CENTER FOR DIGITAL DEMOCRACY

Big Food, Big Tech, and the Global Childhood Obesity Pandemic

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Acknowledgments

The coronavirus pandemic triggered a dramatic increase in online use. Children and teens whose schools have closed relied on YouTube for educational videos, attending virtual classes on Zoom and Google Classroom, and flocking to TikTok, Snapchat, and Instagram for entertainment and social interaction. This constant immersion in digital culture has exposed them to a steady flow of marketing for fast foods, soft drinks, and other unhealthy products, much of it under the radar of parents and teachers. Food and beverage companies have made digital media ground zero for their youth promotion efforts, employing a growing spectrum of new strategies and high-tech tools to penetrate every aspect of young peoples' lives.

These trends have contributed to another critical pandemic. Though it is unfolding at a slower pace, its progression is relentless, and its impact on young people's health is devastating. Obesity rates among teens ages 12 to 19 have quadrupled since the 1980s. According to the most recent public health data, 19.3 percent of all youth between the ages of 2 and 19 are obese. For Hispanic, Black, and Native American youth, the rates are significantly higher. Children growing up in low-income households have disproportionately greater levels of obesity. Numerous studies have revealed strong links between obesity and COVID-19, particularly among children and youth.

The COVID-19 pandemic underscores the urgent need to address the childhood obesity crisis, and particularly to reduce young people's exposure to unhealthy food promotion. Overweight and obesity are directly linked to changes in the diets of children and youth, which are increasingly dominated by foods that are high in saturated fats, salt and/or free sugars, so-called "HFSS" foods, as well as soda and other sugary drinks. It is widely known that the overwhelming majority of food and beverage marketing targeted to children and teens promotes these unhealthy products. Since 2005, research has definitively and repeatedly documented that marketing directly influences young peoples' food and beverage preferences, purchase requests, and

consumption. A growing body of academic research has documented the increasing presence of unhealthy food promotion in digital media, as well as clear patterns of youth engagement with major brands, and influences on health behaviors. Public health authorities in Europe, the UK, Latin America, and many other regions have adopted policies to curb food marketing to children and youth, with increasing attention on the role of digital technologies. These developments are part of a broad, growing international movement, grounded in children's fundamental rights to health. Yet, in the U.S., childhood obesity has largely fallen off the national public policy agenda.

This report focuses on the role of both the food industry and the technology industry in the current global childhood obesity crisis. We document how Big Food and Big Tech are working together to enhance and expand the promotion of unhealthy food brands and products to young people. Both industries are now part of a large, integrated, data-driven digital marketing system, fueled by Big Data, artificial intelligence, and machine learning. These efforts have created a powerful, pervasive, and immersive *digital obesogenic environment* that is harming children's health, furthering health inequities, and contributing to increasingly higher levels of disease in the population. We describe the changing nature of the youth media marketplace, the rise of sophisticated new advertising technologies, and the many ways that Big Data is continuing to transform both the technology and the food and beverage industries. We highlight three digital advertising markets that attract large numbers of young people, where food and beverage companies are deploying a variety of new and emerging techniques to reach and engage them. We provide an overview of global regulatory and health policy interventions on behalf of young people. And we offer a set of principles and recommendations to guide U.S. policymaking and develop corporate responsibility initiatives to build a healthier digital environment for youth.

food and tech industries conduct detailed market research on so-called "digital natives," including monitoring young people's behavior on social media, mobile and other platforms, and employing ethnographers, psychologists, and neuroscientists to probe the inner workings of children's psyches and brain processes.

TARGET MARKETING TO MULTICULTURAL YOUTH

Nearly half of Generation Z is made up of Black and Brown youth. Marketers conduct intensive research to identify behaviors, values, popular celebrities, music genres, and other attributes of these "multicultural" youth, who are in the forefront of all the key digital behaviors—early and leading adopters of mobile device use, social media, online video, and gaming applications. Food and soft drink companies draw from an ongoing flood of market research to design the most powerful and effective *target marketing* campaigns for engaging with Black and Brown youth. Food and beverage companies aggressively target African Americans, Latinos, Native Americans and Asian-Pacific Islanders with marketing for foods and drinks (such as sugary drinks and foods low in nutrition and high in sugars, salt, and fats) that contribute to these diseases and harm health. These promotional efforts can shape the preferences for unhealthy food and beverages, and exacerbate existing health disparities affecting communities of color.

BIG DATA AND THE CHANGING DIGITAL ADVERTISING SYSTEM

Big Data has transformed the nature and power of contemporary marketing. Digital marketers are able to access, analyze and act upon a wealth of data on individual consumers and their families gathered online and off, including purchasing behaviors, social media communications, online interests, location and geographic movements, financial status, health concerns, emotional states and much more. This data pipeline fuels a myriad of marketing and advertising techniques that are honed to deliver results—from brand awareness to direct sales. Some of the largest food and beverage corporations—including Coca-Cola, McDonald's, and Pepsi—have, in effect, transformed themselves into Big Data businesses, acquiring specialist firms, establishing large in-house

operations, and hiring teams of data scientists and technology experts to direct these systems. With these enhanced capabilities, they can more effectively engage in ad targeting—whether on the leading platforms or through their own mobile apps.

Today's youth are at the epicenter of an exploding digital media and marketing landscape. Their deep connection to technology and their influence on purchasing are fueling the growth of new platforms, programs, and services, and generating a multiplicity of marketing opportunities. Marketing and advertising are also driving the design and functionality of young people's media experiences. Far from being neutral spaces for social interaction, entertainment, and expression, digital platforms are structured to optimize engagement, foster habitual behaviors, and maximize the impact of marketing messages on brand loyalty and product sales. The
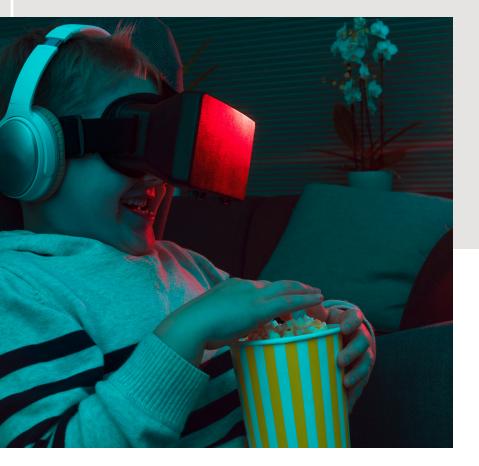
Engaging Young People Across the Expanding Digital Landscape

Our analysis of current industry trends and practices reveals that the world's largest food and beverage companies, in full cooperation with the global giants of the technology industry, are deploying a vast array of Big Data and AdTech tools to tap into youth online cultural spaces, and to infiltrate them with powerful promotions for some of the unhealthiest products on the market.

The Influencer Economy

Marketers spent around $9.7 billion (U.S.) for their worldwide influencer efforts in 2020, and are expected to spend up to $15 billion by 2022. In addition to paying pop culture celebrities to endorse a brand or product, marketers also tap into the growing army of social media "stars" who have built up large followings on Instagram, YouTube, TikTok and other platforms. Major purveyors of sugar-sweetened beverages, high-calorie snacks, and fat-laden fast foods are forging lucrative financial arrangements with increasing numbers of these "influencers"—from widely recognizable celebrities to popular social media personalities—to tout their brands among their youthful followers. More than half of U.S. teens (57%) view Facebook-owned Instagram as their preferred social media platform. PepsiCo, Coca-Cola, KFC, and other major brands have worked closely with Facebook's creative team to develop influencer campaigns aimed at young people.

Gaming

Online gaming has become a hugely successful and growing industry that has attracted a youthful global audience. Gaming generates more revenue than TV, film or music, attracting viewers and players who are "highly engaged for a considerable length of time." Multiplayer online battle arena (MOBA) and first-person shooter games are considered one of the best marketing environments, offering a wide range of techniques for "monetization," including in-game advertising, sponsorship, product placement, use of influencers, and "branded games" created by advertisers. In the midst of a worldwide pandemic, as gaming and live streaming platforms have replaced live concerts and sports events to become a central social forum for children, teens, and young adults, the food and beverage industry has developed a panoply of techniques to ensure that its brands remain omnipresent: popping up in virtual narratives, "starring" in their own epic online battles, and beckoning amateur "streamers" with promises of sponsorship deals. Fast foods are directly incorporated into the storylines of "game play" and made available for order and delivery in the heat of the experience, promising instant gratification and short circuiting conscious decision-making. Even the products themselves are being shaped to fit the patterns of digital experience, with energy drinks promoted as "fuel" and containers designed for ease of opening and continuous consumption without interrupting play.

Streaming Television and Online Video

The transformation of television into an expanding universe of digital streaming channels, online video platforms, and mobile devices has created a multitude of new ways for food marketers to reach and engage young people through compelling, immersive imagery and sound across their viewing experiences.

Streaming is now the dominant way that young people consume video, comfortable with the anytime and nearly endless options available that can quickly be accessed on their mobile devices, gaming consoles, personal computers, and online connections to their TV sets. According to the most recent industry figures, 45.7 million Gen Z viewers regularly watch streaming television. A host of new advertising formats has been developed for digital video, ranging from the familiar bumper ads or pre-rolls that show prior to viewing video programming, to short, six-seconds-or-less mini-commercials, to "non-skippable" ads that are designed to thwart consumer efforts to avoid commercial messages. Marketers can now find precise demographic and individual targets nearly everywhere they go, 24/7. Food and beverage companies are allied with ad agencies, tech companies, and marketing platforms to take full advantage of the multiple opportunities for targeting consumers across the digital video spectrum. Cereal, fast-food and snack companies are also working with Hollywood intermediaries to insert their products into streaming content, including virtual brand images targeted to specific viewers.
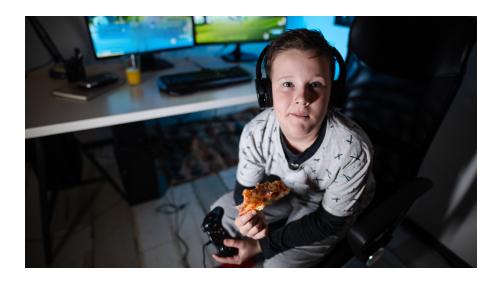
THREATS TO YOUNG PEOPLE'S HEALTH, PRIVACY, AND AUTONOMY

Based on the industry's own research, the impacts of this pervasive marketing are significant, influencing young people's behaviors, sowing the seeds of life-long "brand loyalty," and ensuring that product logos are distributed across a wide spectrum of social networks and entertainment venues. This ubiquitous promotion of unhealthy foods and beverages in the digital lives of young people could further normalize harmful eating preferences and practices. The growing use of predictive analytics, neuroscience, and dopamine-inducing message testing suggests that food marketers are purposefully designing campaigns to trigger unconscious, impulsive responses. The rise of "shoppable content" and other ordering mechanisms embedded directly into media and social interactions could further exacerbate these impacts, enabling manipulation and

seriously undermining any efforts to encourage conscious health choices.

Food marketing is also part of a massive global commercial surveillance system with unprecedented scope and reach into the center of young people's lives. The food and technology industries engage in continuous monitoring of children and teens, following their every move throughout the digital culture—their interactions with friends and acquaintances, their engagement with a growing array of digital devices and platforms, and their emotional and behavioral relationships with brands—and amassing enormous amounts of granular data about them. Through their own Big Data operations, major food and beverage corporations can reach directly into young people's lives, interacting with them through branded mobile apps, tracking their geolocation, purchasing, and eating patterns, and rewarding them for consuming unhealthy products.

Most digital marketing takes place completely under the radar of parents, policymakers, and health

professionals. Unlike television, for example, where commercials can be monitored and analyzed, "native advertising," "influencer marketing," machine learning, and many other techniques enable brand promotion and marketing to be woven seamlessly into young peoples' digital ecologies and everyday experiences. Because marketing campaigns are cross-platform in nature, they can be directed to individuals across multiple devices, following users from mobile phone to television to gaming services, and targeting them in real time. With personalization techniques, marketers can tailor their messages to individuals, using artificial intelligence and machine learning to create hundreds of variations.

Yet, the entire enterprise remains opaque, highly complex, and inaccessible to outsiders. Neither technology platforms nor food companies provide clear data on their techniques, their exact demographic targets, or the impacts of their efforts. Though some information about industry practices is available through trade publications, case studies, and white papers, much of the language is arcane and technical. This lack of transparency stands in stark contrast to the industry's highly sophisticated and proprietary measurement systems, which enable food companies, tech platforms, advertising agencies, and retail outlets to track in granular detail the reach and influence of marketing techniques on users, including the impact on their behaviors, attitudes and purchasing patterns.

GREATER HEALTH RISKS FOR YOUTH OF COLOR

For decades, Black and Brown youth have been disproportionately targeted with marketing of unhealthy food and beverage products on television, billboards, and other media. The growth of digital technologies has intensified these efforts, with marketers pursuing these young people even more aggressively, seeing them as a key to the future success of their brands, as well as important trendsetters among their peers. Food and beverage brands are appropriating some of the most powerful "multicultural" icons of youth pop culture and enlisting these celebrities in marketing campaigns for sodas, "branded" fast-food meals, and caffeine-infused energy drinks. These practices compound health risks for young Blacks and Hispanics. Increased exposure to digital marketing of unhealthy foods subjects them to multiple layers of vulnerability, reinforcing existing patterns of health disparity that many of them

experience, which include living in under-resourced communities, and lacking access to fresh food and health care services.

A growing body of academic research has documented how Big Data can lead to disparate impacts on communities of color, low-income groups, and other vulnerable members of the population. For example, studies have shown that algorithmic decision-making may disproportionately affect members of already disadvantaged groups. Predictive analytics and personalization enable marketers to treat individuals or groups of consumers differently, which can result in various forms of marketplace discrimination. These issues take on even greater significance when examined within the context of historical discrimination and the inequities over time.

GLOBAL CALLS FOR MARKETING INTERVENTIONS

The most esteemed international organizations around the world have issued a series of high-profile reports on obesity and related health problems facing today's young people. Together, they underscore the increasingly central role that digital media are playing, calling on governments to adopt regulations that will adequately address the many platforms in the expanding new media landscape. The World Health Organization (WHO) has led many of these efforts, which have been endorsed and amplified by public health experts, civil society organizations, and children's rights advocates. In 2016, WHO Europe issued a major report based on its comprehensive review of research on digital food marketing, along with an assessment of policies across

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the European region. "The targeted and personalized nature of digital marketing," the report's authors explained, "makes it potentially a far more powerful influence on children's preferences and dietary behavior" than traditional broadcast food marketing. "Action on digital marketing is therefore clearly required to fully implement the WHO set of recommendations and to reduce the exposure, power and impact of all HFSS marketing to children." The report also urged policymakers to include adolescents in their protections, since they are "developmentally, neurologically and socially likely to be susceptible to HFSS food advertising." UNICEF's 2019 report, *Children, Food and Nutrition: Growing Well in a Changing World,* called for a broad regulatory framework for food marketing to children, encompassing not only television but also "games, movies,

books and social media for all age groups, as well as businesses and restaurants that give away toys to market unhealthy foods."

Governments in the UK, Europe, Canada, and Latin America have issued various policies for regulating food marketing to children and teens. For example, the new EU Audio Visual Media Services Directive's advertising safeguards for children include a prohibition on product placement in children's programs, and call for EU countries to "encourage the use of self- and co-regulation through codes of conduct regarding inappropriate advertising in children's programmes, for foods and beverages high in fat, salt and sugar." In the UK, where government-sanctioned self-regulation of food marketing to children up to age 16 has been in place for a number of years, health

and media regulators recently proposed a total ban on online advertising for foods that are high in fat, sugar and salt, as part of a strategy to "future-proof how we tackle childhood obesity." The UK's data protection regulatory agency, the Information Commissioner's Office (ICO), issued a comprehensive code, *Age Appropriate by Design,* intended to offer guidance to tech companies for ensuring that the platforms and services "likely to be accessed by children" are purposefully designed to serve the "best interests of the child." The code was approved by the UK Parliament in August 2020, and will be in full force by late 2021. It is strongly rooted in both the United Nations Convention on the Rights of the Child (UNCRC) and the EU's comprehensive General Data Protection Regulation (GDPR).

CREATING A HEALTHIER DIGITAL ENVIRONMENT FOR YOUNG PEOPLE

Developing effective policies to shield young people from the harmful impacts of unhealthy food promotion should be a key component of prevention strategies. Such an effort will require rethinking the traditional U.S. framework for regulating marketing, advertising and a host of related data practices, especially those that affect children and adolescents. The current approach is far too weak and narrow, offering minimal protections for only the youngest children, and placing an unfair burden on parents. For years, there has been a major and long-standing failure by regulators to address data and marketing practices. In the case of online marketing of foods and beverages, the government has relied on limited self-regulatory regimes developed and run by the food, beverage, and advertising industries, with little or no regulatory oversight. If the nation expects to significantly improve children's prospects for a healthy life, policy makers will need to assert the government's responsibility to regulate both the technology and food sectors, and be much more proactive than they have been in the past. With the new Biden administration, and the calls to "reimagine" public health, we have a renewed opportunity to place the health of our children front and center on the U.S. policy agenda.

Creating a healthier digital environment for young people will also require participation from a variety of players in both the public and private sectors, including stronger government policy development, regulation, enforcement, and oversight; a commitment by corporations and industry to institute effective solutions and accountability; input from public health and child development experts; and ongoing monitoring by civil society. While we focus below on U.S. domestic policy, it is important to underscore the global nature of the food and technology industries, which are governed by international, regional, and national policies. Protecting children and young people requires coordination among stakeholders and governments to hold these industries accountable and to ensure that the strongest standards in place around the world will apply to young people in the United States. Digital policies for young people should also build on the global initiatives currently underway at WHO, UNICEF, and other international agencies, and should be grounded in the fundamental rights of children and the responsibilities of the companies that serve them. These global rights-based standards should be supplemented and informed by the United States' unique experiences as a nation, addressing disparate treatment and impacts affecting Black and Brown and other disadvantaged communities with the goal of producing equitable outcomes and equal opportunity.

**Key Components for a
Policy Framework**

1   **Protections for adolescents as well as young children**

In their U.S. operations, food and beverage companies, as well as technology companies, have successfully resisted efforts to establish safeguards for protecting adolescents in the digital marketplace. This stance ignores the growing body of scientific evidence documenting adolescent developmental vulnerabilities, and is inconsistent with recommendations from major international governing and health organizations. It is time for U.S. technology and food and beverage companies to extend protections to all children under 18.

2   **Uniform, global, science-based nutritional criteria**

There are a number of different nutrition-based profiling systems operating in various parts of the world, including those developed by independent health organizations or governments. The public would benefit from having a consistent and scientifically sound model, developed by leading independent nutritional experts, that would operate worldwide (since so much of what is sold to young people is developed and promoted by global brands), and with flexibility to address products, cultural practices, and regulations that are unique to one country or region. A worldwide standard would set a bright line for determining the kinds of foods that are appropriate for a healthy diet for young people, and those that should be avoided or limited. It would also provide clear guidance for both the food industry and the technology industry.

3   **Restrictions on brand promotion**

No matter how rigorous the nutritional model, it will only go part of the way in shielding young people from the marketing of unhealthy foods and beverages. Major producers of many of the most popular HFSS products on the market are engaging in a variety of brand-promotion campaigns, through native advertising, influencer marketing, and other techniques that are designed to circumvent ad-blocking technologies and to appeal to young people who do not like advertising. Brand marketing has become the most dominant strategy used to promote foods and beverages to youth. Policies that do not address brand promotion are likely to create giant loopholes, and will encourage the food industry to conduct even more of its marketing through these strategies.

4   **Limits on the collection and use of data**

Contemporary food and beverage marketing to young people relies extensively on the collection and use of data. Both the technology industry and the food and beverage industry are involved in unprecedented data collection as a core element of their marketing efforts. Data and advertising have become so inextricably intertwined that almost all of today's marketing is now data-driven. Any policies to address digital food marketing should include restrictions on the use of data, including significant limits on profiling and targeting young people under 18.

5

Prohibition of marketing techniques and design features that are manipulative or unfair

Given the sophisticated nature of digital marketing, the most effective way to protect young people is to combine restrictions on products and brands with curbs on the techniques used to market them. Among those requiring specific attention are "nudging" and other enticements; in-game advertising, especially techniques that offer rewards and prompt instant responses; and strategies for inducing young people to engage, amplify or promote (e.g., "like," "share," create "user-generated content," or post photos). In addition, there should be restrictions on virtual reality and similar techniques that purposefully blur reality and fiction when used for advertising purposes. Influencer marketing deserves special focus, since it is so widely used to promote unhealthy brands and products to young people.

6

Market research protections for young people

The market research industry, working with major food and beverage brands and technology platforms, routinely enlists children and teens to serve on virtual panels, participate in focus groups, and allow their devices to be continuously monitored and measured via behavioral and psychological studies. Participation in these studies should be prohibited for young children. Government policy makers and other stakeholders should work together to assess these operations and to establish a framework for determining whether any market research practices may be acceptable for teens.

7

Elimination of digital racial discrimination

Black and Brown youth are key targets of the food and beverage marketing industry, and are also especially vulnerable to marketing of unhealthy brands and products. The aggressive and pervasive nature of "multicultural marketing" for sugar-sweetened beverages, fast foods, and energy drinks is particularly troubling, as is the appropriation of cultural symbols and popular celebrities. Policymakers need to pay special attention to how marketers research, identify, and target youth of color, investigating the use of racial, ethnic, geolocation, and other forms of "proxy" data that can signify race.

8

Transparency, accountability, and enforcement

Any new policy framework must be accompanied by much greater transparency and accountability on the part of technology companies, media networks, and leading food and beverage brands. Regulators should require these companies to conduct impact assessments of their youth marketing operations related to young people's health and psychosocial well-being. Industry should also be called upon to provide documentation proving that safeguards established to protect young people from food and beverage marketing are actually working.

Both the technology and food industries should embrace their shared responsibility to ensure that the digital marketplace operates fairly for all children, and that its practices do not undermine their health.

It is time for the U.S. to develop a comprehensive strategy for ending the youth obesity epidemic. In the absence of any interventions, the powerful food and technology industries will continue their relentless efforts to promote unhealthy products through the expanding digital culture, encouraging and rewarding behaviors that will put children and adolescents at even greater risk. Through legislation, regulation, legal action, and corporate responsibility initiatives, we must work together to ensure that all young people are given a fair chance to live a healthy life.