Innovation for the Future of the Fragrance Industry

Facing significant threats, fragrance requires an innovation intervention.

Stephen Hicks

Creativity and the art of perfumery are the essential strengths of the fragrance industry, and that statement will be as true 20 years from now as it is today. No one has ever written a mathematical algorithm that accurately predicts what each individual consumer likes to smell or what is the perceived scent of a combined 100 ingredients. These assets have been both necessary and sufficient for the profitable growth of the industry, and they are certainly necessary for the future. But … are they sufficient for continued growth? Can this industry remain profitable by building upon creativity alone?

Several things have changed over the past two decades that warrant another look at the innovation directions of fragrances:

- The analytical capabilities of industry laboratories have become so good that one can closely derive the formula of a competitor's perfume. Formula secrecy has always been the wall that protects industry from scent copying. Granted that minute additions of specialized captive ingredients can still hide the secrets of a complex fine fragrance, but in consumer products (which represent the bulk of volume in this industry), one can get so close so as to be indistinguishably different to consumers.
- Activist NGOs continue to press for public disclosure of full perfume formulas. While the industry has successfully defended trade secrets as protectable intellectual property, both the beauty and, now, the household cleaning product industries are printing the ingredients of their formulas on package labels. Leading consumer product companies and the International Fragrance Association have posted lists of all raw materials used in perfumery on websites (without disclosure of individual perfume formulas.) It hasn't happened yet—and there will continue to be a concerted effort to fight it—but *someday*, it is easy to predict that some country somewhere may legislate full perfume formula disclosures. The day that happens, trade secrecy of perfume formulas will evaporate as effective protection.
- Many of the commonly used large-volume ingredients in perfumery (musks, aldehydes, ketones, etc.) are coming off patent, and some are manufactured by low-cost producers elsewhere in the world. There has not been the invention of a truly new-to-the-world olfactory molecule with the volume of a Galaxolide or a Lilial for quite some time. It is increasingly difficult to find truly breakthrough, unmined, olfactory space.[a, b]
- Perfume delivery systems have become the new means of delivering breakthrough scent experiences in consumer products when it is increasingly difficult to win on character alone.

I contend that, without an innovation intervention in this industry, the factors listed above pose a significant threat to the profitability of fragrances. If consumer product companies see fragrance submissions that are easily able to be copied, unprotected by strong patents on major technologies, in a political environment where more and more of the formula must appear in the public domain, they will look for ways to differentiate the superiority of their brands with technologies other than scent. That would render fragrances as commodities in the eyes of consumer product companies—the death knell of profitability for any industry. Price will outweigh innovation in importance, as fragrance customers view suppliers' products as easily copyable.

A Better Way

This need not be the case at all. Making new interventions in innovation can insure continued consumer delight with protectable technologies. So, if it's not *only* creativity or *only* secret formulas, what *does* constitute new innovation? Here are some ideas:

- Reinvent perfumery that makes delivery technologies work better. Many of today's delivery technologies (starch encapsulation, melamine-formaldehyde capsules, etc.) are off-patent or difficult to protect in a crowded field. But they all have shortcomings. Most are restrictive in terms of which aroma chemicals are stable or give adequate olfactory performance when used in conjunction with the technology. None of today's state-of-the-art in delivery technologies yields the full olfactory degrees of freedom that can be achieved with neat perfume. The evolution of delivery technologies will continue to improve this, but it is in the unique domain of the fragrance company R&D teams to invent the aroma chemicals that perform better in these systems.

[a] Galaxolide is a trade name of IFF; [b] Lilial is a trade name of Givaudan

- Create the aroma chemicals that enable sustainability improvements in consumer products. Compacting products such as detergents, shampoos, household cleaning products, etc. by removing water has a much larger positive impact on the environment than everything the fragrance industry can do on its own. It is appealing not just for reducing water usage, but it will also drastically reduce plastic use and disposal (smaller packages needed) and energy use (less product to transport.) The chemistry challenge is that perfumes behave differently in concentrated consumer product formulas. Products that were once stable in diluted formulas may become unstable when used in conjunction with concentrated products and the same perfume levels. Given that compacted formulas require the consumer to use less mass of product per use, the fragrance level that used to provide a balance of intensity between the optimum neat product, in-use and after-use experiences will no longer be right. The same perfumes will either create an overwhelming neat intensity if dosed for in-use levels, or it will under-perform in after-use if dosed for neat levels. The invention of more powerful chemicals that can substitute for those used today can help overcome this trade-off.
- Create new technologies and molecules for cost innovation. The historical evolution of the fragrance industry has produced cost structures that are designed to fit the economic realities of the developed world. That works great for fine fragrances, shampoos, etc. sold in North America, Europe, and the higher economic strata of strong emerging markets in Asia and Latin America. However, the next billion consumers who will enter the market for consumer goods as their standards of living rise live in a very different economic reality. We used to call them the "$2-a-day" consumers, living on an average $2/day of disposable income. These people are not going to pay the equivalent of $4 for a bottle of shampoo or $10 for a big jug of laundry detergent. Their purchases are going to be measured in pennies (or rupees or renminbis or other currencies.) Fragrance costs over $10/kg make no financial sense for products that are targeted to these consumers. There are aroma chemicals available for single digit $/kg, but their olfactory qualities are limited. Breaking this trade-off will enable major consumer product companies to offer affordable brands to these new consumers without sacrificing scent experience. There are multiple means to achieve this; process innovation and biotech manufacturing are two of the most promising leads today.

All three of these innovation paths represent major new directions for this industry. With the right R&D investment, clarity of purpose and strategy, the companies that innovate in these spaces will be able to offer strong new value to the fragrance industry with highly profitable and protectable technologies.

Address correspondence to Stephen Hicks; hicks.sj@gmail.com.