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Bringing Digital Designs to Light

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New research shows how subtle changes can influence consumers online.

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Earlier this year, Google and Facebook were fined over $200 million by French regulators. These companies were fined for using design tactics that seem similar to things we see every day online. Facebook and Google used designs requiring only one click to enable

cookies but several clicks to reject cookies. Epic Games, which makes the video game Fortnite, was recently fined $245 million for using digital design techniques that made it easy for children to make in-game purchases and difficult to dispute erroneous charges. And the FTC has filed a complaint against Amazon, alleging that they "used manipulative, coercive, or deceptive user-interface designs known as "dark patterns" to trick consumers into enrolling in automatically-renewing Prime subscriptions."

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The name "dark patterns" is from computer science and we see them all the time online, pushing us towards a particular choice. According to recent analyses, over **one-third of online retail websites** use dark patterns such as fake countdown timers. Similarly, about **40%** of political campaign emails used dark patterns during the 2020 presidential election cycle. These **email dark patterns** included using obscured names and a "Fwd" label, which could deceive recipients into thinking the emails were part of an ongoing conversation. And campaign web sites often use defaults: Design changes on political campaign websites made recurring donations the default increased campaign donations by **over $40 million**.

However, digital design can also be used to improve customer experience and promote consumer welfare. Saving default shipping addresses on a site, for example, saves customers the hassle of entering in their address each time. Making a site easy to navigate promotes access for those with low digital literacy.

In **new research** in the *Journal of Marketing*, our team shows that subtle design features can have a large impact on customers' behaviors. Specifically, our research examined how digital design could be used to encourage users to enable all app features during smartphone app installation. For example, changing the wording of a privacy choice button from "enable" to "continue" can increase the percentage of users who choose this option by 23%. Wordings like "continue" likely work by giving people the impression that the status quo is to "continue" and enable the features. We show that even changing the color of a button—using blue rather than other colors—influences important choices like applying for a job online or enabling app features. Relatedly, integrating decisions into a single screen increased adoption compared to segregating decisions across separate screens.

These design features probably increased adoption by leveraging users' existing digital habits. Most people are used to clicking on blue buttons while navigating on computers or smartphones, since this is the color used by many operating systems for their "continue" or "ok" buttons. As a result, when they see a blue button on a display, many people have a prepotent response to select it, encouraging that behavior.

These design features can also be used to promote social welfare. For instance, during the height of the COVID-19 pandemic, several countries and US states developed exposure notification apps to help curb the spread of the disease. **Research demonstrated** that these apps reduced the number of COVID-19 infections, fatalities related to the disease, and economic losses related to the pandemic. However, one challenge was getting people to properly install the apps, which involved enabling Bluetooth, logging of contacts, and notifications of exposure. All three features needed to be enabled for the app to function properly, and some users failed to turn on all three rendering their app useless. Our research shows then using optimized digital design increased appropriate installation of these apps from 28% to 72%.

This is notable partly because the designs did not involve changing the default option. Defaults have previously been shown to have a large effect on users' digital behavior. A prime example occurred when Apple recently changed the iPhone's privacy defaults, requiring users to make an active choice before companies could track user activity across different apps and websites. This change led Meta, the parent company of Facebook, to

lose as much as **$10 billion**, as the number of users allowing data tracking plummeted. In our research, we showed that even more subtle changes, including small changes to the wording of options or their color, can still have substantial influences on behavior. Critically, this means these design features can be used in situations where regulations or industry norms preclude altering defaults for customers. This new research therefore expands understanding of the digital toolbox that can be used to nudge users.

Our research focuses on areas where the interests of the app developer and user are aligned, rather than on dark patterns, where developers use design to exploit users. One question that naturally arises is whether dark patterns hurt firms in the long run. Might consumers be outraged, reluctant to trust the company again, or perhaps grow resistant to the tactics as time goes on?

Evidence from one organization shows that dark patterns can backfire in the long term. A charity used email reminders to increase donations and make the charity top-of-mind among potential donors. These frequent email reminders boosted donations in the short-term, but it also made recipients **more likely to unsubscribe** from all of the charity's emails, leading to adverse long-term effects. Companies must not assume that designs that produce short-term gains will be winning strategies in the long run. Many deceptive "dark patterns" produce clear short-term revenue gains. For example, when Google and Meta required a few extra clicks to disable cookies, this likely yielded as much as **$200 million** for these two tech giants yet these often erode or even reverse with time, especially if they deceive consumers, spark outrage, or lead to fines. Yet these gains often erode or even reverse with time, especially if they deceive consumers, spark outrage, or lead to fines. The political campaigns that used defaults to increase repeating donations suffered **negative news coverage** and increased refund requests. Not to mention that there are ethical reasons to avoid designs that hide key information or deceive consumers.

Regulators on both sides of the Atlantic are cracking down on dark patterns. Our research findings indicate that it's not only heavy-handed interventions, like changing defaults or presenting one-click options, that can guide users. More subtle changes, like altering wording, color, or layout, can also influence high-stakes digital behavior. This revelation not only expands the toolbox for those seeking to influence users, but also presents a

challenge for regulation. For example, it would be farcical to mandate a specific color for display options. Instead, watchdogs and regulators should focus on things like whether it is much more difficult to see and select one option rather than another.

Currently, the FTC is doing just that, recently proposing a rule that would require companies to make it as easy to cancel a subscription as it is to sign up. How much time, effort, and money would this rule save for Americans? It is easy to see why the answer could be massive. If requiring only two extra clicks to enable cookies can yield millions of dollars for Facebook and requiring two extra choices can drastically interfere with app installations, requiring people to call and wait on hold before they can cancel a subscription could be extremely detrimental for consumers. Perhaps it is time for these dark patterns to be brought into the light.

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