how they support and facilitate (a) coherence among the existing communities that use them and (b) convergence of new, emergent communities, as users interact, translate meanings and understandings, and use the digital library as a boundary object. His findings identify three different roles in community coherence and convergence that should be supported by social digital libraries: (a) establishing community and organizational structure; (b) facilitating users sharing of information values; and (c) building and maintaining social ties, networks, and community culture (Worrall 2013a,b, 2014). Worrall's contribution to the panel will be to explicate the power of boundary object theory alongside theories of community for studies of digital libraries and other information and communication technologies (ICTs) from a social and community informatics perspective.

Adam Worrall is a Doctoral Candidate at the Florida State University School of Information. His research interests focus on studying information and information behavior within and around the social and sociotechnical contexts of ICTs. Worrall is completing a case study of the roles of the LibraryThing and Goodreads digital libraries and online communities, as boundary objects, in the existing and emergent communities that use them, through a theoretical and analytical framework of Stars boundary object theory, Strauss's social worlds perspective, and Burnett and Jaegers theory of information worlds.

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