WHAT IS WASTE? DEFINING THE CONCEPT OF WASTE

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ABSTRACT

The effort to eliminate "waste" from within the production process has long been recognized as critical in optimizing product and firm competitiveness (c.f. Clark & Fujimoto, 1991; Eisenhardt & Tabrizi, 1995). The emergence and the influence of these "War-on-Waste" principles have sparked a revolution in manufacturing processes in companies around the world that generate a series of prominent terms such as Scientific Management (Taylor 1911), Just-in-time manufacturing and Kaizen (Imai 1986), Total Quality Management (Flynn et al 1994) and Six Sigma (Linderman et al 2003). Unfortunately, while the production processes have been steadily optimized, the products produced via such processes have paradoxically evolved to include incrementally more instances of waste (Brombacher et al 2005; James 2010; WDS Global 2008). Brombacher et al (2005) found a startling increase over time in the percentage of returned products to a major manufacturer of high-technology, high volume consumer electronics firm that in fact were functioning perfectly and without error. The rate of such returns had grown from less than 5% in 1980 to 50% by the year 2000. In the UK, James (2010) showed that of all technology products purchased, no more than 50% of the inherent capabilities of these devices were used. WDS Global (2008) reported that 80% of the capabilities of modern mobile phones are not regularly used, and 25% of all capabilities are never even "discovered" by end users.

Two reasons might have led to the issue of increasing waste in products not receiving greater research attention within the product innovation field until now. First, modern consumers consider themselves, rather than the complex technology products or their developers, to be the ones who are broken (Zaimou et al 2012). Such consumers attribute the cause of their failing to smoothly operate technology devices to themselves and to their own cognitive limitations rather than on the product designers and manufacturers. Second, when assessing a product's feature set, consumers tend to misjudge their abilities to use the product, leading to far lower levels of satisfaction after use than before (Thompson et al 2005). When product complexity grows and consumer learning and expertise fail to follow, arguably we will see a latent growth of wasted features of new products (Verkasalo, 2007).

This paper aims to draw attention to the fact that such waste may erode the value of the product offered by the manufacturing firms that they might be viewed not to produce products that serve the real need of consumers. As such, in the product innovation literature, waste as a construct has never been formally conceptualized. This is probably because waste is neither easy to identify and handle, nor it is always tangible to measure or declare relative between firms and their customers, and between business players, consumer society and government.
In response to the above concerns and using consumer perspective, this paper seeks to conceptualize what is called waste, formulate the model of waste using feature perspective and give an example on how to estimate it.

References available upon request.

Key words: waste, consumer products, tree model, preference, usability, mobile phone features