

thoroughly noted by leadership at the FTC.<sup>2</sup> Second, I will outline how dark pattern elements mirror a broader core business model. The way law enforcers approach such harms must be adapted with rapidly evolving technologies. Finally, I will expand on these vulnerabilities and highlight how they can be manifested through three categories of harms: daily indignities, systemic disadvantages and information asymmetries.

I'd like to set context by describing an era I call the rebound from the failures of notice and choice models. I've designed thousands of user interface elements and wireframes that have been deployed in products to millions of people.

Design practitioners can use pattern libraries and style guides — a reusable collection of design elements and layouts that have been tried and true with other websites, apps, and platforms. Nearly every product I've worked on required some version of onboarding and disclosing a mountain of legalese.

To get people's "consent," through a digital interface, developers and designers must give "notice" which often comes in the form of one of these go-to design patterns: a fleeting tiny pop-up window that jams in privacy policy text with a checkbox, or a button that says, "I agree."

In practice, it is widely known that notice and choice is ineffective,<sup>3</sup> confusing,<sup>4</sup> and gives the illusion of choice and empowerment.<sup>5</sup> Recall the 2010s era where the "Internet of Things," smartwatches, and heads-up displays entered the marketplace. The failures of notice and choice exacerbated as screens got tinier or at times just did not exist. Technology changed swiftly over the years, but the "privacy protecting" mechanism of notice and choice didn't.

Around the same time, dark patterns research began to take shape amid the growth of digital platforms, the desire to collect vast amounts of user data,<sup>6</sup> and the field of behavioral science and nudges took shape,<sup>7</sup> starting with the coining of "dark patterns" in 2010.<sup>8</sup> And since then, the field has continued to

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<sup>2</sup> [https://www.ftc.gov/system/files/ftc\\_gov/pdf/20240417-Reidenberg-Lecture-final-for-publication-Remarks-Sam-Levine.pdf](https://www.ftc.gov/system/files/ftc_gov/pdf/20240417-Reidenberg-Lecture-final-for-publication-Remarks-Sam-Levine.pdf)

[https://www.ftc.gov/system/files/ftc\\_gov/pdf/remarks-of-samuel-levine-at-nad-2023.pdf](https://www.ftc.gov/system/files/ftc_gov/pdf/remarks-of-samuel-levine-at-nad-2023.pdf)

[https://www.ftc.gov/system/files/ftc\\_gov/pdf/testimony-chair-khan.pdf](https://www.ftc.gov/system/files/ftc_gov/pdf/testimony-chair-khan.pdf)

[https://www.ftc.gov/system/files/documents/public\\_statements/1597790/20211021\\_isp\\_privacy\\_6b\\_statement\\_of\\_chair\\_khan\\_final.pdf](https://www.ftc.gov/system/files/documents/public_statements/1597790/20211021_isp_privacy_6b_statement_of_chair_khan_final.pdf)

<sup>3</sup> <https://www.sciencedirect.com/science/article/abs/pii/S1094996804701085>

<sup>4</sup>

[https://www.researchgate.net/publication/255588023\\_A\\_Longitudinal\\_Assessment\\_of\\_Online\\_Privacy\\_Notice\\_Readability?\\_cf\\_chl=tk=qHaB.pmoDwRQGlxbxYjfdN9B42WSeKo2de3k\\_IE5xQ-1718079995-0.0.1.1-4884](https://www.researchgate.net/publication/255588023_A_Longitudinal_Assessment_of_Online_Privacy_Notice_Readability?_cf_chl=tk=qHaB.pmoDwRQGlxbxYjfdN9B42WSeKo2de3k_IE5xQ-1718079995-0.0.1.1-4884)

<sup>5</sup> [https://www.ftc.gov/sites/default/files/documents/public\\_comment39914.1%206.2%200.388%200.7578%20Td0.2%20d0.2%207012%20Td0j0.00](https://www.ftc.gov/sites/default/files/documents/public_comment39914.1%206.2%200.388%200.7578%20Td0.2%20d0.2%207012%20Td0j0.00)

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flourish. Scholars, researchers, investigators, and practitioners have dutifully expanded the field, provided more definitions, more taxonomies, and more vernacular to engage on the topic. It empowered a movement of investigators: the vigilantes for unscrupulous business activity.<sup>9 10 11 12 13 14 15 16 17 18 19 20</sup>

With generative AI, "data is the new oil," as FTC Staff outlined in a recent publication.<sup>21</sup> Corporations can use their outsized power and information asymmetries to extract massive amounts of personal information<sup>22</sup> as they go about their daily lives. This includes scooping up: a person's location,<sup>23</sup> purchase or browsing history,<sup>24</sup> and fertility<sup>25</sup> and health information<sup>26 27 28 29</sup> in exchange for signing up for a new platform or service.

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<sup>9</sup> <https://doi.org/10.1145/3173574.3174108>

<sup>10</sup> <https://arxiv.org/pdf/2101.04843>

<sup>11</sup> <https://johannagunawan.com/assets/pdf/gunawan-2021-cscw.pdf>

<sup>12</sup> <https://doi.org/10.1145/3313831.3376600>

<sup>13</sup> <https://johannagunawan.com/assets/pdf/gunawan-2023-chiworkshop.pdf>

<sup>14</sup> <https://doi.org/10.1145/3313831.3376321>

<sup>15</sup> <https://darkpatternstipline.org/>

<sup>16</sup> <https://doi.org/10.1145/3368860.3368865>

<sup>17</sup> <https://doi.org/10.1016/j.copsyc.2019.08.025>

<sup>18</sup> <https://doi.org/10.1515/popets-2016-0038>

<sup>19</sup> <https://johannagunawan.com/assets/pdf/gunawan-2021-chiworkshop.pdf>

<sup>20</sup> <https://doi.org/10.1145/3313831.3376600>

<https://doi.org/10.1145/3359183>

<https://doi.org/10.1145/3274388>

<https://chi2024.darkpatternsresearchandimpact.com/>

<sup>21</sup> <https://www.ftc.gov/policy/advocacy-research/tech-at-ftc/2024/02/ai-other-companies-quietly-changing-your-terms-service-could-be-unfair-or-deceptive>

<sup>22</sup> <https://www.federalregister.gov/documents/2022/08/22/2022-17752/trade-regulation-rule-on-commercial-surveillance-and-data-security#footnote-4-p51273>

<sup>23</sup> <https://www.ftc.gov/news-events/news/press-releases/2024/01/ftc-order-will-ban-inmarket-selling-precise-consumer-location-data>

<sup>24</sup> [https://www.ftc.gov/system/files/documents/reports/look-what-isps-know-about-you-examining-privacy-practices-six-major-internet-service-providers/p195402\\_isp\\_6b\\_staff\\_report.pdf](https://www.ftc.gov/system/files/documents/reports/look-what-isps-know-about-you-examining-privacy-practices-six-major-internet-service-providers/p195402_isp_6b_staff_report.pdf)

<sup>25</sup> <https://www.ftc.gov/news-events/news/press-releases/2021/06/ftc-finalizes-order-flo-health-fertility-tracking-app-shared-sensitive-health-data-facebook-google>

<https://www.ftc.gov/news-events/news/press-releases/2023/05/ovulation-tracking-app-premom-will-be-barred-sharing-health-data-advertising-under-proposed-ftc>

<sup>26</sup> <https://www.ftc.gov/news-events/news/press-releases/2024/04/alcohol-addiction-treatment-firm-will-be-banned-disclosing-health-data-advertising-settle-ftc>

<sup>27</sup> <https://www.ftc.gov/news-events/news/press-releases/2024/04/proposed-ftc-order-will-prohibit-telehealth-firm-cerebral-using-or-disclosing-sensitive-data>

<sup>28</sup> <https://www.ftc.gov/news-events/news/press-releases/2023/02/ftc-enforcement-action-bar-goodrx-sharing-consumers-sensitive-health-info-advertising>

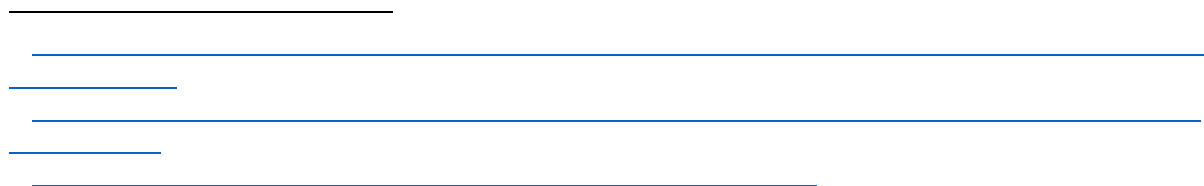
<sup>29</sup> <https://www.ftc.gov/news-events/news/press-releases/2023/07/ftc-gives-final-approval-order-banning-betterhelp-sharing-sensitive-health-data-advertising>

"Let's not mince words," Bureau of Consumer Protection Director, Samuel A.A. Levine said in recent remarks. "Notice and choice is a fantasy world, divorced from the reality of how people live or how firms operate."<sup>30</sup>

Note that these manipulative practices existed since the dawn of commerce. Centuries ago, chatbots or modern digital interfaces did not exist. But there were manipulative tactics like false ads, opaque pricing, limited choices, and coercive selling tactics. And in its 100+ year history, the FTC has brought a plethora of cases and engaged on this topic, including a recent report on dark patterns led by the brilliant staff in the Bureau of Consumer Protection.<sup>31</sup>

Today, the scale and velocity of technological advancements including generative AI means data is a critical input required to power large language models. Over time, companies can better control interfaces to optimize for more data or more profits. Some factors that highlight how generative AI can impact the reach, spread, and impact of dark patterns include:

- Companies can experiment with new



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So, how might technologists at the agency strengthen and support the FTC's mission? The first is an acknowledgment that each layer of the tech stack — from the front-end user interface to the data, models, and hardware of a product or service — is a manifestation of a company's core business model and incentives.

Notice and choice is a form of design pattern and a policy framework - which has failed to actually protect user privacy. It has enabled industry to Hoover up data to propel the surveillance economy and led to a critical need for law enforcers to investigate dark patterns in areas where companies exploit consumer vulnerabilities: incremental daily cuts, systemic disadvantages, and (38.2 (su)-4 (odu15.2 2.6 (cu)1pdaT)4.3 (.6 (1.0d6wA