Google, LLC

To: Sundar Pichai, Chief Executive Officer

From: William Townsend, Pixel Engineering Team

Subject: Additional Functionalities for Pixel Phone Platform

Dear Mr. Pichai,

Google is an unquestioned leader within the field of technology, and our Pixel line of Google-branded mobile phones are competitive in the market, though they lag behind some competitor's flagship mobile offerings. I've compiled some ideas which I believe would improve our Pixel lineup by addressing unmet needs of our users. Addressing these needs could help to close the gap between our flagship mobile phone and those offered by our chief competitors.

Lock Screen Customization in Android 12

The recent rollout of Android 12 to devices in late October 2021 included modifications to the lock screen display. Most visible was a change to the clock from a traditional rectangular digital display to a line-wrapped "square" display, which cannot be modified. This change has been met with plenty of opposition and derision from sections of our user base, and many are turning to outside applications to modify this display. This underlines the desire of users to modify and customize the lock screen on their devices, similar to how other displays are also customized, and the lack of options to do so natively within Android is an unmet need.

Modification of the lock screen is quite possible, as a number of apps hosted in the Play Store have such capabilities. As these capabilities already exist, it should be relatively easy to generate new settings options allowing customization. Pre-set themes available on phones could

be expanded to include modifications to the lock screen. The use of widgets could also be extended from the device “desktop” to the lock screen as well, allowing users to customize their phone to best meet their needs.

Improving Android Media Controls

As a Pixel user, I’ve enjoyed the media controls released in Android 11, allowing users to control media being played on the Pixel from the notifications bar or lock screen. However, I’ve also been frequently annoyed with the inconsistency of this feature, diminishing its usefulness such that it becomes a nuisance. The media controls will often disappear after an application has been paused for a period of time (on the order of 5-15 minutes), even if the media application has not yet been closed. At the same time, media controls will often persist and attempt to provide a means to control media that was consumed days prior, well after the media application was closed on my phone.

The media controls are an appealing option as a single interface to control multiple types of media applications, but this is only the case as long as they work in the intended manner. This function was a feature of the Android 11 release, but when the controls disappear or persist unexpectedly, this basic Android service actually becomes a disservice to the user.

A fix to address this issue could rely on the process of terminating the associated media application. If the user has not yet terminated the media application, it is reasonable to assume that they may want to resume media playback. The media controller would thus continue to maintain control of the media and its associated application until that application is terminated, addressing the issue of unexpectedly disappearing. Once the associated media application is

terminated, it is clear that the user is done using the application and any media within. This means that the media controller can safely "release" its control of the media and its associated application as well, eliminating the issue of unexpected persistence.

Easily Replaceable Batteries

Over the last several years, the tendency has been for phones to be built increasingly like "black boxes", with few methods to replace parts or extend device functionality. This pattern reinforces planned obsolescence, and the cycle of rapidly replacing technological marvels such as smartphones contributes to growing ecological issues related to technological waste. The market for smartphones is no longer evolving as rapidly as it was when the original Apple iPhone or Samsung Galaxy were the primary flagships for the Apple and Android ecosystems, and today's smartphones are remaining viable devices for longer and longer, reducing the need for frequent upgrades. With longer device lifespans, battery power and degradation becomes a more impactful issue to the user, but this issue can be mitigated through replacement of rechargeable batteries whose performance is beginning to dwindle.

Designing the Pixel line of smartphones to have easily replaceable batteries would meet this consumer need. This might seem like it would reduce Pixel sales, but with device lifespans increasing anyways, device turnover will not be as high as it has been previously. This means that Pixel sales are likely to decrease in the long-term anyways, and it consequently becomes more important to make sure that consumers our smartphones are more attractive propositions than available alternatives. An easily replaceable battery would allow Google to advertise a more "green" offering (due to decreased technological waste) versus competitors, while also being

able to espouse the cheaper costs over the lifetime of the device (due to not having to replace a phone prematurely).

Selling a more durable phone, one which can be cheaply and easily “refreshed” to like-new performance, would set the Pixel uniquely apart from competitors to serve user needs that are currently unmet. Making the Pixel more attractive as a competitor to other flagship devices can help increase our market share. Doing so in a way that makes the Pixel more durable in the long run is a unique approach to building brand loyalty in a fickle market, and a more durable device would also integrate users into the Pixel/Android ecosystem for a longer term than alternative devices would.

These modifications to our flagship Pixel line of smartphones will help us to better meet the needs of our consumers. While the replacement batteries concept will incur some cost due to the necessary changes to the hardware specifications and design of our product, it is a viable way to get ahead of an incoming trend in the market in the wake of supply chain issues and material shortages. The other issues presented here should have very minimal costs to slightly modify existing software, better allowing our devices to fulfill the needs of users while continuing to grow the Android market share.

I would be happy to discuss these proposed changes in further detail or answer any other questions that you may have.

Sincerely,
William J Townsend
Pixel Engineering Team

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