Tobacco Industry Contributions to the Development of Ultraprocessed Food in the United States, 1985–2007: A Case Study of Lunchables

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Abstract

We need to know how ultraprocessed foods (UPFs) are designed and formulated to better understand why these products cause overeating and weight gain, and how to apply appropriate guardrails. This information, however, is typically kept hidden by UPF companies as proprietary trade secrets. Using previously undisclosed internal company documents, this study traced product development for Lunchables, a prepackaged meal brand developed at Kraft General Foods while it was owned by the tobacco giant Philip Morris Companies.

Findings show that a key reason Philip Morris purchased food companies was to increase revenues by sharing proprietary research and development assets across tobacco and food product lines. Philip Morris applied its product development approach for making cigarettes to Lunchables in 2 important ways: First, it applied its "consumer-driven product development" strategy that optimized products for consumer pleasure and appeal. Second, Phillip Morris applied its "better-for-you" reformulation strategy, first used to create filtered Marlboro cigarettes, to develop Low-Fat Lunchables in efforts to keep consumers worried about childhood obesity loyal to the brand.

These findings speak to the need for public health research and policies that extend existing models for regulating tobacco to UPFs. (*Am J Public Health*. 2026;116(7):940–949. https://doi.org/10.2105/AJPH.2026.308491)

In 2023, 2 new formulations of Kraft–Heinz's grab-and-go prepackaged meal brand, Lunchables, qualified for the US National School Lunch Program (NSLP) serving 30 million low-income children. With Lunchables "built for schools," Kraft-Heinz told investors that the NSLP was a "$25 billion growth opportunity."[1] A year later, the company abruptly withdrew Lunchables from the NSLP, citing poor market performance. This came on the heels of a *Consumer Reports* study that found high concentrations of sodium and heavy metals in Lunchables[2] and reports that school districts were hesitant to dispense them because of nutritional concerns.[1] Citing a decline in consumer trust because of "negative publicity," the Kraft–Heinz CEO said, "This is a brand that is focused on families and kids. So rebuilding that trust just takes some time."[3]

Among other health challenges, nearly 20% of US children have obesity—a rate nearly quadruple what it was in the 1970s, before ultraprocessed foods (UPFs), like Lunchables, became widespread in the US food supply.[4] UPFs—industrially produced foods that use multiple physical processing steps and chemical additives not used in home cooking—contribute 62% of daily calories to the diet of US children today.[5] Linked to poor diet quality and health outcomes, UPFs are rapidly displacing traditional diets in most parts of the world.[6] In clinical trials of adults, they are causally linked to overeating and weight gain.[7] Epidemiological studies associate UPF dietary share with population-level obesity rates, along with diabetes, cardiovascular disease, and premature death.[6,8] Lunchables is a quintessential child-focused UPF brand made with processed meats and cheeses, refined carbohydrates, and sugar-sweetened beverages (SSBs) that largely fails to meet child nutrition standards.[9] Even reformulated "better-for-you" Lunchables for the NSLP contain highly processed ingredients and cosmetic additives, including emulsifiers, enzymes, preservatives, and artificial flavorants (Appendix A, available as a supplement to the online version of this article at https://ajph.org).

Between 1963 and 2008, the largest US food companies were owned by the largest tobacco firms, RJ Reynolds (Del Monte, Nabisco) and Philip Morris (Kraft, General Foods). Two previous studies found that, during this 45-year period, tobacco companies applied cigarette marketing strategies to

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promote their UPF product lines.[10,11] This study adds to the picture by examining tobacco companies' technical contributions to the design and formulation of UPF products. Research of this kind is important because clinical trials find that "hyper-palatable" UPF formulations cause more overeating[12] and that tobacco-owned UPF brands were disproportionately hyper-palatable.[13] Scientists, policymakers, and parents need information on how UPFs are designed and formulated to better understand why these foods are overeaten and produce weight gain, and to apply appropriate guardrails.[14] However, this information is often kept secret by UPF companies as proprietary intellectual property.

Lunchables were in premarket development at General Foods in 1985 when Philip Morris Companies (PMC) acquired the company and subsequently brought Lunchables to market, developing the brand over 23 years. It is possible to pierce the secrecy surrounding the design and formulation of some UPF products, including Lunchables, because this process is described in internal company documents (e.g., executive correspondence, research and development [R&D] records) in the UCSF Industry Documents Library—an archive launched following class action litigation of the tobacco industry (Appendix B, available as a supplement to the online version of this article at https://ajph.org).[15] This information, triangulated with public-facing documents (e.g., corporate websites, journalism) reveals that a key reason why PMC diversified into the food industry was to boost growth and revenues by sharing proprietary R&D across tobacco and food product lines. PMC applied its technical knowledge for making cigarettes to Lunchables in 2 important ways: first, by applying its "consumer-driven product development" process that optimized products for pleasure, and second, by applying its approach to formulating "better-for-you" products for health-conscious consumers.

BOOSTING PROFITS BY SHARING TOBACCO AND FOOD R&D

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PMC ("Altria Group" since 2003) acquired the Lunchables brand during a period of significant corporate growth through acquisitions and mergers. As Figure 1 shows, by 1985, when PMC bought General Foods, it already owned an alcohol subsidiary (Miller Brewing Company, acquired 1970) and an SSB company (7-UP, 1978). These acquisitions were designed to competitively position PMC against its largest US competitor, RJ Reynolds, which was also acquiring food (Del Monte, 1979; Nabisco, 1985), alcohol (Heublein, 1985), and SSB (Pacific Hawaiian Products, 1963) companies.

FIGURE 1— Milestones for Lunchables Product Development and Philip Morris Companies

Note. acq. = acquired.

Source. Moodys Investor Service.[23]

In 1987, PMC bought Kraft and merged it with General Foods to create the second-largest food corporation in the world, Kraft General Foods (KGF). By 1989, PMC had installed tobacco executives in KGF's leadership[16] and restructured the firm into 7 different operating units with a combined sales of $22.5 billion.[17] In 1990, the long-standing tobacco executive Geoff Bible became CEO of KGF[18] in a move that PMC's chairman, Hamish Maxwell, said would promote "significant cross-fertilization between our businesses."[19(p8)] Emphasizing the similarities between tobacco products and food, Maxwell told investors that PMC had become the largest consumer packaged goods firm in the world:

> We are the largest publicly held cigarette company, the second-largest food company and second-largest beer company in the world today. In aggregate, we are the world's largest consumer packaged goods company—marketing products to millions of people daily. All of our major businesses share common characteristics. They market low-priced consumer packaged goods with huge retail markets. Most of our products are sold around the world; using common marketing approaches and similar retail outlets. Most products are agriculturally based and are resistant to economic change.[20(p36)]

PMC's diversification strategy was designed to exploit "technical synergies" across its tobacco, alcohol, SSB, and food product lines. In 1988, PMC launched a Technical Synergies Committee comprising product development leads from its tobacco, alcohol, and food subsidiaries. Viewed as "a large component of the battle to dominate the world's consumer product business,"[21(p33)] the Committee's mission was "to increase effectiveness and reduce costs of R&D throughout PM Companies wherever possible through well-designed interactions among all of the technical centers."[22(p10)] The Synergies Committee began with a companywide assessment of "PM's technology portfolio," including skills, people, research capabilities, equipment, facilities, "emerging technologies," and "coordinated/joint research" to facilitate the "transfer of technologies or skills"[21(p3–4)] across tobacco, food, and alcohol R&D departments. At the time, PMC had a vast global

R&D enterprise comprising 2840 engineers and scientists. One third was devoted to tobacco, and the remainder to food and beverage R&D.[21]

In 1989, Bob McVicker, vice president of technology at KGF, took leadership of the Technical Synergies Committee to serve as "an active participant in the synergy effort so that we could all rapidly benefit from Kraft's complementary technologies, and they from ours."[21(p38)] The companywide assessment found numerous opportunities for collaboration. As its 1989 report described, the Committee found that "there were some technologies that were being pursued by more than one operating company at that time; if these efforts could be coordinated, we could avoid duplication and benefit from the differences in perspective."[21(p3–4)]

Throughout the 1990s, the Technical Synergies Committee coordinated and streamlined R&D sharing across PMC's 6 tobacco, food, and alcohol subsidiaries (Figure 2).[23] Shared R&D assets included chemical additives, processing and packaging technologies, research, research partnerships, and supply chains.[20] Specific synergies projects utilized "biotechnology in developing innovative natural food flavors" and flavor encapsulation technology (chemically coating flavor compounds for timed release and extended shelf life) for use in cigarettes and food. An "antifreeze protein project" applied genetically engineered yeast developed by Miller Brewing to solve KGF's problems with inhibiting ice crystal formation to improve frozen food texture.[21(p5–6)] Collaborative studies focused on chemical flavorants for cigarettes and food, and the development of a companywide "crop protection agent" (e.g., pesticide) database.[22(p11)]

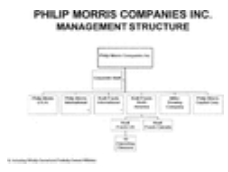

FIGURE 2— Philip Morris Companies Management Structure, 1995

Source. Moodys Investor Service.[23]

Lunchables, launched nationally in 1988, embodied PMC's approach to leveraging technical synergies. By design, Lunchables allowed product developers to combine numerous PMC ingredients and products in a single snack tray (Figure 3, panel a). As PMC's vice chairman pointed out, the "new Lunchables line has benefitted from Kraft's technical and production of knowledge in cheese. … One way of sharing expertise is through cross-unit working groups."[20(p27)] Lunchables was lauded by the Synergies Committee as a model of the "benefits we can expect from the corporation's technical synergies."[21(p41)] When, in 1991, PMC spent $115 million to acquire the SSB company Capri Sun, the new aseptic "juice" pouches were added to make the "Lunchables Fun Pack." When PMC bought Del Monte's pudding division in 1995, the Jell-O brand made "Lunchables with Pudding."[24] By then, Lunchables had become a $200 million food category, in part, through "simplifying the organization" via synergies. PMC's leadership credited synergies for making Lunchables KGF's "fastest growing business."[24(p23)]

FIGURE 3— Lunchables Product Evolution Showing (a) Original (1988), (b) Low Fat (1995), (c) Maxed Out (1999), and (d) L

Sources. (a) https://www.youtube.com/watch?v=eYvlFTxSWmk; (b) https://www.historyoasis.com/post/discontinued-
t=ftsa&q=maxed+out+lunchables&ia=images&iax=images&iai=https%3A%2F%2Fimages.freshop.com%2F00044700360675%2F1d2ca4
(d) https://

CIGARETTE PRODUCT DESIGN APPROACH APPLIED TO LUNCHABLES

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Key to optimizing technical synergies was sharing expertise in "consumer-driven product development" between PMC's tobacco and food product developers. PMC's approach was to embed market researchers in "cross-functional teams," working alongside product engineers. This allowed consumer testing to drive decision-making at each step of the product development cycle, from prototyping to design, formulation, and packaging. As KGF's CEO Bible explained at a 1990 companywide R&D symposium, PMC's goal was to optimize products in ways that fulfilled the consumer's deepest "needs and preferences" using synergies:

> Cigarettes may not have much to do with cheese or beer or mayo. But test methodologies excavating one hierarchy of needs might well apply to the other. … As far as I'm concerned, understanding the customer is the heart and soul of Philip Morris companies—at KGF, Miller, or anywhere else in the corporation. If the customer doesn't care about a new product—what else matters? … Remember, our mission is to plumb

> the sometimes murky recesses of the customer's attitudes, behavior and hierarchy of needs and excavating any needs that may remain unarticulated, locked away in a corner somewhere. That supreme thought should guide our behavior throughout the new-product development process. ... We don't create demand. We excavate it. We prospect for it. We dig until we find it.[25(p109–110)]

Later in this R&D symposium, product developers for Lunchables explained how a consumer-driven approach had "optimized" their product concept. The Lunchables cross-functional team had started the design process by asking, "What do consumers want?" Focus groups with children led developers to believe the product could fulfill the child's deepest desires for play and autonomy: "Kids loved them" because the children wanted "control over their lunch," and also wanted "permission to play with their food."[25(p265)] Early prototypes for Lunchables used a "Food Playground" paradigm, where the cross-functional design team built 17 prototypes through interactive play in a "room full of food" with "plastic and scissors."[25(p260)] As a KGF executive later reflected on Lunchables with Pizza, "We're letting kids know that they can have their favorite food, pizza—anytime and anywhere."[24(p31)]

Consumer testing also focused on the market segment, "Busy mothers/working women 25–49." In focus groups for early design prototypes, mothers called Lunchables "cute" and suggested a desire for convenience. Central location testing found that mothers weighed convenience against child health concerns: "easy to pack, easy to clean up, last-minute lunch," and "better than junk food."[25(p267)] Consumer testing by the firm, BehaviorScan, found that mothers liked Lunchables' tray format, but needed the reassurance of familiar contents,[26] such as PMC's Oscar Mayer processed meat and Kraft cheese, made visible through plastic windows in the cardboard packaging (Figure 3, panel a). With a bright yellow band around the box, suggestive of a gift, Lunchables' packaging was designed to alleviate mothers' guilt about opting for a prepackaged meal. Lunchables' lead designer later explained, "The box was there as a gift, something precious to elevate its specialness."[26(p205)]

PMC continued to build the Lunchables brand until 2007, when it sold Kraft. Product development during this period focused on the prolific release of new product line extensions—novel flavor, size, and packaging variations used to penetrate new market segments and revitalize flagging sales (Figures 1 and 3). Although the cumulative total is unknown, as of July 2025, the Kraft–Heinz website listed 52 Lunchables line extensions.[27] Even before the 1988 national launch, KGF had been testing line extensions for vending machines and "man-size" portions.[28,29] In 1991, it released 4 new line extensions of Lunchables with Dessert "to maximize total customer appeal and synergy with the Jell-O brand" and as "an important defensive tool" against the Sara Lee Corporation, which was marketing "knock-off Lunchables."[30] After "sparking huge growth," PMC executives described the 1994 "Lunchables Fun Pack" as the "perfect example of how we grow through innovation."[31(p1)]

Throughout the 1990s, the Technical Synergies Committee supported continuous innovation in Lunchables line extensions by sharing processing and packaging technologies across PMC's tobacco and food subsidiaries. Synergies promoted high-speed aseptic packaging,[21] innovations in "taste enhancers and modifiers," the "control of flavor delivery" and "flavor release," as well as the continued "transfer of people across tobacco, food and beer."[32(p10,30)] Consumer-driven product development fostered new line extensions optimized for consumer pleasure. The 1991 invention of "Lunchables with Pizza" brought major growth to the brand. Although mothers in focus groups were revolted by the cold sauce and unmelted cheese, test children embraced the idea of building their own pizza.[33] As a PMC executive told shareholders, "we expect our growth to continue as we answer some of America's insatiable appetite for pizza—with new Pizza Lunchables. No one else could put together such a great combination with Kraft cheese and Oscar Mayer luncheon meats. That's what synergy is all about!"[31(p29)]

MARLBORO'S "BETTER-FOR-YOU" STRATEGY AND LOW-FAT LUNCHABLES

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As public concern about childhood obesity grew in the 1990s, the brand image of Lunchables faced challenges. In 1994, a prominent pediatrician called Lunchables a "nutritional disaster."[33(p2)] In 1997, the American College of Cardiology called them a "blood pressure bomb."[34] Eventually, Kraft was forced to withdraw the profitable line extension, "Lunchables Maxed Out," from the market (Figure 3, panel c). With its exaggerated portion sizes, totaling 9 grams of saturated fat and 54 grams of sugar, Maxed Out brought too much negative publicity, according to the business press.[26,35]

In 1988, PMC's Corporate Products Development Committee announced that "principal R&D priorities under Synergies" were "cholesterol reduction" and calorie limits, while maintaining "fundamentals of taste."[29] Business reporters described a "down-with-cholesterol movement" throughout the food industry, noting the technical challenges inherent in making reduced fat products deliver the taste and "mouth feel" of real fat.[36] Internal PMC memos suggested heightened

pressures on R&D as the firm's competitors launched cholesterol-free mayonnaise and simulated fat substitutes, such as Olestra.[21] In product development discussions, PMC managers observed that "the arena of nutritionally controlled foods is very dynamic and growing. It is critical we keep current on technology applications, marketplace initiatives and consumer understandings."[25(p492)]

By 1990, these pressures had led KGF to leverage its Louis Rich line of poultry products to launch a "white meat Lunchables," called "Lunch Breaks," to "preempt" competitors trying to "lure away current Lunchables users through a 'better for you' posturing."[30(p1)] Like its competitors, KGF was struggling with the palatability of fat substitutes: "Reduced fat cheeses were not included in the Lunch Breaks product line because of their poor appearance and taste." Consumer testing found that "lower fat process cheeses do not peel properly, while lower fat natural cheeses form calcium crystals that consumers perceive as mold."[37]

In a 1990 speech to newly hired managers, PMC's CEO, Maxwell, emphasized that the push to design products for health-conscious consumers extended to all of PMCs product lines, from tobacco to food:

> One of the key consumer trends we are most attentive to is increasing public concern about health. … We want to respond to the whole range of consumer concerns. We've modified our food products to remove fat or lessen the calories, and we've developed lighter cigarette products.[19(p6)]

Maxwell believed the "better-for-you" market was "the most powerful driving force in the cigarette market since 1954" and that PMC had a first mover advantage because of its early success with a filtered version of Marlboro cigarettes for men.[38(p26)] PMC's market advantage was independently confirmed by a competitor analysis commissioned by British American Tobacco that assessed PMC's better-for-you product portfolio (Figure 4).[39] Their analysis concluded that Marlboro's success with "getting the guilt out of the product" gave PMC an edge in making better-for-you foods and beverages:

> Philip Morris' successes have predominantly involved marketing products which deliver fully on consumer expectations but with the key additional benefit of 'reduced guilt' (greater permissibility). Marlboro cigarettes is the best example. … Its success came through not only delivering full flavour with a less negative health positioning but also in appealing to male smokers. … The successful formula developed with Marlboro was repeated with Miller Lite Beer. … Seven Up's promotion under the banner "Caffeine: Never Had It, Never Will!" was similar.[39(p15)]

PMC's 1990 strategic plan expanded investments for R&D to "develop products which address the consumers' desire to reduce their health concerns," led by the Technical Synergies Committee.[40(p3)] This included the development of a low-nicotine cigarette, designed to address rising consumer concerns about tobacco addiction while "maintaining our smoking population."[41(p363)] To achieve this, the Synergies Committee coordinated a companywide application of carbon dioxide supercritical fluid extraction technology (CO_2 SFE), a new processing technology for extracting compounds from plant and animal tissue matrices using CO_2 under high pressure. KGF had been using CO_2 SFE to decaffeinate coffee beans for Maxwell House Coffee. Under Synergies, the technology was successfully applied to remove nicotine from tobacco for a new cigarette: "Without the knowledge, experience and facilities of General Foods, Philip Morris USA could not have placed our new product in test market until late 1991."[21(p4)] To compensate for flavor loss resulting from de-nicotinizing tobacco, PCM's scientists used neuroperception research (e.g., electroencephalogram-based olfactometer studies) to identify chemical flavor additives that produced "commercially acceptable cigarette products" with 95% of the nicotine extracted.[42(p899)]

FIGURE 4— Competitor Review of Philip Morris Companies' Better-For-You Product Portfolio, 1990

Source. British American Tobacco.[39]

Under Synergies, PMC's scientists and engineers applied the same combination of technologies—CO_2 SFE and neuroperception research on chemical flavor additives—to create more palatable "fat replacement ingredients." The Technical Synergies Committee reported in 1989 that "We are aggressively pursuing the transfer of supercritical fluid extraction technology from coffee to tobacco to fats and other substances. 95% of all SCE capacity in the world belongs to PM."[21(p30–31)] KGF was under market pressure to move beyond "traditional technologies believed at their limits" that substituted starches, gums, and water for fat.[25(p277)] In testing, consumers found the "texture okay" in existing fat-free formulations, but the "flavor not up to standards."[25(p301)] Marketing recommended that KGF roll out a new fat-free formulation as a "preemptive" move in the "Better For Me" market. While consumers had significant "concerns about ingredient safety" with fat-free

mayonnaise and processed meat, marketing researchers found that adding a simple “All Natural” label provided adequate “ingredient reassurance.”[25(p303)]

In 1991, the Technical Synergies Committee reported “promising results” from its “cross-laboratory projects … investigating the feasibility of extracting fat with supercritical carbon dioxide extraction from peanuts, chocolate and coconut.”[22(p10)] The push for new, more palatable “fat mimetics” brought one of PMC’s top neuroperception scientists, Frank Gullotta, into collaboration with KGF’s laboratory. KGF product developers believed that Gullotta’s research using electroencephalogram-based olfactometers, plus their “Neuro Scan system” and a “new Brain Wave computer system, … could be extended … to tastants that would be of mutual benefit to PM and KGF.”[43(p1)] Gullotta had been conducting research on nicotine addiction and flavor perception in a secret laboratory in Germany, where PMC hoped his research would evade the scrutiny of attorneys and tobacco regulators in the United States.[44] KGF’s fat mimetics developers viewed Gullotta “as our one bonafide ‘internal expert’” and as “an absolutely key resource for us in this task.”[45(p1)] A year later, research techniques developed in Gullotta’s lab, including “Electronic Nose/Biosensors,” were in use at KGF “to assist with their fat-free research program, … toward a better understanding of the processes by which fat affects taste perception.”[46(p1)]

In 1995, the Technical Synergies Committee reported some success with its Strategic Research Initiative on “fat mimetics,” noting “improved flavor systems for next generation fat free products.” Related work on “Fats, Oils and Replacement” was seeking “breakthrough fat mimetics for next generation cheeses, viscous, pourables, desserts, whipped toppings.”[47(p8)] That year, Low-Fat Lunchables went to market, the first line extension to apply the new fat extraction technology in processed meat and cheese (Figure 3, panel b). A Kraft vice president noted that fat-free processed meats are “some of the food industry’s hottest new products. … We’ve fueled the growth in the most successful segment of the industry in decades … the Lunchables category, when we introduced Fun Pack, low fat and pizza lunchables.”[24(p2)] In his 1995 annual speech to stockholders, CEO Bible celebrated, “We consistently come up with ways to satisfy consumers, like our 700-million-dollar fat-free food business here in North America … like Oscar Mayer Lunchables, one of the best new product success stories in the industry.”[48(p4)]

FROM CIGARETTES TO ULTRAPROCESSED FOOD

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As the CEO of Philip Morris, Maxwell, observed in 1989, cigarettes and food are very similar businesses. Both are “low-priced consumer packaged goods with huge retail markets.”[20(p36)] Manufacturing cigarettes and UPFs, like Lunchables, relied on the same supply chains for refined agricultural ingredients and chemical additives. Both used the same processing and packaging technologies, such as chemically encapsulated flavors and high-speed aseptic packaging. And both benefitted from the same product development approach, one that optimized products for consumer pleasure by using consumer research—from focus groups to neuroscience—to guide each step of the product engineering cycle.

This case study of Lunchables illustrates the pivotal role that tobacco companies played in the food industry during the 1980s and 1990s, when UPFs were scaled up in the US food supply. Because making cigarettes and UPFs were such similar businesses, PMC could profit off their “technical synergies,” allowing food and tobacco product lines to coevolve. Processing innovations, such as CO_2 supercritical fluid extraction, could just as easily extract fats from processed meats as nicotine from cigarettes. Consumer-driven product development allowed engineers to design Lunchables to appeal to the child’s deepest desires for play and autonomy, just as low-nicotine cigarettes appealed to the adult’s desire to “get the guilt out of the product.” PMC’s “better-for-you” reformulation strategy, used to develop filtered and low-nicotine cigarettes, was equally effective for developing Low-Fat Lunchables, to keep consumers worried about childhood obesity loyal to the brand. Neuroperception research and chemical flavorants helped compensate for flavor loss in low-nicotine cigarettes. And they could do the same for low-fat food, resulting in Low-Fat Lunchables—the first of many “better-for-you” line extensions leading up to the most recent, Lunchables for the US NSLP.

Public health practitioners and policymakers tend to treat tobacco, UPF, and alcohol as separate and distinct commercial determinants of health. Research on their health harms is largely conducted in separate scientific silos that produce separate policy recommendations for preventing chronic disease. While the largest firms in today’s consumer packaged goods industry may be less diversified than they were in the 1990s, one can still find numerous examples of child-focused brands that blur the boundaries between industries, such as “alcopops,” candy-flavored e-cigarettes, and even cannabis-infused snack foods.[49] Public health research has begun to uncover the common “corporate playbook” used by health-harming industries,[50] and addiction research has identified common mechanisms in tobacco and food addiction.[51] Evaluation studies show that

many tobacco control policies are effective for regulating UPF, including taxation, warning labels, and restrictions on child-focused marketing.[52] There are growing international calls to implement these policies to halt the rise in UPF production worldwide, as well as calls within the United States to remove UPFs from school meals, and for civil litigation to recover the health care costs of UPFs to the public.[6,53,54]

In light of Maxwell's observation that cigarettes, beer, and bologna are very similar businesses, we would be wise to accelerate efforts to understand the "synergies" between tobacco and UPFs in public health research and practice. And governments would be wise to find ways to extend existing consumer protection laws and public health regulations protecting children from tobacco products to include UPF. In the 1990s, legal actions against tobacco companies by US state attorneys general opened the door to significant policy advances in tobacco control, in part because internal industry documents showed that tobacco companies were intentionally formulating products to boost consumption.[15] Results from this study show that the same corporate logic was applied to manufacturing UPF products, suggesting the need to explore similar legal remedies.

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CONFLICTS OF INTEREST

The author consults as an expert witness for plaintiffs in litigation involving necrotizing enterocolitis and infant formula marketing.

HUMAN PARTICIPANT PROTECTION

No human participants were involved in this research.

REFERENCES Section: Choose

References

1.. Bernstein L, Weber L, Keating D. How Lunchables ended up on school lunch trays. *Washington Post.* October 17, 2023. Available at: https://www.washingtonpost.com/health/interactive/2023/lunchables-school-lunch-ultraprocessed-foods. Accessed July 22, 2025. Google Scholar

2.. Loria K. Should you pack Lunchables for your kid's school lunch? *Consumer Reports.* November 12, 2024. Available at: https://www.consumerreports.org/health/lunch-and-snack-packs/should-you-pack-lunchables-for-your-kids-school-lunch-a1165583878. Accessed July 22, 2025. Google Scholar

3.. Meyersohn N. Lunchables were a smashing success. Now they're in crisis. *CNN Business*. November 25, 2024. Available at: https://www.cnn.com/2024/11/25/business/lunchables-in-crisis. Accessed September 25, 2025. Google Scholar

4.. Fryar CD, Carroll MD, Afful J. Prevalence of overweight, obesity, and severe obesity among children and adolescents aged 2–19 years: United States, 1963–1965 through 2017–2018. National Center for Health Statistics. February 5, 2021. Available at: https://www.cdc.gov/nchs/data/hestat/obesity-child-17-18/obesity-child.htm. Accessed July 22, 2025. Google Scholar

5.. Williams AM, Couch CA, Emmerich SD, Ogburn DF. Ultraprocessed food consumption in youth and adults: United States, August 2021–August 2023. *NCHS Data Brief.* 2025;(536). https://doi.org/10.15620/cdc/174612 Google Scholar

6.. Scrinis G, Popkin BM, Corvalan C, et al. Policies to halt and reverse the rise in ultraprocessed food production, marketing, and consumption. *Lancet.* 2025;406(10520):2685–2702. https://doi.org/10.1016/S0140-6736(25)01566-1 Crossref, Google Scholar

7.. Hall KD, Ayuketah A, Brychta R, et al. Ultraprocessed diets cause excess calorie intake and weight gain: an inpatient randomized controlled trial of ad libitum food intake. *Cell Metab.* 2019; 30(1):67–77.e3. https://doi.org/10.1016/j.cmet.2019.05.008 Medline, Google Scholar

8.. Lane MM, Gamage E, Du S, et al. Ultraprocessed food exposure and adverse health outcomes: umbrella review of epidemiological meta-analyses. *BMJ.* 2024;384:e077310. https://doi.org/10.1136/bmj-2023-077310 Medline, Google Scholar

9.. Harris JL, Kidd B, LoDolce M, Munsell C, Schwartz MB. Rudd Report: Food market facts in focus: Kraft Lunchables. April 2014. Available at: https://uconnruddcenter.media.uconn.edu/wp-content/uploads/sites/2909/2020/09/RuddReport_Lunchables_4_14.pdf. Accessed May 5, 2026. Google Scholar

10.. Nguyen KH, Glantz SA, Palmer CN, Schmidt LA. Transferring racial/ethnic marketing strategies from tobacco to food corporations: Philip Morris and Kraft General Foods. *Am J Public Health.*

2020;110(3):329–336. https://doi.org/10.2105/ajph.2019.305482 Link, Google Scholar
11.. Nguyen KH, Glantz SA, Palmer CN, Schmidt LA. Tobacco industry involvement in children's sugary drinks market. *BMJ.* 2019;364:1736. https://doi.org/10.1136/bmj.l736 Google Scholar
12.. Fazzino TL, Courville AB, Guo J, Hall KD. Ad libitum meal energy intake is positively influenced by energy density, eating rate and hyper-palatable food across four dietary patterns. *Nat Food.* 2023;4(2):144–147. https://doi.org/10.1038/s43016-022-00688-4 Medline, Google Scholar
13.. Fazzino TL, Jun D, Chollet-Hinton L, Bjorlie K. US tobacco companies selectively disseminated hyper-palatable foods into the US food system: empirical evidence and current implications. *Addiction.* 2024;119(1):62–71. https://doi.org/10.1111/add.16332 Crossref, Medline, Google Scholar
14.. Tobias DK, Hall KD. Eliminate or reformulate ultra-processed foods? Biological mechanisms matter. *Cell Metab.* 2021;33(12):2314–2315. https://doi.org/10.1016/j.cmet.2021.10.005 Medline, Google Scholar
15.. Glantz SA, Slade J, Bero L, Hanauer P, Barnes D. *The Cigarette Papers*. Berkeley, CA: University of California Press; 1996. Available at: https://publishing.cdlib.org/ucpressebooks/view?docId=ft8489p25j. Accessed October 6, 2025. Google Scholar
16.. Smith P. General Foods - The Year in Review. 1986. Philip Morris. Bates no. 2063252141-2063252168. Available at: https://www.industrydocuments.ucsf.edu/docs/tyjf0021. Accessed July 22, 2025. Google Scholar
17.. Endicott RC. Philip Morris ad spending muscles past $2 billion. October 3, 1989. Philip Morris. Bates no. 2063245506-2063245515. Available at: https://www.industrydocuments.ucsf.edu/docs/msfb0016. Accessed September 25, 2025. Google Scholar
18.. Cuff DF. Business People; Kraft General Foods gets a new president. *New York Times.* January 19, 1990. Available at: https://www.nytimes.com/1990/01/19/business/business-people-kraft-general-foods-gets-a-new-president.html. Accessed September 25, 2025. Google Scholar
19.. Campbell W, Maxwell H. Remarks by Hamish Maxwell and William Campbell, Kraft General Foods Orientation to Management Meeting, July 11–12, 1990. October 17, 1994. Philip Morris. Bates no. 2023439228-2023439237. Available at: https://www.industrydocuments.ucsf.edu/docs/tykb0106. Accessed September 25, 2025. Google Scholar
20.. Philip Morris Companies Inc. Presentation to the investment community. May 24, 1989. Tobacco Institute Records. Bates no. TI12330622-TI12330657. Available at: https://www.industrydocuments.ucsf.edu/tobacco/docs/#id=hpmd0026. Accessed July 22, 2025. Google Scholar
21.. Houghton K. Report of the Philip Morris Companies Technical Synergy Committee. September 29, 1989. Philip Morris. Bates no. 2063616317-2063616358. Available at: https://www.industrydocuments.ucsf.edu/tobacco/docs/#id=fpvv0123. Accessed July 22, 2025. Google Scholar
22.. Unknown. Philip Morris technology assessment. December 1, 2005. Philip Morris. Bates no. 3042356235-3042356246. Available at: https://www.industrydocuments.ucsf.edu/docs/tgpf0151. Accessed September 25, 2025. Google Scholar
23.. Moodys Investor Service. Philip Morris Companies Inc. Philip Morris. Bates no. 2048759726-2048759856. Available at: https://www.industrydocuments.ucsf.edu/docs/xqjy0159. Accessed July 17, 2025. Google Scholar
24.. Eckert RA, Wauters R. Oscar Mayer Foods Division, PM Corporate Products Committee. October 20, 1995. Philip Morris. Bates no. 2070177703-2070177741. Available at: https://www.industrydocuments.ucsf.edu/docs/mnjw0036. Accessed September 25, 2025. Google Scholar
25.. Philip Morris. Philip Morris Product Development Symposium. December 6, 1990. Philip Morris. Bates no. 2023162919-2023163499. Available at: https://www.industrydocuments.ucsf.edu/tobacco/docs/#id=lgkh0143. Accessed July 23, 2025. Google Scholar
26.. Moss M. *Salt, Sugar, Fat: How the Food Giants Hooked Us.* 1st ed. New York, NY: Random House; 2013. Google Scholar
27.. Kraft-Heinz Inc. Lunchables–products. Available at: https://www.lunchables.com/parents/products. Accessed July 23, 2025. Google Scholar
28.. Campbell WI. Minutes Corporate Products Committee Meeting January 23, 1989. February 21, 1989. Philip Morris. Bates no. 2025848982-2025848983. Available at: https://www.industrydocuments.ucsf.edu/tobacco/docs/#id=zmgw0117. Accessed July 22, 2025. Google Scholar
29.. Campbell WI. Minutes Corporate Products Committee Meeting September 26, 1988. September 26, 1988. Product Design MSA Collection. Bates no. 2025848988-2025848989. Available at: https://www.industrydocuments.ucsf.edu/tobacco/docs/#id=lynj0037. Accessed July 23, 2025. Google Scholar
30.. Murray CL. Philip Morris Corporate Products Committee January 1991. January 1991. Philip Morris. Bates no. 2070041625-2070041627. Available at: https://www.industrydocuments.ucsf.edu/docs/xgjj0033. Accessed September 25, 2025. Google Scholar
31.. Storr H, Kilts J. Remarks by Hans Storr and Jim Kilts, Phillip Morris Companies, Inc. October 17, 1995. Philip Morris. Bates no. 2046882264-2046882304. Available at: https://

www.industrydocuments.ucsf.edu/docs/tjbw0058. Accessed September 25, 2025. Google Scholar
32.. Peters A. PM wide technology synergy re-assessment. August 21, 1996. Philip Morris. Bates no. 2059732784-2059732828. Available at: https://www.industrydocuments.ucsf.edu/docs/xkmd0157. Accessed October 8, 2025. Google Scholar
33.. Pinsker J. The 30-year reign of Lunchables. *The Atlantic.* November 17, 2018. Available at: https://www.theatlantic.com/family/archive/2018/11/lunchables-30-years-invented-history/576025. Accessed July 23, 2025. Google Scholar
34.. Hinman A. Lunchables may be munchable—but study warns of salt. *CNN Interactive*. March 16, 1997. Available at: https://web.archive.org/web/20210228052447/http://www.cnn.com/HEALTH/9703/16/lunchables. Accessed October 7, 2025. Google Scholar
35.. Kleinfield NR. Catching the anti-cholesterol fever. *New York Times*. April 16, 1989. Available at: https://www.nytimes.com/1989/04/16/business/catching-the-anti-cholesterol-fever-catching-the-anti-cholesterol-fever.html. Accessed September 25, 2025. Google Scholar
36.. Schultz EJ. How Kraft's Lunchables is evolving in the anti-obesity era. *AdAge.* April 19, 2011. Available at: https://adage.com/article/news/kraft-s-lunchables-evolving-anti-obesity-era/227075. Accessed September 25, 2025. Google Scholar
37.. Oscar Mayer Foods, Lord J. Philip Morris Corporate Products Committee 900300 Louis Rich Lunch Breaks. March 1990. Philip Morris. Bates no. 2041053447-2041053451. Available at: https://www.industrydocuments.ucsf.edu/docs/krvm0033/. Accessed May 6, 2026. Google Scholar
38.. Tindall JE. Market-Driven Development and Consumer Research Philip Morris Companies Product Development Symposium 901205 - 901206. December 5, 1990. Philip Morris. Bates no. 2504057179-2504057211. Available at: https://www.industrydocuments.ucsf.edu/docs/jsjd0110. Accessed October 8, 2025. Google Scholar
39.. Philip Morris. Philip Morris: a competitor review. October 1990. British American Tobacco. Bates no. 201771149-201771192. Available at: https://www.industrydocuments.ucsf.edu/docs/hgvb0192. Accessed September 25, 2025. Google Scholar
40.. PM USA R&D strategic plan draft. November 28, 1989. Philip Morris. Bates no. 2021537495-2021537579. Available at: https://www.industrydocuments.ucsf.edu/docs/rrpk0000. Accessed September 25, 2025. Google Scholar
41.. Dunsby J, Bero L. A nicotine delivery device without the nicotine? Tobacco industry development of low nicotine cigarettes. *Tob Control.* 2004;13(4): 362–369. https://doi.org/10.1136/tc.2004.007914 Crossref, Medline, Google Scholar
42.. Experientiahf + Phf Reemtsmapm Philip Morris, Philip Morris Board of Directors, Lehman Brothers, et al. The occurrence of n-nitroso compounds in tobacco smoke (and a composite of documents not gone through at time of deposition). December 6, 2002. Philip Morris. Bates no. 3990129842-3990130796. Available at: https://www.industrydocuments.ucsf.edu/docs/xfxv0184. Accessed May 6, 2026. Google Scholar
43.. Hayes CS. Philip Morris USA inter-office correspondence subject KGF visit. March 26, 1991. Philip Morris. Bates no. 2028813491-2028813492. Available at: https://www.industrydocuments.ucsf.edu/docs/xzyw0108. Accessed October 6, 2025. Google Scholar
44.. US District Court for District of Columbia. Direct testimony of Paul Mele PhD. *United States of America v. Philip Morris USA* Civil Action 99-CV-02496 (GK). Available at: https://www.justice.gov/sites/default/files/civil/legacy/2014/09/11/01_Mele%20Written%20Direct_0.pdf. Accessed May 5, 2026. Google Scholar
45.. Leland J. PM Synergy - next steps for chemoperception. February 25, 1998. Philip Morris. Bates no. 2063128469. Available at: https://www.industrydocuments.ucsf.edu/docs/rybw0157. Accessed February 15, 2026. Google Scholar
46.. Ellis C. InterOffice correspondence: electronic nose/biosensors. April 1, 1992. Philip Morris. Bates no. 2023114566. Available at: https://www.industrydocuments.ucsf.edu/docs/hpkg0119. Accessed September 25, 2025. Google Scholar
47.. Kraft. Philip Morris food & tobacco technical organizations view their roles very similarly. November 14, 1995. Philip Morris. Bates no. 2059733396-2059733406. Available at: https://www.industrydocuments.ucsf.edu/docs/ksld0157. Accessed September 25, 2025. Google Scholar
48.. Bible GC. 950000 Annual Meeting of Stockholders Philip Morris Inc. Remarks by Geoffrey C. Bible Chairman and Chief Executive Officer. April 27, 1995. Philip Morris. Bates no. 2046003394-2046003408. Available at: https://www.industrydocuments.ucsf.edu/docs/txng0088. Accessed May 6, 2026. Google Scholar
49.. Schmidt LA, Jacobs LM, Matthay EC, et al. Characteristics and trends in child cannabis exposures during legalization in California. *Am J Prev Med.* 2025;69(4):107963. https://doi.org/10.1016/j.amepre.2025.107963 Crossref, Medline, Google Scholar
50.. Lacy-Nichols J, Marten R, Crosbie E, Moodie R. The public health playbook: ideas for challenging the corporate playbook. *Lancet Glob Health.* 2022;10(7):e1067–e1072. https://doi.org/10.1016/S2214-109X(22)00185-1 Crossref, Medline, Google Scholar
51.. Gearhardt AN, Bueno NB, DiFeliceantonio AG, Roberto CA, Jiménez-Murcia S, Fernandez-Aranda F. Social, clinical, and policy implications of ultra-processed food addiction. *BMJ.* 2023;383: e075354.

https://doi.org/10.1136/bmj-2023-075354 Crossref, Medline, Google Scholar

52.. Popkin BM, Barquera S, Corvalan C, et al. Toward unified and impactful policies for reducing ultraprocessed food consumption and promoting healthier eating globally. *Lancet Diabetes Endocrinol.* 2021;9(7):462–470. https://doi.org/10.1016/S2213-8587(21)00078-4 Medline, Google Scholar

53.. California Governor Newsom signs first-in-the-nation law to ban ultraprocessed foods from school lunches. Governor of California. October 9, 2025. Available at: https://www.gov.ca.gov/2025/10/08/governor-newsom-signs-first-in-the-nation-law-to-ban-ultra-processed-foods-from-school-lunches. Accessed May 5, 2026. Google Scholar

54.. ABC News. San Francisco files landmark lawsuit, comparing ultraprocessed food companies to "Big Tobacco." Available at: https://abcnews.go.com/GMA/Food/san-francisco-files-landmark-lawsuit-comparing-ultraprocessed/story?id=128046148. Accessed February 4, 2026. Google Scholar

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