

# Designing emotion-centred Product Service Systems: The case of a cancer care facility



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*Product Service Systems (PSS) designers are increasingly signaling the importance of emotion. However, emotion is yet to be theoretically and empirically studied in PSS design. This paper offers a conceptual model as well as an in-depth field study of the design of an emotion-centred PSS. While the analysis is inductive, it draws on related concepts from structural appraisal theory and structuration theory to further conceptualise the findings. The notion of 'emotional chain reactions' in the stimulation of user agency is put forward, producing implications for PSS design theory and practice. For the latter we suggest an emotion-based blueprinting technique.*

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The purpose of this paper is to investigate and understand how the designers of Product Service Systems (PSS) can create positive 'emotional chain reactions' for users, based on an in-depth case study of a cancer care unit. Rationalistic perspectives have dominated research outputs concerning PSS and their design (Bitner, Ostrom, & Morgan, 2008:p67; IfM and IBM, 2007; Lusch, Vargo, & Wessels, 2008; Manzini & Vezzoli, 2003:p1). But a PSS such as a cancer care facility, is hardly a rational setting – it requires designers to emotionally empathise with users (Cross, 1982:p222). Currently, the systems-based design techniques employed in PSS design lack this capacity (e.g. Baxter, Roy, Doultsinou, Gao, & Kalta, 2009; Bertoni, 2013; Bitner, et al., 2008; Morelli, 2003). This is perhaps unsurprising in view of its engineering heritage (Chesbrough & Spohrer, 2006; Spohrer, Maglio, Bailey, & Gruhl, 2007; Tien & Berg, 2003). However, the importance of emotion-centred or empathic PSS design is starting to be recognised: '[PSS firms] need to move into the realm of customer experience management, creating long-term, emotional bonds with their customers through the co-creation of memorable experiences potentially involving a constellation of goods and services.' (Bitner et al., 2008:p.67). This suggests that emotion should be the concern of all PSS (Bertoni, 2013; Steiner & Harmon, 2009:p2066), however it is a *necessity* where user emotional

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empathy *defines* the product, the service and the system that binds them. The consequences of overlooking this is all too plain to see in an abundance of healthcare literature; in many hospitals patients feel ill-at-ease, controlled and alienated because they are impersonal and complex (Bate & Robert, 2006; Healthcare Commission, 2005; Wells-Thorpe, 2003). The mental stress of cancer is compounded by such negative designs (Jencks, 1995), which have been blamed for poor recuperation rates (Wells-Thorpe, 2003). UK architecture has begun to take user ‘happiness’ more seriously, such as Buro Happold’s Building Wellbeing initiative, books on Building Happiness (Wernick, 2008) and government Foresight reports (Cooper, Boyko, & Codinhoto, 2008).

Following the interpretivist research tradition (Easterby-Smith, Thorpe, & Lowe, 2002), our paper seeks to understand how emotion was taken into account by the designers of a cancer-care PSS called ‘Maggie’s’. While there is the broad understanding in the product design literature that designing an emotional connection between ‘people and things’ (Chapman, 2008) requires considering the conditions of use (e.g. Forlizzi & Ford, 2000), the specific characteristics of these conditions remains unclear (Chapman, 2008:p.5). Drawing on this specific gap in product design and the broader gap in the PSS literature, our main contribution is a conceptualisation of emotion-centred PSS design, which involves designing emotional ‘chain reactions’ that stimulate user agency.

We organise our paper into three parts. Firstly, we establish the theoretical foundations of the work. Secondly we present the case study of Maggie’s. Thirdly, we reflect on the case by providing an analysis of how emotional empathy was achieved, a conceptualisation of the design process and a discussion of the implications for PSS design.

## *1 Theoretical foundations*

### *1.1 PSS design*

It is accepted in the PSS literature that it is insufficient to design products and then just add services onto them (Aurich, Fuchs, & Wagenknecht, 2006). A systemic approach is required that considers the mutual interaction of the product, service and people (Baines et al., 2007; Kowalkowski & Kindstrom, 2009) in dynamic configurations (IfM and IBM, 2007). A common kind of systems technique employed by PSS designers is generically called process modeling. For instance, in the design of a manufacturing-based PSS, Baxter et al. (2009) used a systems process modeling technique taken from the Design Roadmap method (Park & Cutkosky, 1999). An alternative technique – service blueprinting (Shostack, 1984) – was used both in the design of a transportation (Bitner et al., 2008) and a telecentre PSS (Morelli, 2003). Morelli’s (2003) blueprint or process model was informed by use-case analysis,

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