Designing Cross-channel Ecosystems as Blended Spaces

Abstract
This paper provides a contribution to the conceptualization and design of hybrid, digital / physical spaces of action as information-based constructs, based on applying the theory of conceptual blending to the creation of novel, blended spaces on one side, and on extending these to actor-driven cross-channel ecosystems as the digital / physical places where experiences occur.

Author Keywords
Cross-channel; blended space; contextual blending; place; place-making; user experience; information architecture.

Introduction
The vast array of phenomena related to socio-technical convergence has radically transformed our relationship with information [5]. The result is an unexpected, layered, uneven but very real version of ‘cyberspace’. Information interaction is mediated by the digital space of apps and web sites, but it has also become embodied and embedded in a variety of ways in physical space. Sensors monitor our interactions with the environment, physical objects such as tickets and signage deliver information and augmenting our experience of certain location-based services, provide digital-physical links.
Furthermore, since we can simultaneously be sitting in a concert hall or a stadium and participate in multiple asynchronous, distributed conversations happening on services such as Twitter, our use and perception of physical space and our sense of place [13], what the place we inhabit is and where it is, necessarily change.

We argue that this extended notion of place is a novel blend of digital and physical, not necessarily contiguous spaces in which most of our day-to-day experiences increasingly occur. Designers need to design for these blended spaces and the cross-channel experience ecosystems that characterize modern interactions.

**Blended spaces**

Benyon [1] defines a blended space as a space “where a physical space is deliberately integrated in a close-knit way with a digital space” (p. 79). This blended space is a new type of space with its own emergent structure offering a novel user experience. Drawing on the ideas of conceptual blending [4] the idea of blended spaces has been applied to the domain of digital tourism [2] and to the design of meeting rooms [3].

Benyon [1] applies blending theory to the creation of mixed reality spaces. He develops a view of digital and physical spaces in terms of four characteristics: ontology, topology, volatility, and agency. He argues that for the purpose of creating a good user experience these four characteristics constitute the structure of a generic space shared by both physical and digital spaces (Fig. 1). Ontology focuses on the objects in the spaces, topology on the relationships objects have with other objects. Volatility is concerned with the pace of change and agency with what agents there are in the spaces and what they can do there.

**Cross-channel experiences**

Originally a marketing term, cross-channel has been introduced to information architecture theory [11] and user experience [12] to describe the changes occurring in the design practice in response to convergence [5]. Cross-channel extends the conceptualization offered by crossmedia and transmedia theory to products and services beyond and outside of the media domain.

Cross-channel recognizes that actors interact with information across a multitude of devices, platforms, locations, and contexts, resulting in complex, activity-based ecosystems that are experienced as a continuous flow or movement across digital and physical space.

Cross-channel experience design represents a radically different way to conceptualize both the object and the role of design. Pragmatically, design activities are the result of a social, organizational, or individual need or pain. For example, a company may desire to extend its base of paying customers. Conceptually, the need or pain originates from the experience of multiple actors moving through individual ecosystems of connected
touchpoints to achieve a desired future state. Following the example given above, management wants more paying customers because a spreadsheet shows that profit is low, strategic meetings suggest to pursue further growth, and a third-party report on the web argues that our sector is ready for expansion.

Cross-channel ecosystems are post-digital constructs in the sense that Negroponte outlined in a 1998 Wired article [8]: digital is now trivial, “only noticed when it’s absent”, “taken for granted”, and factually unseparated from physical. Cross-channel ecosystems are also a “digimodern” artifact, representing the effects of digitalization on culture and expressing a different type of textuality characterized by onwardness, haphazardness, evanescence, and multiple anonymous authorship [6].

Widely used in the practice of user experience and information architecture, cross-channel design approaches have been applied in research projects such as a proposal for the redesign of the Johannesburg Art Gallery in Johannesburg, South Africa, a museographic installation in Florence, Italy, [9] and more recently to an analysis of the future of the workplace in a project running at Jönköping University in Jönköping, Sweden.

Cross-channel ecosystems

In terms of theoretical framing, a cross-channel approach implies a move to service-dominant logic as products become services or parts of services.

In terms of the design process, it introduces a novel systemic angle to the design of information-rich environments as they are seen as being, from an actor’s perspective, a single whole experience “smeared across multiple sites and moments in complex and often indeterminate ways” [7].

Resmini & Lacerda [10] formally define a cross-channel ecosystem as “the ecosystem resulting from actor-driven choice, use, and coupling of touchpoints, either belonging to the same or to different systems, within the context of the strategic goals and desired future states actors intend to explicitly or implicitly achieve”.

They describe cross-channel ecosystems as spatial constructs created through information flows, their constitutive design elements being actors, that is any agent engaging the ecosystem; tasks; touchpoints; channels; and seams, thresholds between connected touchpoints and channels.

Channels identify a pervasive layer for the transmission of information and other content within the ecosystem. Channels are the result of design decisions based on primary data acquired from the actors, relevant contextual knowledge, and the goals and scope of the project as envisioned by the design team.

Channels could reflect the formal sectioning provided by an enterprise architecture model, be the result of content analysis on actor-related primary data, or emerge much more informally from a project’s own context. For example, in a recent exploration of higher education as a cross-channel ecosystem at Jönköping University, Sweden, aimed at improving the quality of courses, extensive surveying and interviewing of students led the design team to identify five channels: external sources, representing all non-university-produced information; administrative sources, containing all information from management and administration; course information, pertaining to single courses; lectures; and peer information, containing all student-produced information.

Touchpoints are individual loci within the ecosystem where the information flowing through the channels is
made available to actors. Accessing touchpoints actors can consume or modify existing information or create more information to be injected into the ecosystem. Typical touchpoints are websites, mobile apps, kiosks, or staff members. In the higher education example mentioned above, “Facebook group” (involving a digital platform), “class debate” (involving people), and “lecture notes” (involving physical artifacts) were touchpoints identified as belonging to the “peer conversations” channel.

Granularity may vary based on contextual decisions. For example, a “Facebook group – Website” / “Facebook group – App” distinction could be introduced if pragmatically valuable in respect to the goals at hand.

Since touchpoints are medium-specific but the information they convey is medium-aspecific, touchpoints can of course belong to more than one channel. The identification of channels and the attribution of touchpoints to them is part of the design process and a case-by-case activity that is highly dependent on project data and setup. In blended space terminology, channels belong to conceptual space. Touchpoints on the other hand belong to physical, digital, or social space [1].

Touchpoints belonging to more than one channel act as seams between these allowing movement from touchpoint to touchpoint and across channels. While the experience needs to proceed unobstructed, this does not always mean seams should be unperceivable at all times. There might be situations where a “bump” is necessary, for example to warn an actor she is leaving a “secure” channel for an “insecure” one.

The relationships between these elements are an integral part of the structure of the ecosystem, as actors bind specific touchpoints into ecosystems in the pursuit of their strategic goals, resulting in a topological organization that can be described and designed according to Benyon’s defining characteristics for blended spaces.

The underlying information architecture that shapes the information flows within the ecosystem becomes a primary design element offering structural consistency and contextual anchoring to the consumption, co-production, and remediation of information into experiences.

**Blended spaces in cross-channel ecosystems**

Cross-channel design identifies primarily a designerly response to socio-technical change and the rise in complexity and indeterminacy brought along by pervasive computing and co-creation. Cross-channel experience design reflects a shift in the object of design from disembodied, single, discreet, finished artifacts or activities to the processes through which people combine these into personal, goal-oriented digital / physical ecosystems.

Cross-channel deals with experiences from an actor’s point of view. Experiences are not artificially product-, service-, or company-bound: to achieve their future desired state, people move at will between touchpoints that may belong to different or competing systems. In doing so, their experiences take place within their own individual ecosystem.

By focusing on the touchpoints as treating them as blended spaces connected through information flows, designers can look for the correspondences between objects and spaces in the digital and physical worlds. Very much like architectural or city planning interventions in the living fabric of a city, interventions
within an ecosystem need to broker between the instances presented by the ecosystem itself, the actors, any social, organizational or individual pain that is being addressed, and blend the designers’ vision with the existing spaces.

Conclusions
Cross-channel ecosystems are the result of actor usage and aggregation of any number of touchpoints belonging to any number of different and even competing systems into a cohesive goal-oriented architecture structured through information flows.

They are co-produced systems of blended spaces: not only can individual systems or elements within the ecosystem be individual blended spaces, but the whole ecosystem itself is a blended space. This implies that blends might happen between digital and physical spaces that are somehow separated and only connected semantically.

These ecosystem-wide blended spaces support fluid, purposeful, seamful, stateful movement that can be modeled according to the principles of embodied cognition and conceptual blending.

References