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Cross-channel information architecture for a world exposition

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ABSTRACT

This paper reports an investigation and assessment of the digital information, provided via multiple channels, for the 2015 World Exposition (Expo) in Milan. Using emerging theoretical constructs in cross-channel information architecture as a lens, the researchers examined aspects of the digital information ecology that supported the Exposition event. This study focused, firstly, on how well information and its structure maintain a coherence that is useful and meaningful to its target audience across various technologies and platforms. Secondly, it attended to the means and mechanisms for moving from one information artefact to another and it comments on the ease with which global audiences traversed the multiple channels that formed the information environment of Expo 2015.

1. Introduction

In recent decades, information architecture (IA) has focused on the information structures of discrete information spaces, primarily websites and mobile apps (see for example, Morville & Rosenfeld 2006; Wodtke & Govella 2009). However, a new era for IA is heralded by Resmini and Rosati (2011); an era that acknowledges a technologically-enabled, multiple-channel attribute of information. The multiple channels through which related information can be disseminated invite an information architect to take responsibility for a pervasive information layer that straddles multiple channels that include the web, mobile applications (apps) on tablet devices or smart phone and print and physical spaces, in a single architecture of meaning (Fisher, Norris, & Buie, 2012; Resmini & Rosati 2011).

This study examined the information structures of multiple digital artefacts and channels that provided information for the 2015 World Expo in Milan, Italy, which had the theme *Feeding the Planet: Energy for Life*. Official websites, mobile and reduced versions of these, personal blogs, apps for mobile tablet devices and smart phones, as well as varied print media, were some of the components of the information ecosystem that was experienced by those who sought to be informed about the event. This study adopted existing, yet fledgling, heuristics and frameworks for designing and evaluating meaningful, consistent, and coherent information structures across multiple, intertwined channels of digital information. It uncovered both the successes in seamless and coherent cross-channel information provision and some of the factors that prevented it from occurring.

A world Expo is first and foremost a phenomenon relying on effective communication. Its success is dependent on optimal communication and information provision to the millions of people who attend. A global Expo attends to informing on a massive scale and the public-facing digital information provision of World Expo 2015 was extreme in its complexity. Online and offline information that is coherent across platforms and devices is a critical aspect of the resulting digital ecosystem and the event itself. Information must be accessible to Expo attendees from their home country, during their travel, and whilst visiting the Expo event. In this, the traditional bounded website, as well as information for mobile access, is a required strategy. Multiple languages and political landscapes must be considered. Many different organisations and bodies contribute to the total information requirements of an Expo and its attendees, thus multiple and possibly isolated practices of IA will make contribution to a vast information ecology. The factors that hinder the construction of cross-channel, yet meaningful, information strata will be exposed in such an extreme undertaking of online information provision.

2. The literature

In recent years, the literature of IA has shifted from a single focus on websites, to incorporate the design of optimal information environments that traverse various technology and media channels. The shift acknowledges a change: the working domain of IA is less determinable as digital information is provided via a suite of varied, yet allied, information artefacts across a number of different channels. A new wave of theoretical instability confronts IA as it acknowledges and grapples with this extension (Burford 2014a). Fisher et al. (2012) expressed the

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extent to which new understandings and knowledge are required to design optimal cross-channel information structures.

If we are to begin to create architectures of meaning within complex cross-channel systems, we must first begin to understand the relationship that each channel will play and the many ways that a user's understanding can degrade within the system (p.6).

Resmini and Rosati (2011, p. 55) proposed five heuristics based on their expertise in IA, defining heuristics as "guidelines, problem-solving suggestions, and directions". Firstly, they described the notion of *place-making*, which should be used to reduce user disorientation in a cross-channel context. Using similar paths, nodes, and landmarks across channels constructs a sense of place, knowing, familiarity, and continuity as a person interacts in semantically adjoined information spaces. *Consistency* is the second heuristic. It encourages constancy, reliability and coherence across channels. Whilst organisational schemes and systems may not be identical, they should be in harmony. Thirdly, Resmini and Rosati (2011) promoted *resilience* as a heuristic to attend to the multiple needs and goals of users across channels. An IA needs to be dynamic and adaptable in the face of varied user contexts and requirements. The fourth heuristic is *reduction* which signals the need for elegant handling of large information holdings and the provision of simplicity and clarity in user choice. The fifth and final heuristic is *correlation* which promotes well-connected, interlaced information environments that enable the fulfilment of user goals and support meaningful movement across channel

Fisher et al. (2012) suggested four categories of channels, classifying a channel on its use rather than its technology. Firstly, a *support channel* is one that makes contribution to a user's overall goal and may steer them toward a channel where a task can be accomplished. Secondly, a *replication channel* reproduces some or all of the information on another channel. Fisher et al. (2012) suggested that this may occur with websites and mobile sites. They offered a third category of channel use, *multi-purpose channels*. The *multi-purpose channel* has several uses and may be intended, for example, as both *support channel* and *replication channel*. Fourthly, a *symbiotic channel* is proposed – a channel that must be used in tandem with another. Fisher et al. (2012) acknowledged that their theoretical approaches to channel use are in their infancy.

Resmini (2016) offered a more abstract definition of channel as a design construct, describing it as a loose or fuzzy container or category for information that is produced and consumed within an ecosystem. A typical channel could, for example, contain all information that is socially produced by users within the information ecosystem and disseminated for interaction across a varying number of artefacts. Individually identifiable elements, such as websites, are considered touchpoints that can may belong to one or more channels. Well-integrated touchpoints, or more pervasive channels, allow for better experiences and structure a more resilient and adaptable architecture. While this specific approach has been trialled in practice, it is yet to be articulated and widely adopted (Resmini 2016).

For the most part, however, the valuable construct of 'cross-channel' is confused in use and still poorly defined. Fisher et al. (2012, p. 5) listed "web, mobile, tablet and physical space" as four common channels. In this, they blended platforms such as web with devices such as tablets. Later, they called for coherence in IA "between devices and channels" (p. 9). Resmini and Rosati (2011 p. 41) described cross-channel experiences as those that require movement across media, devices and domains such as digital and physical space. The complexity that is captured in 'cross-channel' creates a valuable descriptor and definition has not been demanded.

Seamlessness is a valued attribute of human interactions with digital information (Burford 2014b; Resmini & Rosati 2011) and signals a smooth and easy path in information seeking. A seamless user experience, however, is most often achieved by attention to the *seam* that binds and structures information. The metaphor of *seam* suggests crafting, and purposeful coupling and construction. In order to provide a smooth transition from one information entity to another, a seam must be well designed. As with many information endeavours strong seams that have been well constructed may become invisible in use (Bowker & Star, 2000) and a contrary discourse of *seamlessness* arises to describe the optional experience in the use of interconnected information artefacts. However, Rudström, Höök, and Svensson (2005, para. 13) suggested that "pursuing seamlessness at any cost might not only be an impossible goal to reach but possibly even be harmful". They proposed that a well-designed seam between digital and physical spaces, made visible to the user, is likely to "allow for a better understanding of the resulting combined space" (para. 5). Chalmers, Dieberger, & Höök, 2004 suggested that *seamful* design allows users to appropriate those seams and the contexts that they convey for their own sense-making and interpretations.

Fisher et al. (2012) introduced the notion of *carrying information* from one channel to another, using tools such as email, bookmarking or social media. In this way, a valuable item of information such as an identifying product code or a phone number can be "carried across a channel" (p.23) and subsequently used in a related but different channel. This concept resonates with Resmini and Rosati's (2011) heuristic of *correlation*, which invites connective, interlaced information environments.

Grossman (2006) introduced the construct of a bridge to achieve a similar purpose. He described a user experience of crossing from one information artefact to another as a bridge experience. "A bridge experience is one in which the user experience spans multiple communications channels, document genres, or media formats for a specific, tactical purpose…. without movement between domains, a user cannot reach the end goal that a bridge experience makes possible" (Grossman 2006 para. 4). He also claimed that users design the overwhelming majority of bridge experiences and in doing so, strengthened the notion of emergent information structures. Best effort information design seeds an ecology but an IA emerges afresh with each human interaction (Haverty, 2002). Resmini & Rosati's (2011) adopted this stance, describing a cross-channel information environment as an emergent structure in which considered top-down intervention is mediated by quicker bottom-up activities.

Haverty (2002) described IA as supporting an emergent phenomenon, that of a user's interaction with the information. She writes:

> *A system exhibits emergence when a small set of building blocks, constrained by simple rules, can generate a huge number of complex patterns. An emergent phenomenon cannot be summarised by a description of its individual parts; the whole is not equal to the sum of the parts (p. 840).*

A specific IA and a user's interaction cannot be fully explained by an understanding of each design component – its real nature emerges when a user interacts with the information space and each interaction is unique. For Haverty (2002), the quality of an IA will always be determined by how well it supports a total user experience. Harvey, Robertson, & Edwards (2004) empirically support Haverty's claim that IA is emergent. They aimed to extend the consideration of the term IA, moving it from its design focus to include how it is lived and used. Their research suggests that the representational states of online information are not fixed, but are fluid and emergent. Benyon and Resmini (2015) extended these notions of emergence in conceptualising a cross-channel ecosystem that is actor-driven and determined in blended spaces.

As many before them (for example, Fast 2006; Madsen 2009), Hobbs et al. (2010) called for research to contribute to the building of a disciplinary knowledge-base and the transformation of IA as casual practice, into IA as discipline-led practice. They promoted practice-led research as a mode of inquiry that could contribute to this shift. Practice-led research positions the outcome or artefact of design work as a site of informal codification of the practice knowledge. Hobbs et al. (2010) claimed that a high proportion of practice knowledge is embedded in designed entities when a design practice is new and knowledge has not yet been codified in textual accounts. As such, the artefact