

Developing an Internal Notification Feature

(Technical Paper)

Notifications and App Development as a Sociotechnical System

(STS Paper)

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On my honor as a University Student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments

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Notifications and App Development as a Sociotechnical System

Introduction

With the increased usage of technology as the main form of communication for almost everything, notifications are becoming increasingly relevant in allowing people to be aware of events that are happening, being used as reminders for tasks that need to be done or receiving other forms of information. The technical portion goes over an internal notification feature that was implemented during a summer internship. This research paper will explore notifications from both the user and developer point of view, as well as exploring methods that can help make notifications efficient for users to meet their needs.

Social Construction of Technology and Notifications

To explore this topic, the STS framework used is Social Construction of Technology (SCOT), which is a framework that can help to bring definition and understanding to a technological development. The defining process of a piece of technology makes use of four areas. First, is defining the social groups that are related to and affected by the mentioned technology. Next, interpretative flexibility is used to define how the social groups influence the development of the technology. Third, is defining the problems that can occur throughout the development process and usage of the technology, as well as the conflicts that may occur due to the conflict of interest. Lastly this framework will create closure and stabilization on the problems and conflicts that may have arisen in the third part. The following paper will make use of the following framework to define the usage and development of beneficial notifications (Cozzens et al., 1989; Pinch, T. J., & Bijker, W. E., 1984; Pinch, T., & Bijker, W., 1986; Russell, S., 1986; Sismondo, S., 1993; *Social Construction of Technology* 2023).

In terms of social groups, there are two main groups of people that need to be considered when defining notifications. The first social group to consider are the app and software developers creating the notifications. This social group considers what content to include in the notifications to reach the purpose of the notification, whether it be simply reminding the users of certain events or to attract the user to use their technology for the company's profit. The developer social group also considers how they can allow users to customize the notifications based on the user needs, such as allowing users to limit the number, frequency, and types of notifications that are received. The second social group to consider are the end users, which are the ones who receive the notifications and do the potential actions in response to receiving the notification. The end user social group are also the ones who are in control of whether they choose to receive notifications and if the end user chooses to receive notification, they are also in control of what action they take upon the receipt of the notification.

Different social groups have different goals for the usage of notifications. For the user social group, the usage of notifications will depend on what information and its value it will provide for the user. In addition, the user will also focus on how convenient it is to receive and review the notifications. Most importantly, the purpose of notifications is to inform users and help users, so the frequency of notifications may be a deciding factor on whether or not notifications will be received by end users. For the developer social group, the purpose of notifications is to provide information to end users so that they can simply be notified, or reach their own goals, such as getting the user to use their service. Another developer goal is using notifications to notify users of actions that need to be taken, such as reminders to do certain actions or be informed of service failures.

The different social groups also have different incentives to make use of and develop notifications. To the end user social group, they want to use notifications to keep on task and be aware of certain events. While the developer social group, depending on the purpose of the notification, they may want to simply help users be reminded of certain events and tasks, or earn profit by having the user make use of their application. For example, applications such as habit trackers, that are meant to help users reach their goals will be incentivized to focus on developing features to adapt to the needs of the end users. Alternatively, social media applications, benefitting from user interaction, may choose to focus on the content of the notifications being delivered to the end user to increase their traffic.

Identifying the needs and incentives of different social groups makes the conflicts of interest between the social groups more prominent. One example is how the developer social group that benefits from end user interaction may not take the end user's perspective into consideration, such as whether their notification frequency is too high, causing the end user to be overwhelmed or miss out on important information and end up choosing to not receive notifications at all. Such a choice made by the user wouldn't cause any loss to the user; however, to the developers, such an action will be a loss, since they not only were unable to get the user to use their app, but they also blocked the potential interactions the users may have had from future notification had their initial model considered notification customization.

With the conflicts of interest, there also exists alignment of interests that allows for closure and stability between the two social groups, such as the developer social group that focuses on creating notifications to help meet end user needs, or get information to the end users. Since their

core goal is to help the end user meet their needs, the developer and user social groups have alignment of interest because the end user social group wants help in getting information or receiving reminders about certain tasks and events.

In conclusion, notifications are frequently used by people and have played an important role for developers and businesses to deliver information to their end users and for end users to be able to meet their goals and receive information they want to know about. With the increased reliance on notifications in day to day tasks, it is important for developers to realize how they can make the notification experience more user-friendly and important for users to understand how they can customize their notifications to help them better meet their goals and have a better experience.

Plan for the thesis

For my thesis I will do further research on what type of notifications can help improve the effectiveness for users to receive notifications they need. This would go into detail on where is the balance point for developers to reach their goals without overwhelming the user. In addition, I will also explore if devices currently have anything in place that help with creating a balance point of notification quantity and quality and improve the effectiveness of notifications. I will gather my information from online resources and analyze from there.

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