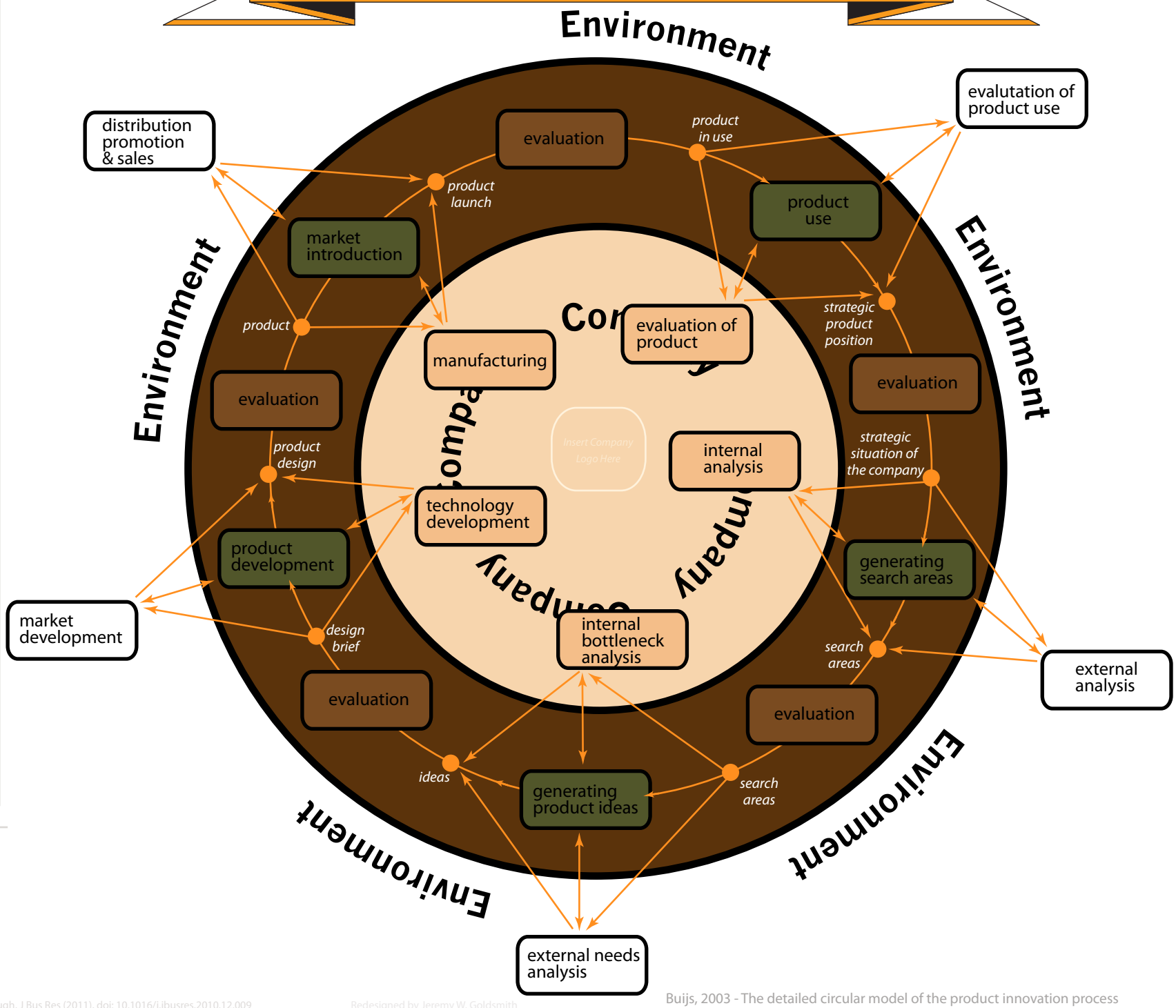
Lauche, 2005; Smulders, 2006; Valkenburg, 2000) have brought evidence of the continual interaction of design problems and design solutions, and the inductive reasoning of the designer. Cross (1989) attributes this interconnectedness to the 'pernicious' structure of design problems. For example, a sub-solution that resolves a particular sub-problem may create irreconcilable conflicts with other sub-problems. Cross (1989, pp. 13-14) notes that designers often attempt to avoid 'cycling around the pernicious loops' of design problems by making high-level strategic decisions about solution options.

Thus, the reciprocal relationship between ends and means in incrementalism finds its parallel in design activies in an iterative relationship between deisgn problems and design solution. Pahl et al. (1996) point out that iteration steps ought to be as small as possible to lessen the risk of oversight and mistakes in the design process. At the same time, reciprocity and iteration provide moments for reflection during which the designer may decide on the next step (Schon, 1983). Similarly, in large-scale organization moves, logical incrementalism (Quinn, 2003) 'allows organizational actors to modify the ideas behind the reorganization as more is learned' (Quinn, 2003, p. 185).

Interestingly, the interlocking character of design decisions lies at the origin of one of the early design methods, dating from the 60s, the Analysis of Interconnected Decision Areas - AIDA (Jones, 1970). The designer can employ AIDA to explore the problem structure and to understand how one decision affects the options open for other decisions. In other words, AIDA relates the dependencies among specific design choices to define which specific choices are, in fact, available to the decision maker (Weas and Campbell, 2004).

# PRODUCT INNOVATION PROCESS




KEY

analyses development & evaluations

process points

Buijs, 2003 - The detailed circular model of the product innovation process

Kopecka JA, et al, Designerly ways of muddling through, J Bus Res (2011), doi: 10.1016/j.jbusres.2010.12.009

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