CHRONICLES OF HEALTH IMPACT ASSESSMENT
Improving Community Health Through Health Impact Assessment

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A CASE STUDY ANALYSIS OF HOW PRODUCTS MIGHT BE DESIGNED TO PROMOTE HEALTH

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Abstract

Background: Consumer technology products are changing lifestyle behaviors like how we eat, how we sleep, and how we get around, but existing research has not examined whether they are being designed to promote healthy choices. This study assesses the health impact of two products, Snapchat and Uber, through the lens of their companies' environmental, social, and governance (ESG) goals in the context of the COVID-19 pandemic.

Methods: We use an exploratory multiple case design to present how health might be considered as a growth strategy for consumer technology products. Using publicly available material, we analyze the strengths, weaknesses, and opportunities for the products' design, policy, and implementation to promote health.

Results: This distinct approach to health impact assessment successfully revealed existing organizational beliefs and practices with health impact. Snapchat's social media platform fosters social interaction but lacks responsible design features, while Uber's mobility platform has safety and privacy measures but lacks focus on physical activities as forms of mobility.

Conclusions: By using these products, positive health impact is possible: whether through social connection and information access (Snapchat), or increased mobility and physical activity (Uber). This case study highlights the untapped potential of intentionally designing products to influence health behaviors and promote health, especially through new uses of existing features. Leveraging external partnerships and subject matter experts will be crucial for success, but companies that choose to do so and embrace a health-positive mindset will lay a foundation for a replicable business strategy for those too reticent to lead in this nascent field.

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Introduction

Consumer technology use greatly impacts various lifestyle behaviors in the U.S., including eating habits, entertainment choices, transportation options, and social interactions. These behaviors are closely linked to chronic diseases, such as cardiometabolic and mental health conditions, which have been increasing (CDC, 2022). Existing research has not fully examined whether consumer products in these categories align with companies' publicly stated environment, social, and governance (ESG) goals – especially those tied to health. Presumably companies with reported health-focused goals in their public ESG strategy should have health-promoting features, but no model of product development or design has emerged to guide health-positive business choices (that is, intentional choices to promote positive health impact (Koh, Singer & Edmondson, 2019)) across diverse sectors.

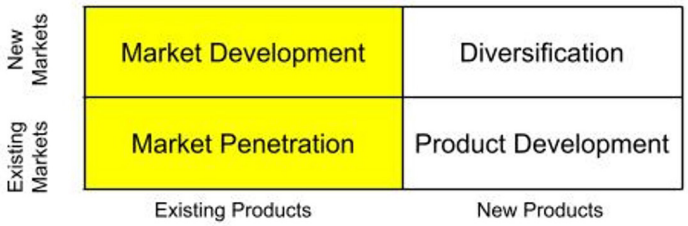
This case study investigates the integration of health-positive product features within the context of major disruption. The extraordinary, immediate, cross-sector response to COVID-19 provides a unique opportunity to observe product development efforts, during a period which potentially created an enabling environment for innovation (Sturmberg, Tsasis & Hoemeke, 2020). This study aims to characterize what was a rapid effort to operationalize health-positive features for consumers to determine whether any might have value more broadly, as a replicable and sustainable approach to achieving positive health impact through products.

Study context

The COVID-19 global pandemic disrupted the typical drivers of organizational strategic decision-making: regulatory pressure, investor demand, consumer patterns. Existing product roadmaps and painstakingly crafted annual strategic plans became moot. As the gravity of COVID-19 became clear in March 2020, the response was urgent and far-reaching. Companies had little choice but to respond. For many, the pandemic was the first time that health was seen not only as a material consideration, but also a driver of value-enhancing competitive advantage (HHS, 2021; Battilana et al., 2019). Examining the response to COVID-19 can yield important lessons for future major public health problems that upend the status quo, as COVID-19 did.

The objective of this case study is to understand how consumer technology products can become more "health-positive", by which we mean supportive of health-inducing behavior. This research will explore two distinct ways tech companies can promote health through their products: 1) how products might be designed (or modified) to promote healthier behavior, and 2) how these products in their original state can be applied in service of health. This approach for determining strategic directions for growth resembles the Ansoff matrix, which considers how combinations of either new or existing products and/or markets can drive expansion (see **Figure 1**) (Campbell, Stonehouse & Houston, 2002). In this research, we put a particular emphasis on market penetration (creating deeper value with existing products in existing markets) and market development (that is, creating new uses for existing products).

Figure 1. The Ansoff Matrix



This research aims to surface examples of processes and/or features that should either be emulated or improved to achieve health-positive product design, by considering these strategies. Through the lens of the COVID-19 response, this case study asks:

1. How did two companies extend their existing stated beliefs and organizational practice to implement health-positive product development?
2. How did two companies adapt existing products to be health-positive?

Extrapolating a process through which companies can implement health-positive thinking would ideally encourage wider adoption.

Methods

Study design

We used an exploratory multiple-case design with purposeful sampling to gather and analyze relevant products and documents. The protocol for this case study follows the methodology outlined by Yin (2009) and Creswell & Creswell (2017). We identified the two cases using a frame derived from preceding research that examined external-facing views on health impact described in a corporate proxy statement, which is a document provided by publicly traded companies to its shareholders, outlining important information regarding corporate governance, executive compensation, and proposals to be voted on at the annual shareholder meeting. The cases were obtained from a list of public technology companies with products influencing lifestyle behaviors that are determinants of chronic disease (e.g., physical activity, eating, sleep, social interaction, time spent outside) (Rowen, 2021; Sigler, 2022). We only considered products available during data collection in October 2022.

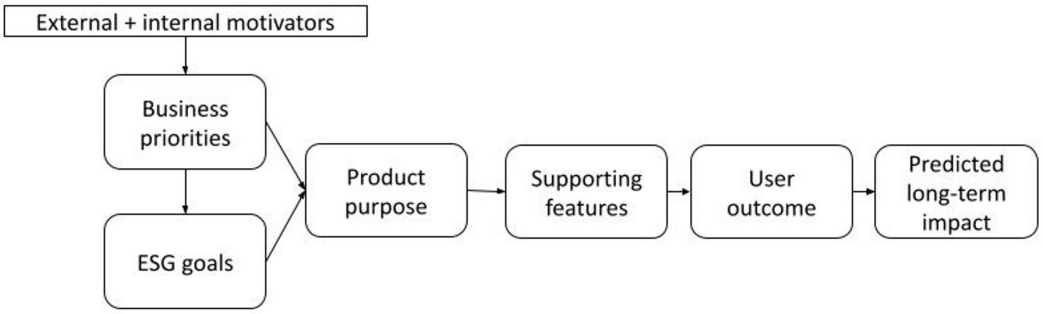
Two products from different sectors were selected to affirm replication and allow for cross-case synthesis: Snapchat (social media), and Uber (rideshare) (see **Table 1**). We selected these products as they represent different behaviors (social connection and mobility) and the products are widely used, avoiding a niche analysis. Building on established concepts of social proof, network effects, and diffusion of innovation, we hypothesize that the more users a product has, the greater opportunity for influence (Roethke, Klumpe, Adam & Benlian, 2020; Katona, Zubcsek & Sarvary, 2011; Min, So & Jeong, 2021). This hypothesis supports our decision to examine more commonly used products and increases the relatability of the findings. While Facebook may be a more obvious choice for the social media sector, we were more interested in how companies demonstrate value to both shareholders and consumers – and this value is being questioned for Facebook (Slotnik, 2021). A case analysis can say more about standard operations in an environment where the company does not have a poor reputation and is instead more neutral, leading to the decision to analyze Snapchat (Islam et al., 2021; Singh & Misra, 2021; Schaarschmidt & Walsh, 2020).

Data collection
We used multiple forms of public documentation and direct-observation as data sources to increase construct validity (i.e., the appropriate conceptualization of the cases under analysis, and the operationalization of the concept of health-positivity). To understand external and internal motivators, we reviewed findings from a literature review, stakeholder interviews, and content analysis of proxy statements from earlier research (Sigler, 2022). Where relevant data were not available in proxy statements, we reviewed annual reports (10-Ks) and separate ESG reports. All reports were for the 2021 reporting year. We also employed direct observation via direct testing and use of the products. Where available, product analysis was supplemented by Building H profiles, which assess the health impact of products on consumers in six steps: product selection, product research, influence analysis, company input, crowd rating, and H-Score calculation (a scale based on reviewer scores to determine the overall health influence of a product). Different types of products are assessed using different core measures, as appropriate. For more details on the Building H Index methodology, see Building H, 2022 and Singer & Downs (2023). While only possible for Uber, we employed comparable logic to evaluate Snapchat. We also cataloged product policies, including privacy policies, community guidelines, and terms of use, to define business and user context. All product data (policies and feature analysis) were collected in October 2022.

Data analysis
The logic model presented in **Figure 2** guided analysis of collected data sources. During preceding research, we identified motivators through stakeholder interviews and content analysis of public corporate proxy statements. We also used proxy statements and 10-Ks to identify business priorities, the defined purpose of relevant products, and ESG goals. By surfacing these product goals, we identified relevant health behaviors to investigate in the associated product (e.g., a goal of building community can be tied to social interaction). We used product policies to identify those that may influence user health, either positively or negatively. All sources of documentation provided detailed background and context to inform the product analysis.

The first stage of analysis yielded a foundational overview of each product, describing context for the company, their stated business priorities, reported ESG

Figure 2. Logic Model for Case Analysis



goals, along with their product's purpose and primary features.

We next built on this foundation and analyzed each product for strengths, weaknesses, and opportunities. This analysis was based on reports for 2021, and the products as experienced in October 2022. We analyzed consumer product policies (privacy policies, community guidelines, and terms of use), their design, and their implementation: design was considered in terms of functionality built, while implementation centers on how this core capability has been used. Assuming the role of a user, we analyzed the selected products, which we refer to as our two cases, and their features to discern the presence of, or opportunity for, health-positive features, and user behaviors susceptible to influence accordingly.

We triangulated these analyses within and across cases to develop feasible recommendations for health-positive product development that can be aligned with business goals according to strengths, weaknesses, and opportunities. We focused the analysis on narrowing the set of identifiable opportunities to product changes that maintain alignment with business operations, as it is understood that these would have the highest likelihood of adoption. It is intended that these recommendations be applicable across consumer technology products, not solely those analyzed in this case study.

Results

Product Overview

These results are first presented by identifying the business priorities for each case using publicly available corporate reporting before diving into their policies, and finally assessing the products themselves. We then use this knowledge to present their in-product COVID-19 response.

Snap and Uber represent distinct sectors – social media and ridesharing – yet analysis of primary materials from both companies yielded findings in support of health-positive product development (note: Snap is the name of the company; Snapchat is the name of the product). Product and company overviews are found in **Table 1** (Snap) and **Table 2** (Uber). Both companies reported ESG goals with health implications, which directly tie to their product purpose. Snap aims to strengthen community, empower self-expression, and build connection by having fun together. These goals are directly tied to the positive mental health of users, particularly through avoiding loneliness and building positive social interaction (Jeste, Lee & Cacioppo, 2020).

Table 1. Product Overview (Snap)

Company context	A camera company that focuses on helping people communicate visually through ephemeral short videos and images called Snaps. 319M daily active users: 51.8% female, 20.5% 13-17, 39.1% 18-24, 22.6% 25-34, 13.4% 35-49, 3.6% 50+. Competitors: Meta (Facebook, Instagram, WhatsApp), Alphabet (Google, YouTube), Twitter, Apple, Pinterest, Bytedance (TikTok), Tencent. Pertinent regulation: extra focus on data and consumer protection, privacy, and content regulation as more restrictive outside U.S.
Business priorities	Revenue is generated primarily through advertising. Ad tools are created based on features most successful in consumer product. Product innovation is intended to increase user engagement, which is then monetized through advertising. Research and development focus on product development, advertising technology, and large-scale infrastructure.
Reported ESG Goals	Society: • Strengthen community (partnerships, giving and volunteering), • Responsible design and product use (inclusion, safety, privacy,) ◦ Content safety and governance, promotion of beneficial content, protection. and rights of minors, • Leverage platform for social impact (mental health, civic engagement). Planet: • Reduce carbon footprint of product and operations, • Conserve natural resources, reduce waste, • Building responsible supply chain (worker well-being + materials). People: • Strengthen culture through DEI, • Encourage wellness and healthy, safe environment, • Support commitment to integrity. Governance: • Maintain structure for value + transparency, • Do business responsibly and ethically, • Integrate robust risk framework.
Product purpose	Empower people to express themselves, live in the moment, learn about the world, and have fun together.

Table 1. Product Overview (Snap) (continued)

Primary features	-*Camera*: App homepage, includes company- and community-created creative and contextually relevant tools (including augmented reality) to personalize Snaps. Snaps can be saved to, and searched in, Memories; and can be taken with Spectacles, a wearable glasses device. -*Communication*: Ephemeral messages through text, Snaps, voice, and video calls; stickers and Bitmojis; opportunity to play Games and Minis together. -*Snap Map*: live map of nearby friends, stories, heatmap of recent Snaps on "Our Story", and local businesses (including Places, rich profiles of businesses that overlay experiences which enable direct action on top of Snap Map, e.g. ordering takeout). -*Stories*: Snap content from publishers, creators, and community, with Discover based on user subscriptions and interests (including news and entertainment). Includes Public Profiles for permanent creator and advertiser content. -*Spotlight*: Share user-generated and Trending content with entire Snapchat community, display based on user preferences and favorites.
Source: Data extracted from corporate 10-K and proxy statement available on SEC.gov for 2021, and ESG report from investor relation section of company website.	

Uber focuses on mobility, with an interest in safety and wellbeing for both drivers and riders (though there is broadly greater attention to the environmental impact of the business than these social impact topics across sources reviewed). While physical safety and wellbeing are respectable health goals, there is a significant opportunity to address the relationship between how people move from point A to point B and physical activity.

Table 2. Product Overview (Uber)

Company context	Uber is a technology platform that powers movement from point A to point B by connecting consumers with independent providers of ride services, merchants, and couriers. 19M trips/day: 52% male, 37% 16-24, 28% 25-34, 17% 35-44, 12% 45-54, 6% 55-64. Competitors: taxi companies, public transit, Lyft, Ola, Didi, Grab, Bolt, Yandex. Taxi. Pertinent regulation: different and sometimes conflicting laws based on jurisdiction, including (but not only) privacy, cybersecurity, data protection, consumer protection, labor and employment, and transportation services.
Business priorities	Revenue is generated directly through product use of ridesharing services, meal and grocery delivery, financial partnership offerings, and freight carriers. Continued research and development focus on the platform's synergies: a massive network, leading technology (including marketplace, routing, and payments), operational excellence, and product expertise.
Reported ESG Goals	Environmental: • Climate change: focus on zero-emission vehicles, micromobility, and public transit, • Energy efficiency + renewable energy, • Local air quality, water consumptions, waste reduction/recycling. Social: • COVID-19 response, • DEI and culture, • Driver and courier well-being, • Local impact and urban use, • User privacy and safety. Governance: • Data privacy and security, • Human rights in the supply chain, • Political activities, • Ethics and compliance, • Board composition, executive compensation.
Product Purpose	While Uber has mobility, delivery, and freight segments, this case focuses on mobility ("Ride"). The purpose of the mobility product is to move consumers from where they are to where they need to be, efficiently, safely, and on-demand.

Table 2. Product Overview (Uber) (continued)

Primary Features	-*Rideshare*: Call a car for door-to-door service via mobile app. -*Bikeshare*: Use the app to book a bike at nearest available bikeshare station. -*Scooters*: Use the app to reserve a scooter per above. -*Car rentals*: Ability to rent cars through select agencies. -*Uber One*: subscription service provides discounted rides and priority access to top-rated drivers.
Source: Data extracted from corporate 10-K and proxy statement available on SEC.gov for 2021, and ESG report from investor relation section of company website.	

Both cases demonstrated a multitude of strengths, along with weaknesses and opportunities to take advantage of existing organizational practices to evolve in a more health-positive direction (see **Table 3 and 4**).

Snapchat

At its core, Snapchat is a product meant to facilitate social connection, which it makes easy to do immediately upon opening the app. There are multiple ways to connect with other users, through direct messaging or image/video-sharing, or posting more publicly on stories, indicating strong follow-through on the company's stated purpose of building community. This is likewise supported by SnapMap, whereby upon giving consent, users can easily connect with friends offline by digitally following friends. Users also have the ability to control their self-expression, especially through their digital avatars (Bitmojis), which are available in an especially representative swath of skin tones and hairstyles. The heavy emphasis of these personalized avatars promotes equity by encouraging users to come as they are, without limiting how they can be represented.

Snap has an implicit emphasis throughout its reporting on supporting the mental health of its users, and on creating a healthy product environment – though there is an opportunity to make the connection between banned activity and the health of users directly. There are ample policies (pointedly crafted in plain language, though not intuitively accessible in-app) governing use of the product, including a privacy policy, terms of use, and community guidelines with persistent mention of a desire to keep users safe, and empower them to take control over their experience. It appears contradictory, then, to observe the lack of content moderation in-app or ability to self-impose restrictions on the content a user chooses to see. Without the ability to control content visible through Discover (Snap's newsfeed) or Spotlight (short-form video content), a user is likely to engage with sensationalist news stories, lewd imagery and videos, and minimal display of credible sources. This increases risk of misinformation and negative self-image and fails to create a healthy sense of community (Sheldon, Rauschnabel & Honeycutt, 2019). Spotlight's endless stream of content amplifies this state by enabling constant engagement and addictive behavior (Sun & Zhang, 2021; Bányai et al., 2017). This reality does not align with Snap's stated goal of responsible design and product use.

This misalignment appears to be a function of a disconnect in how the organization is structured: the trust and safety team is responsible for development of content moderation tools and implementation, while the public policy and social impact team engages in external partnerships and advocacy efforts. That is, one team determines which content is noncompliant with product policy requiring removal, another develops impact-driven content, but none is asserting how the remaining content should be prioritized, presented, or experienced by users. This also leaves a gray zone of content which is not counter to policy, yet still negatively impacts users. The public policy and social impact team has spearheaded thoughtful partnerships with industry experts and non-governmental organizations to target Snapchat's key user demographic (largely Gen Z and younger millennials, Snap's primary users) with campaigns especially salient to them, e.g., drug use reduction, mental health education, and bullying awareness and prevention, along with the creation of a digital Safety Center. These partnerships produce excellent, credible content; however, they do not receive much prominence in-app, nor are credible sources identified, which offers room for improvement. Users must happen across the correct search terms, or know they exist, to surface mental health support and drug use awareness campaigns. While Snap's own wellness resources claim that being safe on social media is not merely the absence of danger, but the presence of wellness, features seem to focus on reactive support and reporting rather than proactive prevention and moderation.

There are multiple opportunities to build on existing design to extend the product's positive health impact. The app already allows users to subscribe to creators and select lifestyle interests to personalize advertising content. This ability to control content should extend to content filters of what a user does not want to see, especially for younger users. As established by Social Cognitive Theory, increasing user agency can improve wellbeing by supporting their preferences (Bandura, 2001; Martin, 2004) – in this case for the parts of the broader product community with which they seek to engage. Adding an option native to the app to control length of session would minimize addictive design features by limiting a continuous content stream (such timer features are available native to most mobile devices) (Sheldon, Rauschnabel & Honeycutt, 2019). Opportunity to promote offline events and activity through SnapMap can also further foster social connection in-person.

Current policy outlines how data are used, largely governing advertising and content offered. Snap can choose to use this data to promote health information pertinent to the user in partnership with local health departments. These data can also be combined with that of "friends" users interact with most to determine group-level interventions. Still, the policy should specify which behaviors or personal information do not, or will not, dictate ads. User behavior determines content displayed through Discover and Spotlight, creating either positive or negative reinforcement loops. More can be done to help this content skew toward a positive user impact. Verification and recommendation features can help

Table 3. Product Health Assessment (Snap)

Health behavior: social interaction and connection			
Variable	**Strengths**	**Weaknesses**	**Opportunities**
Design	• Encourages social interaction: strong-follow-through on stated purpose to build community • Emphasizes the use of digital avatars ("bitmoji") to personalize the experience: customization promotes diversity and inclusion • Ease of social connection offline through SnapMap	• Lack of ability to filter: concerning given sensational content in Discover and lewd content in Spotlight • Misaligned with stated goal of responsible design and product use; negative influence on self-image • Constant stream of Spotlight content risks addictive behavior	• Filters for what users do not want to see, and not just what they do see • Ability to control session length • Promotion of offline activities for further social connection
Policy	• Plain language explanation of access • Data used to protect user rights, safety • Focus on building a safe product community • Community guidelines have heavy focus on mental health of users	• Failure to acknowledge offline behaviors that results from online product use • Bulk of policies related to health and safety in Community Guidelines, not easily accessible within the user experience (UX) design • No explicit mention of impact of banned content, or misuse broadly, on mental health	• Information collected can be used to personalize health-related content through partnerships, instead of just ads • Adjust algorithm to avoid negative reinforcement loops to help skew toward positive user impact

Table 3. Product Health Assessment (Snap) (continued)

Health behavior: social interaction and connection			
Variable	**Strengths**	**Weaknesses**	**Opportunities**
Implementation	• Safety by design, collaboration with outside experts • Development of "Here For You" content, partnership with Crisis Text Line • Development of "Heads Up Portal" • Snap Originals focus on mental content	• Lack of identification of credible sources in search • No explicit mention of safety by design principles used, no promotion in-app of safety feature or health-related content • Focus on absence of danger, not presence of wellness, counter to own guide	• Validation feature to discern credible content • Recommendation feature to surface valuable content partnerships and wellbeing resources more easily. • Partner with communities who can benefit from social connection
Evaluation	• Impact Reported impact in Citizen Snap report, covering quantity of content removed, percentage of content that violated guidelines, and use of support resources	• No mention of impact of COVID-19 partnerships or campaigns, use of COVID-focused AR experiences and creative tools. • No discussion of reach of COVID-19 content. • No discussion of reach or impact of Here For You content.	• All campaigns launched with health goals should be explicitly evaluated • Any health-related goal in impact reports should be tracked at minimum qualitatively.

amplify credible content, avoid mis- or disinformation, improving the responsible design elements the company claims to aspire to.

Uber

As a mobility product, Uber's main priority is to move users to where they want to be. This suggests a seemingly obvious opportunity to allow users to choose to walk as part of their journey, but modalities are limited to car, bike, and scooter. While biking and scooting are more active transportation modes, these choices receive reduced prominence in-app. The only option which integrates walking is by choosing to meet one's driver at a more convenient location for the driving route, centering driver preference. Given this functionality, it would not be a stretch to center this capability from the user-side, allowing the user to plan in walking time on either end of a ride.

Policy and design are strongly aligned in a focus on safety: there is clear emphasis on how both riders and drivers should be treated, and how they should treat each other, creating equitable expectations and community guidelines. This includes the use of mutual ratings, building an expectation for positive social interactions during rides in order to receive a positive score. Use of privacy-by-design practices and community guidelines which center on respect likewise promote a healthy user experience. In-app, the "Safety Toolkit" provides both riders and drivers with the ability to report incidents, record uncomfortable situations, contact emergency support, and share location, while RideCheck auto-detects rare events like long stops. Given users must scroll to view this toolkit feature, periodic reminders of its availability could maximize its utility. Similarly for the robust community guidelines, reminders of expected behavior could increase the likelihood of positive social interactions and safety. This repetition is already employed for seatbelt use. Core features like the map and ads have the opportunity to be optimized to promote healthy locations or items, and dynamic pricing could integrate health-related variables like opting to walk to shorten rides.

Ultimately, as a robust logistics platform, Uber has the functionality to be used for additional purposes. Indeed, the company has initiated a fledgling healthcare business to help coordinate non-emergency medical transportation as its first product line. Additional

Table 4. Product Health Assessment (Uber)

Health behavior: mobility			
Variable	**Strengths**	**Weaknesses**	**Opportunities**
Design	• Ample safety features: verification, ratings, reporting, ability to share location; safety toolkit with ability to record audio, share trip, and 911 help • Ratings system creates dual accountability for health interpersonal behavior • Seat belt alerts	• No acknowledgment/ promotion of walking as form of mobility • Minimal promotion of micromobility (i.e., lightweight transport options like bikes and scooters) over other modes of transportation, despite emphasis in ESG report	• Embed walk options • Increase prominence of bike and scooter

Table 4. Product Health Assessment (Uber) (continued)

Health behavior: mobility			
Variable	**Strengths**	**Weaknesses**	**Opportunities**
Policy	• Data used to enhance safety and security • Focus on "privacy-by-design" • Community guidelines center on respect • Promote safety	• Lack of mention of how "privacy-by-design" has translated to product development • Lack of recognition and accountability of connection between mobility and physical activity	• Robust community guidelines not central to in-app user experience (UX), opportunity to be more intrinsically embedded to optimize for positive experiences
Implementation	• Logistics expertise and mobility platform being used as foundation for Uber Health product line • Impaired driving prevention through "Decide to Ride" campaign • Ride donation and in-app donation as part of humanitarian response efforts		• Use map to promote healthy locations (grocery stores, parks) • Partner with nonprofits focused on communities suffering from social isolation due to limited transportation • Integrate health variables into dynamic pricing model (e.g. deter short rides by increasing price, promoting more active transit) • Use personalized ads feature for good
Evaluation	• Frequency of trips without safety incident evaluated in ESG report • Reporting of philanthropic initiatives, e.g., rides for pregnant people, job interview access, health appointment access, humanitarian relief	• No discussion of impact of COVID-19 initiatives (e.g. reach of vaccine education, # of rides to vaccine sites).	• Same as Snap, bearing repeating: • All campaigns launched with health goals should be explicitly evaluated • Any health-related goal in impact reports should be tracked, at minimum qualitatively.

positive impact can be achieved through emphasizing partnerships with nonprofits focused on communities suffering from social isolation due to otherwise limited access to transportation (some work in this regard has begun through the Uber Health product line).

Evaluation
To discern whether any of these features or campaigns are successful, additional evaluation is needed for both products. All campaigns launched with health goals should be explicitly evaluated, indicating their influence on baseline metrics as a model for other companies. Companies need to share which efforts are successful to contribute to developing a standard. Any health-related goal in impact reports should be tracked: if quantitative measurement is not possible, at minimum there should be a qualitative assessment.

COVID-19 response
Both products leveraged their core functionality in responding to COVID-19, as illustrated in **Table 5**. Snap developed creative tools and AR experiences which allowed users to share reputable health information with their connections. Snap also collaborated with partners to develop original content with credible resources. While content partnerships with a health focus appear to have been temporary, there are still efforts to create shareable health-related information through filters, gifs, and bitmojis. The Here For You channel which focused on the pandemic's effects on youth mental health still exists, but without regular updates on general mental health (its original purpose). Uber donated rides and made it possible to receive free transportation to vaccination sites, consistent with ongoing health-related philanthropic ride donation efforts. This initiative has not been sustained for other user-facing initiatives, e.g., had the company chosen to implement a similar strategy for promoting flu shots. Additionally, while the company launched a new feature to prompt mask use before entering a vehicle, the ability to offer public health messaging has not been repurposed for other health topics.

Table 5. Maintenance of COVID-19 Product Response

Case	COVID Feature	Continued	Discontinued
Snap	Creative tools to share expert-approved best practices to stay healthy (e.g., GIFs, bitmoji designs)	Still available, not promoted. Promotion of anti-bullying content (October 2022).	
	Published regular safety updates with public health officials and agencies, including WHO and CDC		No usage for other health updates, e.g., flu season.
	Focus on sharing credible information in Discover from trusted sources: efforts to provide access to information about COVID-19 and how to stay safe: • News providers (3 dozen partners) produced constant coverage of pandemic on-app • Collaborated with syndicated partners to publish and share episodes around COVID vaccines targeting young users		Unclear if other partnerships currently exist with social impact focus through Discover feature.
	Vaccine education initiative in-app in partnership with White House		Discontinued, partnership does not appear to have been sustained around other topics.
	Expanded Here For You content focused on the pandemic's effects on youth mental health and loneliness.		Discontinued, partnership does not appear to have been sustained around other topics.
	Expanded Here For You content focused on the pandemic's effects on youth mental health and loneliness.	Still exists, but appears to be updated on a limited basis, if at all.	

Table 5. Maintenance of COVID-19 Product Response (continued)

Case	COVID Feature	Continued	Discontinued
Uber	Requirement of mask to ride, with in-app prompt at outset of each ride.	Ethos maintained through seat belt alert, but no clear indication that product decision related to mask feature.	
	Meal delivery to frontline responders (Uber Eats)		Discontinued.
	Transported essential goods in times of crisis (Uber Freight)	Continued for other philanthropic or humanitarian efforts.	
	Donated 10M free rides to healthcare workers, seniors, and others to get vaccinated (partnership with organizations with ties to communities disproportionately impacted by pandemic)	Ride delivery for other philanthropic causes.	
	In-app feature to donate to Vaccine Access Fund which provided free rides to vaccination sites and other places to learn about the vaccine from trusted contacts	Will use remaining funds to address systemic barriers to access to health services beyond vaccines.	No other donation campaign related to health.
	In-app experience integrating vaccines.gov, allowing users to find nearby available appointments (included free rides for both legs of trip to get first 2 vaccinations)		Feature not used for any other in-app health education campaign, e.g., flu shot.

Discussion

This study of two distinct products' policy, design, and implementation choices revealed that existing organizational beliefs and practices have resulted in decisions with health impact. This suggests that health promoting decision-making can feasibly be integrated into organizations outside the healthcare sector. However, there is minimal intentionality for positive health impact in current product design, as existing design aligns predominantly with business priorities. While some companies may have health-related social impact goals in their ESG reports, there is no requirement for these goals to be accounted for in core products based on current regulations (Snap comes close to integrating the goal of strengthening community by inherently promoting social connection). While COVID-19 has triggered new applications of existing product capabilities, there has not been significant new feature development that has been initiated or sustained as a result of the pandemic. Though COVID-19 is now endemic, the lessons here are powerful for future pandemics and public health crises.

Upon analyzing Snap and Uber for their strengths, weaknesses, and opportunities in terms of health impact, it would be idealistic to expect health-centric product development without external accountability, creating an opportunity for regulation. Through this case study, relationships between product use and product outcomes became better understood. Snap is effectively contributing to outcomes of social connection and information access, while Uber is contributing to increased mobility. Still, each company could do more. Snap could contribute to improved health literacy, healthy relationships, and reduction in loneliness, depending on information campaigns implemented. Uber could positively influence the physical activity of users through featured modalities (i.e., greater emphasis on biking, scooting, and walking).

Reporting is how distinct stakeholders communicate: how companies report is how investors evaluate. Mandating that corporate reporting include health impact would hold companies accountable to consider how their product development decisions affect the health of their users (Pérez, 2015; Kickbusch et al., 2018; Wilson, 2022; Ajayi & Mmutle, 2021). Such regulation might also introduce a common language for creating a healthy product environment. That is, how companies position themselves in their public-facing materials contributes to how they are perceived and assessed as much as the products themselves (Forman & Argenti, 2005; Van Riel & Fombrun, 2007). Indeed, all conclusions in this case analysis are limited to the perception of publicly available sources.

Existing products can still be adapted to become health-positive before policy catches up to technology. The opportunities presented in Table 3 and 4 are examples of that, but each company would need to assess the business perspective. To do so, a company can first identify the user behaviors it could impact. At minimum, technology companies influence how users engage with others, and how they spend their time. Next, a company can identify its products' levers of influence (e.g., content availability, marketplace prominence, pricing), then assess the risks and benefits to using those levers

to intentionally create positive health impact. Once that decision has been made, a clear plan must be outlined for measuring and enforcing health impact through product policy to avoid a moot effort. Self-imposing accountability mechanisms, similar to sustainability assessments, could be considered. After building functionality or implementing changes within existing designs, the company can evaluate the health impact achieved. Iteration would be assumed: digital products can and should always be continuously refined to improve outcomes, and health outcomes are no different should a company choose to prioritize them.

Limitations

While exploring the health impact of products on their consumers is an exciting new field of research, this also creates limitations. There is minimal publicly available data to consult as a baseline, putting pressure on this research to contribute reliable evidence as a strong foundation on which others can build. While the findings here are consistent with those from separate studies with distinct methodologies from this same research team (Sigler, 2022), these conclusions are restricted in their generalizability given the limited samples used.

Conclusions

This case study demonstrates the tremendous untapped potential in the tech sector to intentionally design products that sustainably influence health behaviors and promote health, particularly through new uses of existing features. As with other social impact initiatives, companies will need to leverage external partnerships and subject matter experts to actualize this opportunity. The learnings from this analysis provide a path forward for companie that boldly embrace intentionally designing products to influence health behaviors and promote health.

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