The Marketer as Concept Engineer

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Abstract

Marketers have shaped numerous concepts, including the concept on an energy drink (as a distinct product category), the concept of the engagement proposal (as involving a diamond ring), and the concept of fair trade (as a possible product attribute). This paper makes such activity explicit by describing a role for marketers as concept engineers who deliberately intervene to introduce, revise, and promulgate concepts that influence consumer perceptions and behavior. The concept engineering role is distinguished from related marketing activities and its importance is motivated. This paper proposes the LIFTS framework, which organizes concept engineering interventions by the level of representation targeted: Labels, Instances, Features and their relationships, Theory networks, and Social and institutional embeddings. The framework suggests practical tools for marketers, and the paper highlights directions for future research.

Keywords: concept engineering, concepts, categories, persuasion, behavior change

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Consider designated drivers, halitosis, and meat. The designated driver is now a commonplace idea in American culture, but this was not always so. The concept was deliberately introduced by Jay Winsten, the leader of the Harvard Alcohol Project, who imported it from Sweden (DeJong and Winsten, 1990; Winsten, 1994). It spread quickly, in part because Winsten had designated drivers depicted in hundreds of television shows, including Cheers, L.A. Law, and Dallas. The concept of halitosis was introduced by the Lambert Pharmacal Company, the firm behind Listerine. Before this, bad breath was an unremarkable part of life. Lambert Pharmacal took an obscure clinical term and made halitosis understood as a medical condition, caused by oral bacteria, with potentially ruinous social consequences (Marchand, 1985). More recently, companies such as Impossible Foods and Upside Foods have sought, with only partial success, to revise the concept of meat to include substances derived from plants or cultured from cells (Friend, 2019; Shapiro, 2018).

These examples illustrate what I call *concept engineering*: one or a few actors deliberately intervening to introduce or revise a concept. The marketer's actions in each case did not merely change attitudes, alter isolated beliefs, or make a behavior more likely. Instead, they changed, in small ways, how people conceptualize the world. This paper examines the marketer's role as a concept engineer. I argue that one approach to a marketing challenge is to catalogue the relevant concepts in consumers' minds, identify concepts to introduce or revise, and then, if necessary, deliberately intervene to do so. A marketer engaged in concept engineering needs tools to introduce and revise concepts, and I present a framework for concept interventions. Concept engineering does not, of course, replace standard marketing tactics: a marketer who introduces a new consumer need concept, for example, will still require effective pricing, promotion, distribution, and choice architecture to sell their product or service.

Why should marketers aim to engineer concepts? Concepts are foundational to how people learn, remember, think, and behave (Thagard, 1990; Murphy, 2024). The concepts in consumers' heads shape what products and services they consider and how they evaluate and choose between them (Loken, Barsalou, and Joiner, 2018; Loken, 2006). Since concepts shape behavior, introducing or revising concepts can change behavior for the long-term, rather than simply in the moment.

Compared to interventions targeted at specific choices, concept engineering can influence multiple decisions and suggest possible choices not previously considered.

The kind of concept most studied in marketing is the brand, and there is substantial research on designing and managing brand concepts specifically (Keller, 1993; Holt, 2004). Brands are, however, only one possible target for concept engineering, and marketers should take a similarly deliberate approach to constructing and revising many kinds of concepts, including product categories, consumer identities, and consumer needs. Research in marketing includes work on how consumers understand concepts and categories (Loken, Barsalou, and Joiner, 2018; Loken, 2006), the role of concepts and categories in consumer reaction to 'really new products' (Moreau, Markman, and Lehmann, 2001; Herzenstein and Hoeffler, 2016; Gregan-Paxton, Hoeffler, and Zhao, 2005), and consumer-relevant concepts, including particular identities, goals, and kinds of products (Reed II et al., 2012; Sharif and Woolley, 2020; Chen, Urminsky, and Yu, 2024; McCoy, 2025; Zheng and Alba, 2023).

There are many examples of marketers introducing or revising concepts, but this paper motivates the activity and makes it explicit and systematic. That is, suppose a marketer aims to introduce a concept for a particular purpose or to revise a concept in a particular direction: How should they do so? Although a variety of fields address concept change, there is no systematic toolbox for concept engineering. Most prior work focuses on how people understand concepts, rather than on how to practically change them. I suggest a framework for concept engineering that lays out a set of tools available for introducing and revising concepts. The LIFTS framework that I propose organizes interventions by the level of representation that they target: the concept's *label*, *instances* of the concept, the *features* of a concept and their relationships, the concept's position in a *theory network*, and how the concept is embedded *socially and institutionally*. In developing this framework I draw on research involving the role of concepts in consumer behavior as well as work on the psychology of concepts more broadly, research from disciplines concerned with encouraging concept change (e.g., science education), and work in metaphilosophy on conceptual engineering. A typical marketing paper involving concepts deals with some aspect of a particu-

lar kind of concept, for example of consumer identity. By contrast, concept engineering, and the associated toolbox, applies across concepts.

This paper proceeds as follows. I first present ten examples of marketers acting as concept engineers. I then describe more precisely what it means for a marketer to engage in concept engineering, motivate why marketers should engage in concept engineering, and discuss related research in marketing. Next, I turn to a process for concept engineering. I present the LIFTS toolbox, which lays out a set of possible interventions, and discuss methods to elicit concepts. I conclude by discussing the ethics of concept engineering and directions for future research.

Ten Examples

I present ten examples of the marketer as concept engineer to motivate this paper. They illustrate the range of concepts that marketers introduce or revise, and include concepts relating to consumer needs, consumer identities, product categories, product brands, and product attributes. Other relevant targets for concept engineering include consumption occasions, consumption behaviors, consumer goals, and concepts that structure markets or market transactions (e.g., the sharing economy or fast fashion). Table 1 summarizes the ten examples. Several of the examples relate to multiple concepts, for instance, the impact investor example illustrates a consumer identity, but also impact investing funds as a product category. I have not avoided classic examples when they provide an excellent illustration. Some examples show concept introduction and others concept revision, and the examples differ in their level of success.

Consumer Needs

1. A classic example of marketers introducing a concept to create demand is the introduction of *halitosis*. Halitosis is an example of medicalization, whereby experiences become understood as treatable medical conditions (Conrad, 2007). Other examples of this growing phenomenon include restless legs syndrome and dry eye disease.

Consumer-relevant concepts	Examples
Consumer needs	Halitosis
	Engagement proposal (to include diamond ring)
Consumer identities	Active retiree
	Impact investors
Product categories	Energy drinks
	Craft beer
	Plant-based meat
Product brands	All brands
Product attributes	Computer performance (processor speed)
	Fair trade

Table 1: Ten Examples of Marketers Engaged in Concept Engineering.

2. The slogan "A Diamond Is Forever" was part of a long campaign by De Beers that revised the concept of the *engagement proposal* for U.S. consumers. Prior to the campaign, engagement gifts varied widely, but De Beers succeeded in having consumers think of a diamond ring as an essential feature of a proposal, with the diamond a proof of love (Epstein, 1982).

Consumer Identities

3. Prior to the 1950s, retirement for many Americans was understood as decline and a withdrawal from activity. The Del Webb Corporation, the developer of one of the first large-scale retirement communities, built on changing ideas about retirement to promote, via a sustained national campaign, the concept of an *active retiree* engaged in leisure and social recreation (Freedman, 2008; Chappel, 2024).

4. The Rockefeller Foundation convened meetings in 2007 and 2008 that defined and established the shared identity of *impact investors* who invest with social and environmental outcomes as core dimensions. The establishment of institutions and standardized metrics encouraged investors to self-identify as impact investors (Höchstädter and Scheck, 2015).

Product Categories

5. Red Bull introduced to Western consumers the concept of an *energy drink* as a new kind of beverage, distinct from soft drinks or coffee, specifically intended to provide mental or physical energy (The Economist, 2002).

6. Beer producers and the Brewers Association defined the concept of *craft beer* to refer to beer brewed in small batches with traditional methods, often with a distinct flavor profile. The Brewers Association has changed the definition of craft beer several times, as some of the original craft beer brewers have grown in size (Carroll and Swaminathan, 2000; Mathias et al., 2018).

7. Companies such as Impossible Foods and Upside Foods have attempted to broaden the concept of *meat* to include products based on plants and cultured cells (Shapiro, 2018; Rhee, Lo, and Durand, 2025). Similarly, companies offering oat and almond milk, for example, have attempted to broaden the concept of *milk* (Clay et al., 2022).

Product Brands

8. Every brand is a result of concept engineering of the kind marketing has focused on most. Examples of iconic brands include *Coca-Cola*, *Harley-Davidson*, and *Volkswagen* (Holt, 2004).

Product Attributes

9. Intel aimed to change how consumers understood the concept of *computer performance*. Specifically, they aimed to have consumers view computer performance as primarily determined by the processor, rather than the brand or other visible components (Kotler and Pfoertsch, 2010).

10. The concept of *fair trade* as a consumer-facing product attribute, especially for coffee, was constructed in the late 1980s by organizations such as the Max Havelaar Foundation and TransFair USA who worked with producer cooperatives and established certification (Renard, 2003).

What is Concept Engineering?

Definition

Concept engineering is the practical discipline of deliberately introducing new concepts and revising existing concepts. In a marketing context, concept engineering ranges from introducing a novel concept designed by a marketer themself to working to sharpen, stabilize and amplify a concept emerging among consumers. The development of a new product is not concept engineering, but it sometimes creates an impetus for it, for example if the firm chooses to introduce a product category.

Concept engineering specifically targets concepts. Categories are sets of entities in the world treated as belonging together, and concepts are the mental representations that pick out categories. The category of energy drinks is a particular set of beverages in the world, and a person's concept of an energy drink is the mental representation that enables them to recognize a new energy drink, infer that it has certain nutritional properties, and decide when to drink it. For expositional convenience, I sometimes refer to a concept as a shorthand for the category to which it refers. For example, by the cause of some event concept I mean the cause of the event to which it refers. Concepts and categories have been extensively studied in marketing, philosophy, psychology, sociology, and associated disciplines (Lakoff, 2008; Bhatia and Richie, 2024; Loken, 2006; Murphy, 2004; Rips, Smith, and Medin, 2012; Loken, Barsalou, and Joiner, 2018; Zerubavel, 2009). A general commitment, common across many accounts of concepts, is that they are structured representations (capable of supporting inference, explanation, and generalization) rather than bundles of similarities or learned associations (Armstrong, Gleitman, and Gleitman, 1983; Rips, 1989; Murphy and Medin, 1985; Carey, 2009; Kemp and Tenenbaum, 2009). Concept engineering thus involves interventions on structured representations, not simply the manipulation of association strength.

Concept engineering is a practical discipline with its tools drawn from the cognitive and behavioral sciences. As a practical discipline, its impact is measured by both whether the target concept

changed and whether this led to the desired behavior change. If the target concept or revision does not become used, the concept engineer has failed. Concept engineering includes both concept introduction and concept revision. The introduction of a new concept is relative to a specific culture (e.g., the concept of an energy drink existed in Thailand before being introduced to the U.S.). Concepts can shift over time because of factors like technological change and generational turnover, but concept engineering is deliberate. It refers to one or a few actors intervening specifically to introduce a concept or to move it in their desired direction. Sometimes, multiple actors each pursue their own agenda with respect to some concept, for example, the ongoing debate over whether plant-based meat products should count as meat and whether they should be allowed to be labeled as meat (Demartini et al., 2022).

This definition of concept engineering does not prescribe a goal. A marketer pursuing commercial goals, a public-health campaigner pursuing harm reduction, and a manager hoping to shape team dynamics can all engage in concept engineering. In all of these cases, the ultimate aim is typically behavior change. Scientists also develop concepts, and hope that they become used. While a scientist might consider, for example, how to name a concept to increase its memorability, a scientist's primary constraint is faithfully representing the world and the concept engineering principles I will discuss are less relevant.

Contrasts

Marketers take many actions that do not involve concept engineering. To help elucidate the role of concept engineering, I compare it with related activities. Before doing so, I note that one important contrast is to conceptual engineering in metaphilosophy (Isaac, Koch, and Nefdt, 2022; Haslanger, 2000; Cappelen, 2018; Chalmers, 2020). At a high-level, concept engineering and conceptual engineering have similar definitions, but also depart from each other in important ways. Web Appendix A contains a discussion of this interesting literature, and the differences between concept engineering and conceptual engineering.

Another contrast to concept engineering, in the sense discussed here, is the use of the term in

the literature on new product development. The front end of the new product development process involves the development and screening of product concepts (Florén and Frishammar, 2012). In that context, however, concepts are descriptions (often visual) of a product idea, including the customer benefits that the product delivers, rather than a mental representation in the minds of consumers. In research on new product development, the term 'concept engineering' refers to a specific structured voice-of-the-customer process, and its associated decision aids, to integrate customer requirements into the product concept process (Burchill, 1993; Burchill and Fine, 1997).

Attitude revision and belief revision

Concept engineering is concerned with the introduction and revision of concepts, but concepts are not the only mental representations that marketers can target. I distinguish concept change from attitude change and belief change. Attitude change (Albarracin and Shavitt, 2018) has been the focus of considerable study in marketing (MacKenzie and Lutz, 1989; Park, MacInnis, et al., 2010; Tormala and Briñol, 2015). An attitude is an evaluative judgment along a favorable–unfavorable dimension. It takes as given a mental representation of, for example, an object, person, or event and assigns it a position on that dimension. Attitude change shifts a representation along the evaluative axis. By contrast, concept change modifies the representation itself. Two people can share a concept but hold opposing attitudes towards it. For example, two consumers may share the concept of craft beer (categorizing the same beverages as an instance, drawing the same inferences about their taste, etc.) while one likes them and the other dislikes them. Attitudes towards a concept may be changed without changing the underlying concept, for example emotional advertisements can directly change attitudes towards a brand (Edell and Burke, 1987).

Apart from attitudes, much work in marketing studies how consumer beliefs are formed and revised, and how belief revision can be encouraged. For example, debunking messages can correct misinformed beliefs about product ingredients (Fong, Guo, and Rao, 2024), but repeated warnings about false claims can backfire and make consumers more likely to remember them as true (Skurnik et al., 2005). The contrast between belief revision and concept change has been studied in

several literatures, including in philosophy of science (Thagard, 1990), the cognitive development of concepts (Carey, 2009), and work on conceptual change in education (Chi, 2009). Broadly, the two operate at different levels of representation: belief change operates over propositions formulated within an existing conceptual schema, whereas concept change modifies the schema itself (Alchourrón, Gärdenfors, and Makinson, 1985). Concept change is thus not simply a sub-type of belief revision, although it is often accompanied by belief revision in practice.

As this suggests, the conceptual change literature distinguishes mere knowledge enrichment, the addition of beliefs that fit into an existing conceptual structure, from genuine conceptual change, which involves restructuring the structure itself (Carey, 1991). Most belief revisions leave concepts unaltered: learning that potato chips are available in a new flavor updates beliefs without changing the concept of potato chips. Some belief revisions can potentially lead to concept change, particularly beliefs involving features treated as causally central to a concept. Many concept changes, however, do not correspond to a list of belief revisions over a fixed conceptual vocabulary; for example, introducing the concept of designated driver gives someone a new representational unit rather than a new belief about a pre-existing category. One diagnostic heuristic, albeit imperfect, to separate belief revision from concept revision is to ask whether the change is naturally described as a change in what the concept refers to or means, rather than as a change in what one believes about its instances. Behaviorally, this may show up as a durable change to category membership judgments or typicality judgments, or as a change to category induction inferences.

Nudging and choice architecture

Another role for a marketer is as a choice architect employing the tools of nudging (Thaler and Sunstein, 2009). A choice architect selects defaults, chooses the order of options, and makes decision systems easier to navigate (Johnson et al., 2012; Münscher, Vetter, and Scheuerle, 2016). Such interventions target a desired choice or behavior. Concept engineering, by contrast, targets a concept, and behavior is changed, ideally for the long-term, via this concept change. The two

roles are complementary. Even if someone's concept of exercise is revised so that exercise is more motivating or so that different activities are seen as exercise, a nudge that eliminates friction when going to the gym can still make exercise more likely. De Beers' revision of the concept of the engagement proposal to include a diamond ring did not eliminate the relevance of how rings are displayed and ordered. In fact, it provided more opportunities for choice architecture to have an effect. Concept engineering operates upstream of the choice architecture. When concept engineering succeeds, it influences someone across contexts, whereas nudges are typically situationally bound.

Beyond nudging, several research traditions have examined how people construe situations in the moment, and how these construals can be changed. How a situation is framed (Levin, Schneider, and Gaeth, 1998) and what mental content is primed or made accessible (Higgins, 1996) can cause the same options, events, or situations to be represented differently. Marketers exploit this: the descriptions "75% lean" and "25% fat" give different results (Levin and Gaeth, 1988), as does the description $1 per day versus $365 per year (Gourville, 1998). However, in contrast to concept engineering, in these cases the goal is simply to make specific features of a situation salient or to activate specific existing concepts, not to change or introduce a concept to influence long-term behavior. More generally, so-called 'wise interventions' in social psychology aim to use brief, theory-based interventions to change the meanings people assign to themselves and their social situations (Walton and Wilson, 2018). Most work of this kind seeks to influence how people interpret situations and experiences, for example helping students avoid interpreting early adversity in college as a signal of non-belonging, but some research in this area targets the self-concept.

Why Should Marketers Engineer Concepts?

Concepts are foundational to cognition and behavior. They affect how people categorize, learn, remember, draw inferences, explain, solve problems, and make decisions (Thagard, 1990; Lakoff, 2008; Murphy, 2024). Shared concepts coordinate behavior across people, and concept revision

can shift the coordination point (Bicchieri, 2016). The importance of consumption-relevant concepts is well established in marketing (Loken, Barsalou, and Joiner, 2018; Loken, 2006). Consumers' self-concepts drive their behavior, for example people engage more with identity-relevant brands and take actions that they believe are congruent with their self-conceptualization (Reed II et al., 2012) and the perceived causal centrality of their identity affects the extent to which they do so (Chen, Urminsky, and Yu, 2024). Product category concepts influence product evaluation and preference (Sujan, 1985; Moreau, Markman, and Lehmann, 2001). Individual products can also be conceptualized differently, for example as a vice or virtue (Chernev and Gal, 2010) or with respect to their origin or substance (Zheng and Alba, 2023), which similarly affects evaluation and choice. Brand concepts shape how consumers respond to a brand's products, its marketing actions, and its brand extensions (Keller, 1993; Park, Jaworski, and MacInnis, 1986).

Concept change has the potential to influence behavior in multiple choice contexts over the long-term. Many kinds of nudges, by contrast, are situation bound and have effects that decay over time. For example, according to one analysis, the effects of social comparison nudges across charitable giving, financial savings, tax compliance and voting showed little persistence after the nudge ended, and the continuing effect of lowered energy consumption after a nudge was driven, in part, by technology adoption (Brandon et al., 2026).

The historical record, as shown by this paper's ten opening examples, provides strong suggestive evidence that deliberate concept change can indeed influence behavior. Several kinds of controlled experiments also help to address the impact of concept change on behavior change. One kind of evidence shows that how items are categorized affects decisions. Consumers make choices that preserve categories containing positive experiences for as long as possible (Shah and Alter, 2014) and people assess their goal progress in terms of the proportion of categories completed (Sharif and Woolley, 2020). People's choice of wine depends on whether wines are organized by grape or by region (Fox, Ratner, and Lieb, 2005) and people evaluate product quality by their position in a brand category (Leclerc, Hsee, and Nunes, 2005). Outside of categorization, making a particular concept salient also suggests how concepts can influence behavior. Activating different

self-concepts can influence purchase intent (Reed, 2004), for example, activating students' scholars identity concept versus their socializing identity concept influenced their choice of magazine (LeBoeuf, Shafir, and Bayuk, 2010).

While the historical evidence suggests durable concept change and the experimental literature shows the influence of concepts and categories on in-the-moment behavior, neither directly tests how a specific intervention leads to long-term concept change causing long-term behavior change. In fact, despite the many motivating examples that exist, there is surprisingly little clean empirical work showing this. Much work in cognitive psychology teaches participants new concepts (Carvalho and Goldstone, 2014; Solomon and Schapiro, 2024; Corral, Carpenter, and Clingan-Siverly, 2021; Medin and Schaffer, 1978). However, the concepts are often artificial, the effect on behavior beyond judgments is not examined, and the post-learning phases typically occur at short delays. The education literature studies how concepts can be introduced or revised (Duit and Treagust, 2003), but the behavior it targets is not marketing relevant. Attempts to show downstream effects on behavior from concept interventions include revising the self-concept to encourage voter turnout (Bryan et al., 2011) and growth-mindset interventions to improve academic outcomes (Blackwell, Trzesniewski, and Dweck, 2007). However, the strength and robustness of these results are contested (Sisk et al., 2018; Gerber et al., 2016; Macnamara and Burgoyne, 2023). I return to the need for clean tests of concept interventions on long-term behavior in the discussion of future research.

Related Work in Marketing

Concepts and categories have received much attention in marketing (Loken, Barsalou, and Joiner, 2018; Loken, 2006) and I draw on relevant papers throughout this manuscript. To provide a sense of the existing marketing scholarship on the psychology of concepts, and its relationship with concept engineering, I systematically retrieved and manually annotated relevant papers. I briefly describe the annotation process here and Web Appendix B provides more detail. An OSF repository (https://osf.io/396ch/overview?view_only=0a8f1b59dfc649cf9de7e1802cdce82f) contains the an-

notation.

I retrieved all papers from the Journal of Consumer Research, Journal of Marketing, Journal of Consumer Psychology, and Journal of Marketing Research published in 1990 or later that contained any of the words 'concept,' 'concepts,' 'category,' 'categories,' or 'categorization' in their abstracts. This resulted in 708 papers. This search is unlikely to have found all papers relating to concept engineering generally, but it probably identified most papers dealing with the psychology of concepts and there is not an obvious set of alternative search terms. I excluded papers that did not discuss the consumer psychology of concepts and categories. Papers were excluded if, for example, they simply referred to a concept from the researcher's perspective (one such article introduced the "concepts and terminology of artificial neural networks"). After exclusions, 174 papers were retained.

I categorized each retained paper into at least one of nine categories by the focus of its discussion. Most categories corresponded to different types of causal claims involving concepts. The two most relevant categories for concept engineering were papers that focused on how concepts were created, changed or learned by consumers, and papers that focused on how consumers understood concepts, often a specific concept. Other categories included papers that examined how concepts affected behavior, how the environment affected concepts (many of which were concept priming papers), the elicitation of concepts, how one concept affected another, and so on. I coded each paper by the kind of concept that it involved (e.g., brand concept or self-concept). I also coded the 40 papers in the two categories most relevant to concept engineering by levels of the LIFTS toolbox. Web Appendix B visualizes the results of this annotation. The most common category was papers that examined how concepts affected behavior, and the most common kind of concept was the brand.

Although many papers were categorized as studying how a concept influenced behavior, most of these papers either primed a concept or studied how brand influenced the evaluation of brand extensions. They did not, as in concept engineering, intervene on a concept and then later measure whether this intervention was successful. Most of the other papers in categories more relevant to

concept engineering also did not test interventions to introduce or revise concepts.

How Can Concepts be Engineered?

A Process for Concept Engineering

Figure 1 shows a process for concept engineering. The process begins with a concept audit to understand consumers' existing relevant concepts. The concept identification and choice stage then involves deciding on a concept to introduce or in what direction to revise an existing concept. For example, to reduce drunk driving, the approach with which I opened the paper was to introduce the concept of a designated driver. An alternative would have been to revise the concept of inebriated by lowering the threshold for what counts as too drunk to drive.

Given a target concept or revision, the concept engineer designs the relevant concept and works to promulgate it. This paper focuses on designing the concept and its spread, rather than on the identification and choice stage. I propose a framework for the introduction or revision stage that organizes possible interventions by the level of representation that they target. After deploying an intervention, the concept engineer measures success in terms of concept change, and whether this lead to behavior change. Concept elicitation thus arises at two stages of this process: the initial concept audit and the final evaluation stage. I discuss concept elicitation after describing the LIFTS toolbox for concept interventions.

A Toolbox for Concept Intervention

Concept engineering requires practical tools to introduce and revise concepts, but I am not aware of prior work that systematically lays out the space of possible interventions. By contrast, several frameworks catalogue the tools of choice architecture (Johnson et al., 2012; Münscher, Vetter, and Scheuerle, 2016; Mertens et al., 2022).

In describing the concept engineering toolbox, I sometimes use the term 'patch' from software

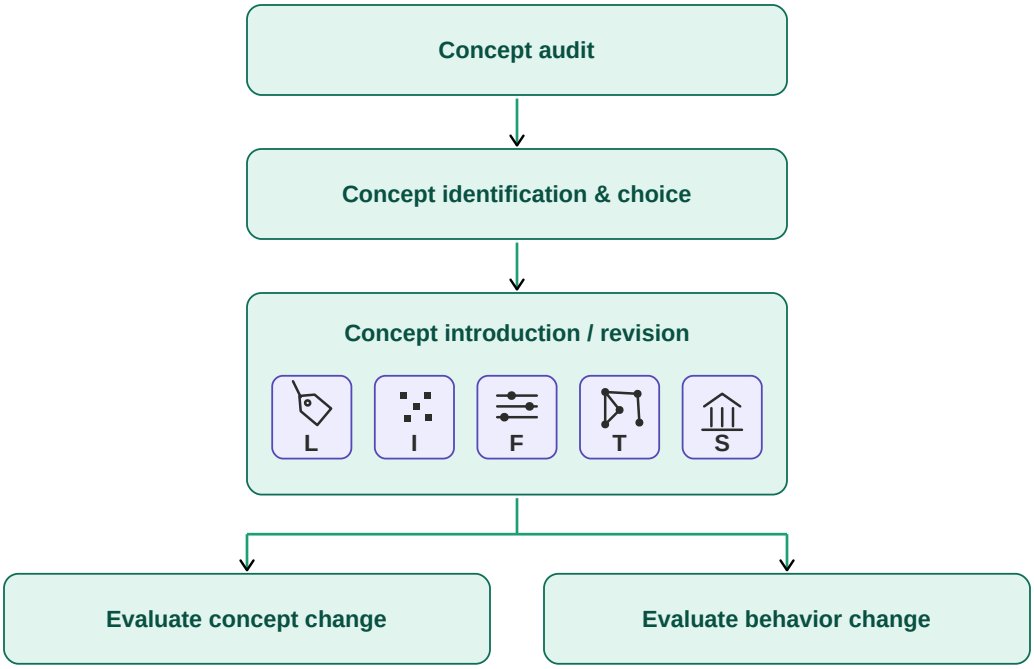


Figure 1: A Process for Concept Engineering.

engineering. I use it, as a noun, to refer to a particular intervention, and, as a verb, to the act of intervening. A marketer chooses among possible patches for concept revision, such as changing a concept's name or making new exemplars salient, and then patches the concept by, for example, changing its name. The term is imperfect because not all concept engineering interventions are repairs, but it captures the idea of intervening on a complex representational system to address a specific issue.

Figure 2 shows the proposed schema to organize the concept engineering toolbox. Patches are organized by the level of representation that they target. The names of the five levels form the acronym LIFTS to aid memorability: Labels, Instances, Features and their relationships, Theory networks, and Social and institutional embeddings. The LIFTS toolbox provides a structure for identifying and comparing patches, and suggests specific tools for a marketer acting as a concept engineer. The proposed framework is only one way to organize concept interventions, and other organizing schemas would suggest alternative perspectives and interventions.

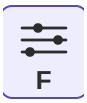
Level of representation		Example interventions
	**Labels**	• Introduce a term for a new concept • Rename an existing concept
	**Instances**	• Show exemplars, e.g. to establish a concept • Show instances shifted on an attribute to shift the prototype
	**Features and their relationships**	• Choose coherent features for a new concept • Change feature centrality through a causal narrative
	**Theory networks**	• Relocate a concept's perceived cause • Provide new analogies to existing concepts
	**Social and institutional embeddings**	• Provide social proof of a concept's use • Codify a concept in policies and standards

Figure 2: The LIFTS Framework for Concept Engineering. Interventions are Structured by the Level of Representation Targeted.

For successful concept engineering, the interventions that I will discuss need to be combined with principles for effective marketing communications. Consider interventions that expose people to new exemplars. I will discuss design principles for such exemplars, but the exemplars also need to reach large numbers of people, hold their attention and be memorable. This also involves considerations such as the best media and message format and how to encourage word of mouth.

Labels

A marketer can aim to introduce a label for a new concept, or revise a label for an existing concept. The existence of a concept label affects category membership judgment (Yamauchi and Markman, 2000), reinforces category distinctions (Lupyan, Rakison, and McClelland, 2007), and suggests the presence of an underlying cause (Giffin, Wilkenfeld, and Lombrozo, 2017). The particular label chosen for a concept influences how the concept is understood. The first category label consumers encounter for a really new product shapes which category is used to make inferences about the product (Moreau, Markman, and Lehmann, 2001). Describing a charge as a ‘tax’ versus an ‘offset’

changes support for the relevant policy (Hardisty, Johnson, and Weber, 2010) and describing a concept as 'global warming' versus 'climate change' produces different reactions (Whitmarsh, 2009).

Various literatures have converged on a number of considerations for choosing a good label, some of which I summarize. Such literatures include include work on naming brands (Yorkston and Menon, 2004; Keller, Heckler, and Houston, 1998; Kohli, Harich, and Leuthesser, 2005), terminological science, which is an active field devoted to terminological choice especially for scientific and technical applications (Cabré, 1999), and research on neologism adoption (Metcalf, 2004; Stewart and Eisenstein, 2018).

A concept label should be chosen so that it is likely to be memorable (see Aka, Bhatia, and McCoy (2023) for properties that predict memorability), since a label that is difficult to encode or retrieve is unlikely to spread. The concept label must also be understood. An important principle in terminological work is transparency in that the label should help understand its referent. For example, 'dishwasher' as the name for a new kitchen appliance immediately suggests its function. Research on brand names has similarly emphasized the advantage of the brand name being meaningful (Keller, Heckler, and Houston, 1998; Kohli, Harich, and Leuthesser, 2005). This can be accomplished in several ways; for example the name can be chosen so that its phonetics suggest inferences about product attributes (Yorkston and Menon, 2004).

A concept label must also be likely to spread. A label that supports related grammatical forms is called derivability in terminological science, and called generation by Metcalf (2004), who suggests that this predicts neologism spread. Stewart and Eisenstein (2018) show empirically that words used across diverse grammatical contexts are more likely to propagate. One form of derivability relates to the ability of a name for a concept to label behavior, as examined by Fritze, Völckner, and Melnyk (2024). They study two comparable grocery delivery services, one of which ('Flink') induced a behavioral label ('flinking' or 'flink it') and was more successful than the service ('Gorillas') that did not generate a verb form. I opened the paper with the introduction of the designated driver in the U.S., and, as they describe, the Belgian designated driver campaign

involved behavioral labeling. It personified the role as 'Bob,' which proved generative with the Dutch verb for this, 'bobben,' becoming well-known.

Instances

Patches at the instance level expose consumers to examples of the concept. This is core to two foundational theories of the psychology of concepts. Exemplar theories posit that concepts are represented as memory traces of specific encountered instances (Medin and Schaffer, 1978; Nosofsky, 1986). Prototype theories posit that concepts are represented as summaries that capture the central tendency of a category (Rosch and Mervis, 1975), with the prototypes learned by exposure to a series of examples (Posner and Keele, 1970). A concept engineer can use well-chosen exemplars both to help people learn a concept and to shift an existing concept. Exemplars are not the only way to communicate a concept, but, in the context of news stories, have been shown to influence judgment more than abstract base-rate information (Brosius and Bathelt, 1994).

Outside of concept change, research in consumer behavior has studied prototypes and exemplars. Typicality in product and brand categories is predicted not only by family resemblance, but also by frequency of instantiation and by whether an item possesses goal-relevant, valued attributes (Loken and Ward, 1990). The perceived prototypicality of product designs affects aesthetic response (Veryzer Jr and Hutchinson, 1998), and global attitudes towards a category relate to attitudes towards the displayed exemplars (Loken, Joiner, and Peck, 2002).

One issue when introducing a concept is how broad to make it. If the concept is to be learned from examples, keeping the concept focused, rather than broad, should make it easier to learn (Tenenbaum and Griffiths, 2001). When introducing a concept, one may be tempted to use many examples that are near the intended prototypical instance. However, variability is key to concept learning in many settings (Raviv, Lupyan, and Green, 2022), particularly for features that are not core to the target concept. This suggests varying the incidental features of exemplars. Work on psychological essentialism, which I will discuss in more detail later, suggests that people treat concepts as if they have an underlying essence. This suggests choosing and displaying exemplars

so that the presence of the essential feature is salient or easily inferred.

A perhaps more difficult question is how to choose examples to shift the understanding of an existing concept. This question has been most studied in the context of shifting social stereotypes. The problem is that simply exposing people to counter-stereotypical examples in the extreme direction of the intended shift does not always change the concept. This is because the examples can be 'subtyped,' i.e. treated as their own type, rather than shifting the original concept (Kunda and Oleson, 1997; Hewstone, 1994). A computational model of this process shows that subtyping can occur as a result of general structure learning, rather than as a phenomenon linked to social stereotypes specifically (Gershman and Cikara, 2023). The concept engineer should thus choose examples that only moderately disconfirm the aspect of the concept that they wish to shift and that are not atypical along other dimensions.

This subtyping phenomenon has been shown with brands relative to other brands, and brand extensions relative to the parent brand. If a brand is perceived as very different from existing brands in its category then it is subtyped into its own special category, but if it is perceived as only moderately different then the brand occupies a differentiated position in the original category (Sujan and Bettman, 1989). Incongruent brand extensions dilute perceptions of their parent brands, but if they are sufficiently incongruent they are subtyped and the dilution of the parent brand is reduced (Loken and John, 1993). Other work on how extensions can change perceptions of the parent brand indicates that extensions can have positive or negative effects, but that motivation and the accessibility of information about the extension are important moderators (Gürhan-Canli and Maheswaran, 1998; Ahluwalia and Gürhan-Canli, 2000).

Features and their relationships

Interventions can target a concept's features and the relationships among them. Some interventions simply aim to change the weights that consumers put on a concept's features. Marketing communications might repeatedly mention a feature, stress its importance, or make it easier to compare across products. For example, one could make a feature measurable, given that quantifying a fea-

ture increases its weight in decision making (Chang et al., 2024), or one could try to align features across products, since a standard dimension of comparison becomes more influential (Zhang and Markman, 1998).

Although a sufficiently large change in feature weights may revise a concept, feature reweighting often leaves the concept unchanged and only influences how particular instances of a category are evaluated. One reason for this is that people treat concepts as possessing an underlying essence rather than as being defined by a weighted bundle of features (Medin and Ortony, 1989; Gelman, 2003). The perceived essence differs across concept kinds, for example natural kinds, artifacts, and goals have different essences (Ahn, 1998; Barsalou, 1985). According to causal essentialism, the essence of a concept is whatever causes its features to have the values that they do (Newman and Knobe, 2019; Gelman, 2003). More generally, centrality for a feature depends on whether it is perceived as causally central, with other features depending on it (Rehder and Hastie, 2001; Ahn, 1998; Sloman, Love, and Ahn, 1998; Ahn et al., 2000). For example, features that participants were taught caused other features were treated as more central and as harder to imagine the concept without than features merely correlated with other features (Ahn et al., 2000). To revise a concept, one could patch it by shifting the perceived causal status of an existing or new feature; for example, messages could emphasize what a target feature causes or explains and what its absence would cost.

There are a few existing marketing-relevant examples that illustrate this logic. First, features perceived as causally central to the self are those whose change is felt as most disruptive to personal identity (Chen, Urminsky, and Bartels, 2016). Second, in a product sustainability context, the same environmental benefit affects judgments of product greenness more when the benefits are tied to a central, rather than peripheral, product attribute (Gershoff and Frels, 2015). Third, Van Rekom, Jacobs, and Verlegh (2006) apply the logic of feature centrality in a branding context. They have respondents judge each feature of a brand's personality by whether it causes other features and whether the brand would still be itself without it. They use this approach to evaluate potential new features for a brand.

In introducing a new concept, the concept engineer should decide not just on the concept's features, but also which are causally central and which will be viewed as the concept's essence. A concept is likely to be easier to learn and more useful if its features form a coherent causal structure rather than simply co-occur. For example, when it is ambiguous which of multiple concepts to use for inference, the more coherent concept is likely to be used (Patalano, Chin-Parker, and Ross, 2006). This fits with a long-standing prescription in brand design to be disciplined about keeping brands unified, with incoherent additions weakening the brand (Park, Jaworski, and MacInnis, 1986). Work on concept learning in stylized settings suggests that the ease of learning a new concept is related to its minimum description length, which argues for designing concepts to be as simple to describe as possible (Feldman, 2003). One complication for concept design is that the designer is sometimes shaping more than one concept; for example, introducing a completely new product category often involves shaping both the product category concept and the new brand within it, and innovations to core attributes of the brand will shape the category (Bagga, Noseworthy, and Dawar, 2016).

Theory networks

Interventions at the level of theory networks are motivated by the 'theory theory' model of concepts, which posits that the meaning of a concept derives from its position in an intuitive theory (Murphy and Medin, 1985). Intuitive theories have been applied in marketing to explain how consumers think about the relationship between the healthiness of food and its price (Haws, Reczek, and Sample, 2017) and about marketing tactics themselves (Deval et al., 2013). More broadly, interventions at this level target relationships between a focal concept and other concepts, given that concepts are understood through their relationship to other concepts (Collins and Loftus, 1975; Murphy and Medin, 1985). Both the features level and the theory level can involve causal relationships, but these causal relationships are between different types of entities: at the features level between the internal features of some focal concept and at the theory level between the focal concept and other concepts.

One kind of theory network patch is to change the perceived cause of a concept. This was central to Lambert's halitosis campaign, which reframed bad breath as caused by oral bacteria rather than by ordinary hygiene lapses (Marchand, 1985). Procter & Gamble's Crest toothpaste campaign used a causal story (fluoride prevents tooth decay) to help shift toothpaste from a cosmetic to a therapeutic category (Miskell, 2004). Outside of marketing, an attempt to change a concept through its causal network was an assertion by the head of the National Institute on Drug Abuse with an article in *Science* entitled "Addiction is a brain disease, and it matters" (Leshner, 1997). This attempt to relocate the cause of addiction to neurobiology helped reshape how the public and clinicians thought of addiction (Courtwright, 2010). There is little work that empirically studies the effectiveness of interventions to change how a concept is perceived in a theory network. Instead, most work that revises how people perceive the cause of a concept has studied affective responses and downstream behavior, especially motivated by attribution theory (Weiner, Perry, and Magnusson, 1988). For example, much work tests how, often in a single session, participants' judgments and behavior change as a result of being told that some event or behavior has a genetic cause (Dar-Nimrod and Heine, 2011).

Instead of revising a concept's cause, one could revise its effects. For example, interventions that targeted the health consequences of smoking reshaped how smoking was conceptualized from a glamorous, socially acceptable activity to an addictive, disease-causing hazard (Cummings and Proctor, 2014). Sufficiently altering the perceived benefits or goals served by a product may likewise change how it is conceptualized. Suggestive of this, research on goal-derived categories shows that people draw on goals when categorizing products, and that shifts in goal salience can reorganize categorization (Ratneshwar et al., 2001).

Another kind of intervention changes a concept's position in its conceptual network. In science education, for example, interventions aim to have students move concepts like heat and electricity from the category of substances to a category encompassing processes or emergent interactions (Chi, Slotta, and De Leeuw, 1994). Some of the most extensive work on changing the causal structure of concepts comes from education, which has found that refutational arguments (for

why a current concept does not work) are particularly powerful (Schroeder and Kucera, 2022). In marketing, one kind of shift in concept location is a change to the product category to which a product is understood as belonging. For example, the extent to which a product is viewed as incongruent with a product category, given a schema of product categories, influences perceptions and evaluations (Meyers-Levy and Tybout, 1989; Sujan and Bettman, 1989). Genetically modified crops, which face moral resistance partly because they are seen as unnatural relative to other crops, offer another illustration. Hingston and Noseworthy (2018) encouraged consumers to think of such crops as manufactured artifacts, rather than adulterated natural kinds, to lessen this resistance, although their specific interventions probably only shifted construal in the moment.

A concept's non-causal relationship to other concepts can also be targeted. I illustrate with three examples. First, moralization is the process through which a concept shifts from being attached to personal preference to being attached to values, potentially by linking a concept to purity or disgust (Rozin, 1999). Second, a concept can be linked to gender-related concepts. For example, the link between green products and femininity may lead men to engage less in sustainable behavior (Brough et al., 2016). Third, a concept could be linked to notions of naturalness (Rozin, 2005; Scott, Rozin, and Small, 2020).

Establishing an analogy between a target concept and other concepts can also change how the target concept is understood, in part because analogies can import relational structure, rather than simply beliefs about concept features (Gentner, 1983; Gill and Dube, 2007; Gregan-Paxton and Moreau, 2003; Gregan-Paxton and John, 1997). The persuasive force of an analogy is not automatic: analogies are effective only when consumers have sufficient familiarity with a well-chosen base concept to extract its relational structure and when they have the cognitive resources to implement the analogical mapping (Roehm and Sternthal, 2001; Herzenstein and Hoeffler, 2016). Research in education provides the clearest evidence that analogies can reshape a concept and correct misconceptions, and can do so more effectively than direct instruction (Clement, 1993).

Social and institutional embeddings

Many concepts have a distributed public representation that is embedded within institutions. For example, product categories exist as socially constructed knowledge structures that come about through the stories told by consumers and producers (Rosa et al., 1999). Intervening on concepts at the social or institutional levels could help to stabilize them and provide durability and visibility. Social norms provide one kind of social embedding, and much work has studied how social norms can be changed, for example by providing information about the prevalence of a behavior or by seeding a behavior among influential individuals (Tankard and Paluck, 2016; Bicchieri, 2016). Making a particular understanding of a concept visible is more difficult than simply making a behavior visible, but showing behavior can sometimes help establish a concept. For example, television scenes showing a designated driver were used to spread the concept of a designated driver (Winsten, 1994) and De Beers commissioned and publicized a portrait series of socialites wearing their diamond engagement rings when trying to revise the concept of the proposal (Epstein, 1982). The use of a concept's label also makes uptake visible, and research has shown that new terms are more likely to propagate in a community when introduced by people with strong social ties (Del Tredici and Fernández, 2018). A concept engineer could thus attempt to seed concepts and their labels with such individuals.

Concepts can instead be made visible by being embedded in standards and certifications, legal codes and regulations, curricula, measurement systems, and other institutional infrastructures. Bowker and Star (2000) provide a seminal examination of how concepts can be codified in this way and show that the version of a concept that is codified becomes the default and difficult to ignore. Murphy (2024) makes a similar point, from the perspective of cognitive science, using a range of interesting domains.

Marketers have used institutional codification to stabilize concepts. One kind of institutional codification defines the content and features of a concept; for example, archival media work has shown that the Booker Prize for Fiction helped establish post-colonial fiction as a distinctive category (Anand and Jones, 2008). The formation of trade associations has been used to promulgate

formal definitions of a concept, for example that of craft beer (Carroll and Swaminathan, 2000). Certification and labeling helped change the concept of organic food from a set of farming practices into a recognizable product attribute (Bezawada and Pauwels, 2013) and popularize the notion of fair trade as a product attribute (Renard, 2003). Concepts can also be codified through measurement systems, such as the systematization of the concept of creditworthiness through numerical credit scores (Fourcade and Healy, 2013).

The legal system has been used to codify concepts, such as the use of geographical indications for categories such as bourbon and champagne (Hughes, 2006). Firms are often active participants in shaping how legal categories are defined. For example, when the U.S. Food and Drug Administration proposed regulating supplements as drugs, makers of dietary supplements organized a consumer letter-writing campaign to Congress (the second-largest letter-writing campaign in U.S. history) (Ozcan and Gurses, 2018). A current dispute of this kind with active engagement by firms is over permitted labels for plant-based meat (Demartini et al., 2022). Institutional codification is also one way to stabilize and legitimize concepts that emerged from consumers rather than from the company. For example, Taylor Swift trademarked the term 'Swifties,' which had been used self-referentially by her fans (Xu, 2020).

Importantly, institutional codification and social discourse reinforce each other in changing and stabilizing a concept. Careful case studies of the market for cannabis and casino gambling illustrate how media discourse interacts with marketing institutions to change perceptions (Humphreys, 2010b; Humphreys, 2010a; Huff, Humphreys, and Wilner, 2021).

Concept Elicitation

To tackle a marketing challenge through concept engineering, the marketer will need to ask what concepts are in play and how they are represented by consumers. Preference elicitation has received considerable attention in marketing, but there is less work on concept elicitation. I discuss existing methods that aim to measure people's concepts. No single method below suffices to characterize a concept and its change, and the concept engineer must triangulate from multiple kinds

of measurements.

One kind of measurement takes as its basis similarity and association judgments. While most theories of concepts ascribe to them more structure than simple associative bundles, such similarity judgments can provide insight. For example, brand concepts have often been understood as associative networks (Keller, 1993) and these kinds of measurements are thus common in the brand context. Associations can be elicited with qualitative methods such as ZMET (Zaltman and Coulter, 1995), in which respondents construct collages of associated images, and with successors that use large-scale image processing (Dzyabura and Peres, 2021). Similarity judgments are used in a variety of domains to understand conceptual spaces, for example the space of natural objects (Hebart et al., 2020).

How people represent a concept can also be inferred from responses in tasks that involve the concept. Participants can rate the features of a concept and the extent to which they are peripheral or central (Viswanathan and Childers, 1999; Loken and Ward, 1990), and such methods can be applied to even fairly abstract concepts such as love and commitment (Fehr, 1988). The extent to which features are central can also be inferred through mutability and transformation tasks that have participants judge, for example, whether an instance is still a member of a category after some change (Sloman, Love, and Ahn, 1998; Hampton, Estes, and Simmons, 2007). Inductive judgments also provide information about the representation of a concept and can be used to infer a concept's structure, for example taxonomic versus spatial (Kemp and Tenenbaum, 2009). Card sorting categorization tasks can help infer the structure of a concept (Blanchard, Aloise, and DeSarbo, 2017). For social concepts, a Minimal Turing Test asks people to give, in a competitive context, one word that proves that they are an instance of one concept rather than another. An analysis of the words that people give can help uncover their representation of the concept (McCoy and Ullman, 2018).

An alternative to these kinds of tasks is to directly elicit a person's understanding of the concept through structured interviews or surveys. For example, concept mapping interviews elicit a representation in which different concepts are nodes and edges show the relationships between them

(Novak and Cañas, 2006). Similar concept maps can be elicited specifically for brands (John et al., 2006). Structured mental model interviews try to elicit the details of how people understand a particular concept, for example climate change (Bostrom et al., 1994). Finally, one can try to infer people's concepts from text, especially user-generated content. Within marketing, these text based methods have focused on brand and product category concepts (Lee and Bradlow, 2011; Berger et al., 2020). Outside of marketing, such methods have been used to, for example, understand how people represent aspects of gender and race (Bhatia, 2017).

Despite the variety of methods available to measure concepts, there are, perhaps surprisingly, few attempts to thoroughly measure a specific concept. One exception is Rozin et al. (2012), who used many methods to examine how people conceptualize meat, including whether it is conceptualized as male, although even this examination concentrates on only the metaphorical aspects of the concept. Ziano and Koc (2023) use quantitative and qualitative methods to measure the prototype of people with depression, although they do not measure other aspects of the concept, such as its status in a theory network.

It would be interesting to conduct this kind of thorough examination of a concept for many consumer-relevant concepts. Such examinations would probably benefit from using many measurements, and it would be generally useful to explore how the various measurement methods relate. In the context of concept engineering, it is particularly important to have methods that are sensitive to concept change over time and across individuals. Michel et al. (2011) explore tracking how word use changes over time with respect to both new and changing concepts, and this kind of analysis may be useful when evaluating whether a concept engineering intervention has succeeded. There is limited research focusing on concept heterogeneity across individuals (Marti et al., 2023; Blanchard, DeSarbo, et al., 2012), but much more work of this kind will be needed to effectively do segmentation at the level of what concepts people hold.

Ethics of Concept Engineering

Deliberate concept change can be controversial. British Petroleum popularized the concept of the carbon footprint to shift accountability from producers to individual consumers, and the concept of pseudo-addiction was advanced to motivate physicians to prescribe opioids in higher dosages (Chater and Loewenstein, 2026). A broader phenomenon is disease mongering, whereby firms try to reconceptualize individual variation as a condition requiring treatment (Moynihan et al., 2002). How should such cases be judged, and how should the ethics of concept engineering be assessed more broadly?

A natural comparison is to the ethics of nudging. Sunstein (2015a; 2015b) has argued that the ethics of nudging are best assessed against specific examples by considering factors such as whether autonomy and dignity are respected, whether welfare is promoted, and whether the nudge avoids illegitimate ends. I suggest that the ethicality of concept engineering is also best assessed against particular examples and that similar criteria apply. However, assessing the ethics of a concept engineering intervention can be more fraught because concept change can influence how people reason and how they justify their choices, rather than only changing choice itself.

One account of unethical manipulation is that it occurs when someone is led to a state that is not appropriately responsive to their own reasoning (Noggle, 1996). Given that concept engineering may influence someone's reasoning in ways that they do not realize, the ethical bar for a concept engineering intervention is arguably higher than for a nudge. In concept engineering's favor, though, is that reasoning already supervenes on a set of concepts; the concept engineer simply revises or adds to this set, and should be judged on whether the resulting set of concepts serves the person holding them.

Beyond a discussion of normative principles, empirical work could investigate how people think about the ethics of concept engineering. In surveys, people generally approve of nudges (Sunstein, Reisch, and Kaiser, 2019) and similar surveys could ask about concept engineering interventions. One could also investigate how changes to a concept engineering intervention affect both its effectiveness and its perceived ethicality. For example, in the context of nudges,

transparency does not necessarily diminish effectiveness and is perceived as increasing ethicality (Michaelsen, 2024).

Future Research

This paper has raised many questions for future research. Figure 3 summarizes possibilities for future research, organized by the different stages of the causal engineering process. It includes both high-level directions and examples of specific questions and hypotheses.

The Concept Engineering Causal Process

The causal claim underlying concept engineering is that interventions can cause durable change to someone's concepts, and that this, in turn, can lead to other changes, including behavior change. As I have pointed out, there are surprisingly few clean empirical tests of this claim, although there are many reasons to believe it. Future research should address this. Experimental tests of this claim would intervene on a concept, evaluate concept change, and examine resulting differences in behavior. Importantly, the concept change and behavioral change should be evaluated at a delay after the intervention. For example, rather than showing participants wine categorized by grape or by region and evaluating choice differences (Fox, Ratner, and Lieb, 2005), one could instead teach participants one of these distinctions and later measure whether they spontaneously conceptualize wine accordingly and how this influences choices.

Concept engineering interventions should be tested in both the laboratory and the field. Laboratory tests allow for strong causal identifiability and field studies demonstrate practical impact and can occur in contexts where the target concept is contested. Future research should also study how concept engineering can be combined with interventions such as choice nudges, and how changing a single concept can impact multiple kinds of behavior and inferences.

Much of this paper has taken the perspective of the marketer engaged in concept engineering, but it is also important to consider the causal link between interventions, concepts, and behavior

Patch → Concept → Behavior

Can a deliberate intervention produce durable concept change that in turn causes behavior change?

How can consumers be helped to choose concepts that serve their own ends, and resist undesired concept change?

PROCESS	PATCHES	
Concept elicitation How can we determine how specific concepts are represented including with respect to consumer heterogeneity and change over time? How are specific consumption-relevant concepts currently represented?	**General** What are useful patches to introduce and revise concepts? How should possible patches be chosen among and combined?	**Features** How should features and their relationship be designed to ensure concept adoption? What interventions are most effective to shift the causal centrality of a feature?
Concept identification & choice Given a marketing challenge, how should one decide which relevant concept to target? How can a marketer identify new concepts a community lacks but could usefully adopt?	**Labels** What label should one choose for a new concept? What are the effects of including foreign-language terms in a concept label?	**Theory networks** How can a concept's position in the associated theory network be changed? Can refutational-text techniques from education be helpful in changing consumer concepts?
Concept engineering ethics How should we understand the ethics of deliberate concept change? How do people judge the ethics of deliberate concept change?	**Instances** How should examples be designed and sequenced to introduce or revise a concept? How does the affective component of examples influence concept adoption?	**Social & institutional** How do differences in institutional codification affect concept adoption and durability? How can concept adoption be encouraged through social norms?

Figure 3: Summary of Future Research for Concept Engineering.

from the consumer's perspective. We should ask how consumers can be helped to choose concepts that best serve their own ends and to recognize and resist concept engineering that does not.

Concept Elicitation

Concept elicitation is important at two stages of the concept engineering process: the initial concept audit and the evaluation of whether an intervention has succeeded. While methods exist to measure components of a concept, there is little research on how to synthesize across them and little is known about concept heterogeneity across individuals. Because most past work has been concerned with concepts in general, there are only a few examples studying how specific concepts are represented in detail. Future research could develop methods for concept segmentation to segment people by how they understand relevant concepts, and apply this to specific concepts. For example, how do people understand the concepts of luxury, healthy eating, and sustainability, and how do these concepts vary across consumers? By combining insights from ethnography together with psychological and computational methods, future research could develop a deep understanding of how specific, important concepts are represented.

Concept Identification and Choice

This paper has focused on situations where the broad target concept has been identified, and the concept engineer must make decisions about its label, its exact features, and so on. Sometimes, however, a marketing challenge could be addressed by targeting any of several different concepts, and future research could examine how to choose which concept to target.

In the absence of a specific marketing challenge, it could still be useful to ask whether a culture or community is missing useful concepts. How could such concept gaps be identified? The simplest, but still wide open, answer is probably to identify concepts that exist in one community and do not, but usefully could, exist in another. Cross-linguistic comparisons provide one approach, but there have been only limited attempts to uncover concept gaps (Wierzbicka, 1997). A focus has been on differences in emotion words. For example, Lomas (2016) catalogued 'untranslatable'

words pertaining to well-being from many languages, where untranslatable refers to words that do not have a compact translation. Other work uses cross-linguistic lexical structure more systematically. For example, research using colexification has examined similarities and differences in emotion semantics across languages (Jackson et al., 2019), and research using bilingual dictionaries to construct cross-linguistic semantic networks has examined basic concepts in the physical domain (Youn et al., 2016). This kind of work suggests useful methods, but was not intended to identify concept gaps. Developing and applying tools to systematically identify consumption-relevant concepts that differ across communities would be scientifically interesting and potentially suggest marketing opportunities.

Concept Engineering Ethics

Two kinds of high-level questions present themselves about the ethics of concept engineering. First, normatively, how should we think about the ethics of deliberate concept change, both generally and in the context of specific examples? Second, how do laypeople judge the ethics of interventions aimed at changing concepts? Both of these questions suggest specific research hypotheses. For example, future research could test attitudes towards different framings of the activity of concept engineering, or test the acceptability of specific interventions.

Concept Engineering Interventions

The LIFTS framework is only one schema to organize concept interventions. Future research could explore other frameworks for concept engineering and the interventions that they suggest. For example, interventions could be organized by the representational change that they are expected to produce. This might suggest, for instance, specific interventions to expand or contract concept boundaries. As another alternative, a framework could begin from the strategic intended relationship between the target concept and existing concepts: some interventions are appropriate when there are no competing concepts, others when replacement is the aim, when carving out a subconcept is the aim, and so on. I have highlighted a few tools at each level of the LIFTS framework,

but future work could identify and test many other useful interventions. I primarily considered interventions in isolation, but future research could consider how best to combine interventions and how to choose among them.

Each of the LIFTS levels suggests both high-level questions and specific research hypotheses (summarized in Figure 3). Here, I simply point to future research questions for each level. At the labels level, research questions include, for example: How do factors such as the concreteness of a label affect perceived concept breadth? When does renaming an existing concept revise the concept itself, rather than simply relabel it? Does the inclusion of foreign-language terms in a label affect concept use and spread? Of the neologisms introduced into dictionaries each year, can one determine which are engineered, and predict which will spread?

With respect to the instances level, research in cognitive psychology has explored how properties of examples, for instance the spacing between them and their number, affect concept learning. However, most such studies use stylized simple concepts and future research should explore questions like these for the more complex concepts relevant to concept engineering. Other questions for future research include how best to combine examples with abstract descriptions, and how the affective component of examples influences concept adoption.

The features level presents many questions for future research. I have discussed labeling for a concept as a whole, but how can labels for individual features be used for concept engineering? What factors determine whether consumers accept splitting up or merging existing features of a concept? What are effective ways to remove a feature from an existing concept? What are effective tools to shift the causal centrality of features?

At the theory network level, interventions change how a concept relates to other concepts. We know little about what kind of interventions do this effectively. For example, when do analogies durably change a concept rather than only its construal in the moment? When does changing a concept's perceived cause shift its ontological position rather than only isolated beliefs about it? In education, refutational texts that give people reasons to replace existing concepts, rather than only reasons to adopt a new concept, have been particularly effective, and future research could

investigate such texts in the context of consumption-relevant concepts.

Most existing research on how concepts can be changed through institutional codification consists of qualitative case studies. Studying the impact of institutional codification on concepts through quasi-experiments is an interesting avenue for future research. For example, variation in how a concept is codified across countries or within a country may provide insight into how codification affects what version of a concept is stabilized. Another direction for research at the social and institutional level would examine strategies for making concept understanding, rather than behavior, visible.

Concluding Remarks

This paper has introduced concept engineering for marketers and proposed the LIFTS framework to organize concept interventions. Its aim is to encourage a concept engineering orientation so that when presented with a marketing challenge the instinct is to ask what concepts are at play, and whether they can be usefully revised. Simultaneously, this paper is itself an attempt at concept engineering for concept engineering, including the choice of terminology, the provided examples, the contrast to other interventions, and so on. I hope that it encourages marketers to consider concept interventions and scholars to pursue research in this area.

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The Marketer as Concept Engineer

Web Appendix

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Web Appendix A: Conceptual Engineering in Metaphilosophy

Work on conceptual engineering has discussed the notion of improving (mostly philosophical) concepts, rather than simply analyzing them. This has generated an interesting and rich literature in metaphilosophy examining and debating the notion of 'conceptual engineering' (Isaac, Koch, and Nefdt, 2022; Haslanger, 2000; Koch, Löhr, and Pinder, 2023; Cappelen, 2018; Chalmers, 2020; Nado, 2021; Thomasson, 2021), which provides useful background for concept engineering as a coherent set of activities for the marketer, partly as a contrast. Much of this debate has concerned what exactly conceptual engineering involves, and whether it is possible. For example, Cappelen's book *Fixing Language*, which is central to the literature, claims that conceptual engineering "isn't about concepts, and there isn't really any engineering" and is pessimistic that intentional meaning change is generally possible (Cappelen, 2018).

Although others define the idea of conceptual engineering as a constructive activity similar to concept engineering (e.g., "conceptual engineering is the process of designing, implementing, and evaluating concepts" (Chalmers, 2020)), the methodological discussion of conceptual engineering is abstract and not concerned with practical interventions to introduce and revise concepts. Nado (2021) is representative in that the emphasis is on only the abstract formulation of concepts, which she thinks of as the "real meat" of the engineering process, rather than on causing a concept to be adopted. She calls this simply "advertising" as in "The process of changing a community's concepts ... is a matter of getting folks to use the tools we've designed – again, advertising." In an exception to the lack of practical methodology, Nimtz (2024) proposes that conceptual engineering can proceed through changes to social norms, although, as I will discuss, this is not straightforward.

Concept engineering, as I define it, departs from the conceptual engineering of interest in metaphilosophy

in several ways. First, its target. Concept engineering specifically takes as its target concepts, the mental representations in individual minds studied by psychologists. The target of conceptual engineering is debated, but for some its emphasis is semantic or linguistic entities, such as the meaning of particular terms or items in shared discourse. Second, the activity itself. Concept engineering is an applied activity that uses ideas from the cognitive and behavioral sciences to deploy practical interventions and so increase the likelihood that many people adopt and use a new or revised concept. Conceptual engineering proceeds largely by argument and stipulation, and, for the most part, does not concern itself with practical tools to influence the large-scale adoption of new concepts. For concept engineering, whether a concept or concept revision is adopted and used is an empirical question. There are many successful cases of concept engineering as the examples in this paper demonstrate. The question of whether the activity of conceptual engineering can achieve its ends is, for much of the metaphilosophy literature, an open one. Third, the desired goal. Concept engineering simply involves deliberate concept introduction or modification, whether for prosocial, commercial, or self-interested ends. For example, consider marketers for different firms working to have their brand spread. The ethics of a particular act of concept engineering is a separate question (addressed in the concluding discussion). Conceptual engineering is viewed, by much of the metaphilosophy literature, as specifically involving concept improvement for either epistemic or social-political ends (Cappelen, 2018; Haslanger, 2000).

Web Appendix B: Related Work in Marketing

The annotated papers are contained here: https://osf.io/396ch/overview?view_only=0a8f1b59dfc649cf9de7e1802cdce82f

Papers

I retrieved all papers from the Journal of Consumer Research, Journal of Marketing, Journal of Consumer Psychology, and Journal of Marketing Research published in 1990 or later that contained any of the words concept, concepts, category, categories, or categorization in their abstract. To do so, I used the database OpenAlex to do so, and confirmed that this was more accurate than the search offered on the individual journal publisher websites. This resulted in 708 papers.

All papers were annotated as detailed below. I initially had Claude Opus 4.8 annotate the papers, but was not satisfied with its accuracy. I thus manually coded all papers myself. The Excel spreadsheet on OSF that collates the papers also includes a summary of each abstract. These summaries were initially produced by Claude, and I then corrected them as necessary. My focus was on annotating the papers into the categories below, not on the summaries.

Paper Exclusions

I excluded papers that were not relevant to the consumer psychology of concepts and categories. The excluded papers were of a variety of kinds, including the following.

1. The abstract referring to introducing or discussing some concept from the perspective of researchers, rather than consumers. For example, ""This article introduces the concepts and terminology of artificial neural networks."

2. Similarly, the categories referred to in the abstract were categories used by the researcher, for example the use of different response categories.

3. The abstract referred to a product category, but this was not part of the main discussion of the paper. For example, abstracts sometimes included that a result generalized across product categories or was shown for a particular product category or that the kind of product category (e.g. durable goods) moderated the effect. Similarly, I did not include papers where generic product category familiarity or product category knowledge moderated the particular effect studied by the paper.

4. The abstract incidentally referred to individual differences as differences in self-concepts without any discussion of self-concept as a concept or of how it was perceived.

5. Papers that discussed the effect of standard marketing mix elements (e.g., price promotions) on the brand.

6. Papers that discussed concept testing in the product design sense unless the paper dealt with product concepts rather than simply bundles of attributes.

After exclusions, 174 papers remained.

Paper Claims and Concepts

I coded each remaining paper in terms of its focus, which was often the kind of causal claim that it evaluated. Coding some papers (16) required both a primary claim and a secondary claim. I attempted to code papers into the category for which they were most suitable. For example, consider papers that involved the inferences consumers made from a concept. When the focus was the inferences themselves, I coded the paper as 'Concept to Behavior' with inference judgments as the behavior in question. When the focus was on how the concept was created or learned (and inferences were used as a measure of this), I coded the paper as 'Concept creation/change/learning'. Papers were coded into the following categories.

1. Concept creation/change/learning. These papers involved how concepts were created or changed by a marketer and learned by consumers. This category, and the next, are the two most relevant to concept engineering.

2. Concept understanding. These papers focused on how consumers understood concepts, often some specific concept.

3. Concepts to Behavior: These papers involved how concepts affected behavior. Behavior included attitude judgments or inferences made from a concept. Papers that involved how the brand concept affected various judgments of a brand extension were included in this category.

4. Environment to Concepts. These papers involved how the environment affected concepts, predominantly by priming a particular concept. Some papers involved priming a concept, and then examining the effect of this. In cases where the priming itself was the focus, often because it was indirect, the paper was coded as Environment to Concepts. In cases where the focus was how the primed concept affected behavior, the paper was coded as 'Concept to Behavior.' Most papers with a concept primed and then behavior measured were coded as both of these categories.

5. Concept elicitation. These papers involved an elicitation method that related to concepts, but was not preference elicitation.

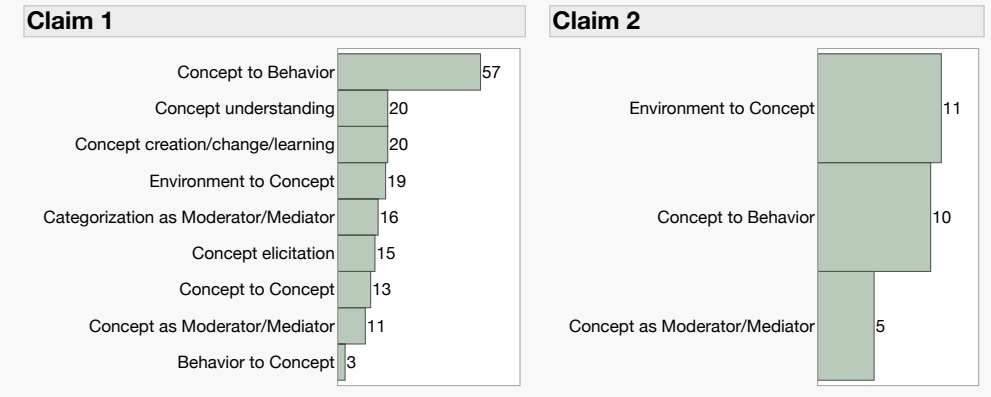

Figure 1: Categorization of each of the 174 included papers by focus (causal claim)

6. Categorization as Moderator/Mediator. The act of categorization was a moderator or mediator of some effect, or the focus of the paper was the categorization process itself.

7. Concept as Moderator/Mediator. A particular concept moderated or mediated the effect studied in the paper.

8. Behavior to Concept. The paper involved how some behavior affected a concept.

9. Concept to Concept. The paper involved how one concept affected another concept. Papers that involved how a brand extension affected the parent brand were included in this category.

Figure 1 shows the distribution of these categories across papers. In this dataset of papers, papers that studied how a concept affected behavior were the most prevalent. Note though that such papers did not involve the kind of concept engineering addressed in this paper. That is, they did not intervene to change a concept and later test whether this intervention resulted in different concepts between a treatment and control group. Instead, the majority of these papers either studied conceptual priming or studied how different brand concepts lead to different evaluations of brand extensions.

Concepts Coding

I also coded for each paper the kind of concept that the paper dealt with. Each paper was labeled with up to two concepts. Figure 2 shows the concepts studied across papers. The brand concept was the most frequently studied in this dataset of papers. Other kinds of concepts that received frequent study included the self-concept, product categories, and products themselves. Many papers studied concepts specific to the paper, ranging from power to gender. The paper spreadsheet contains the specific concept studied, but the figure shown here collapses across such concepts. Some papers studied concepts in general, rather than a specific kind of concept, and these are denoted 'general' in the spreadsheet and figure.

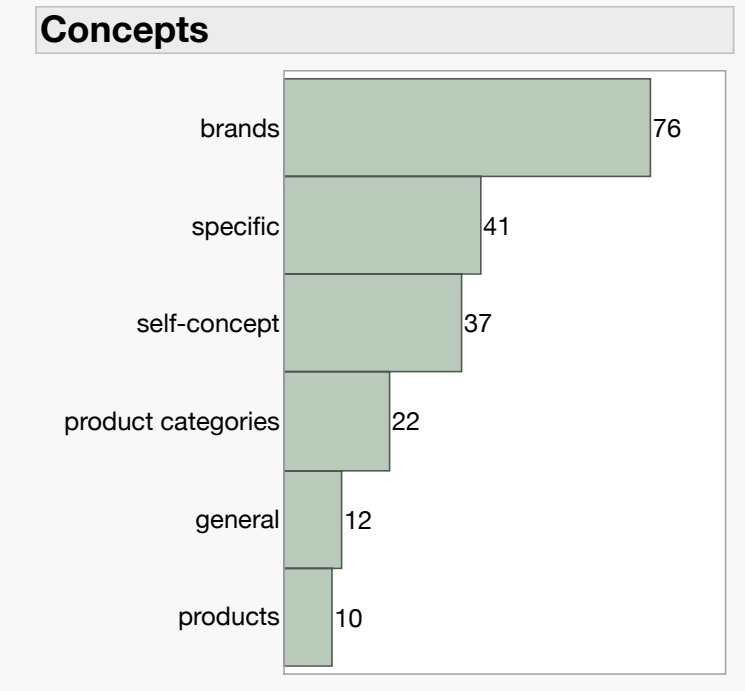

Figure 2: The concepts studied in each of the 174 included papers.

LIFTS Coding

For the papers that were either in the 'Concept understanding' category or the 'Concept creation/change/learning category,' I coded them by the levels of the LIFTS toolbox that they dealt with. Most dealt with a single level, but a few were coded with more than one level. Of the 40 papers, 8 dealt with the labels level, 5 with the instances level, 13 with the features level, 30 with the theory level, and 1 with the Social level.

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