

Reverse engineering

FOR COMPETITIVE ADVANTAGE

By **LINDSAY MOORE**, PhD

Perhaps you were one of those obsessively inquisitive kids who took apart the kitchen toaster to explore the heating coil and the pop-up button. Despite your parents' frustration with a kitchen drawer of 'extra parts' that never made it back into the appliance, this exploratory process, in business, is known as 'reverse engineering.'

Reverse engineering competitors' formulations is legal, can be ethical and can benefit a company's strategic position in the marketplace – if it is pursued in the right way. As such, reverse engineering is a powerful product-development tool that can be used to trump even patent-protected formulations or proprietary compounds, thus enhancing a company's place in the marketplace.

Reverse engineering is a truly modern development primarily originating within the world of technology and with the need to achieve interoperability. Originally, it provided a way to either find out if a competitor was violating your patent, or a way to map a path around a competitor's product to avoid violating its patent. In those cases where patent holders do discover infringement, it is common to stop the breach through legal action, possibly collecting damages, and then putting the infringer under a mandatory royalty-bearing license – sometimes called 'stick licensing.' IBM is known for inventing the practice of mapping out infringers and then threat-

ening to sue them if they don't accept a royalty-bearing license to atone for their violation. Beginning in the early 1990s with \$30 million in annual intellectual-property royalties, today IBM is known to receive largely stick-licensing royalties in excess of \$2 billion a year.

The foundations for the kind of law we are talking about are found in the US Constitution. The framers borrowed from English law to create a system of intellectual-property law that encouraged the "useful arts and sciences" in the greater interest of society. In return for the grant of the limited monopoly of a patent, patent holders would allow the public disclosure of their invention to increase the society's store of knowledge and to inspire further invention. Today, reverse engineering is sanctioned under the law because it serves this public interest and fulfils the public-policy objectives of disseminating ideas and promoting invention, the arts and creativity in society to augment civilization.

In the US and many other countries, an invention, a formulation or composition, or a process can be reverse engineered so long as it has been obtained for reverse-engineering study in a legal manner (eg, purchased in the marketplace).

Taking a page from technological and scientific reverse-engineering practices, food, beverage and dietary-supplements manufacturers can analytically study competitors' products with an eye to creating either more competitive or complementary entries. That is what Pepsi-Cola did when it entered the soft-drinks marketplace to compete with Coca-Cola. It studied the product to understand its

secrets, and then put it back together again, ostensibly to copy Coca-Cola, but inevitably it put it back together in a slightly different way because it couldn't obtain the same ingredients.

Dietary supplements, functional foods, unique ingredients and proprietary or patented formulations can be 'taken apart,' so to speak, to understand their workings. Some companies mistakenly attempt to 'knock off' competitive products, thus risking legal action, possible claims of intellectual-property infringement, unjust enrichment and even costly legal proceedings.

Reverse engineering is more strategic than merely copying a competitor's product. It teaches the researcher how the invention was conceived and thereby stimulates his or her imagination to conceive of new ways to fulfil consumer demand or stimulate marketplace competition. It is this creativity that leads to competitive advantage.

Of course, creativity is what all organisations strive for to win in the marketplace. In highly competitive markets, creativity often provides the strategic edge necessary to establish new differentiation in the marketplace, and more sustainable competitive advantage.

Taking your competitors' products apart invariably causes them to get put back together in new and better ways.

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