Market Monitoring Tool

for

Unified Payments Interface

PROJECT BRIEF

An action project to help regulators and financial service providers leverage social media data to surface customer grievances and hurdles with India's United Payments Interface (UPI)

Project Team

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In India, the Unified Payments Interface (UPI) has emerged as the front-runner in digital revolution that the payments infrastructure has undergone. This is because UPI facilitates low-cost, instant payments and interoperability across different banks operating in India.[1] Developed by the National Payments Corporation of India (NPCI), UPI was piloted in April 2016 with 21 member banks. As of February 2023, it has registered 7.53 billion transactions of value INR 12.35 trillion across all UPI-integrated applications[2].

Figure 1 represents the volume and value of UPI transactions since November 2016.

Figure 1: Volume and value of UPI Payments (November 2016 – February 2023)

Source: NPCI
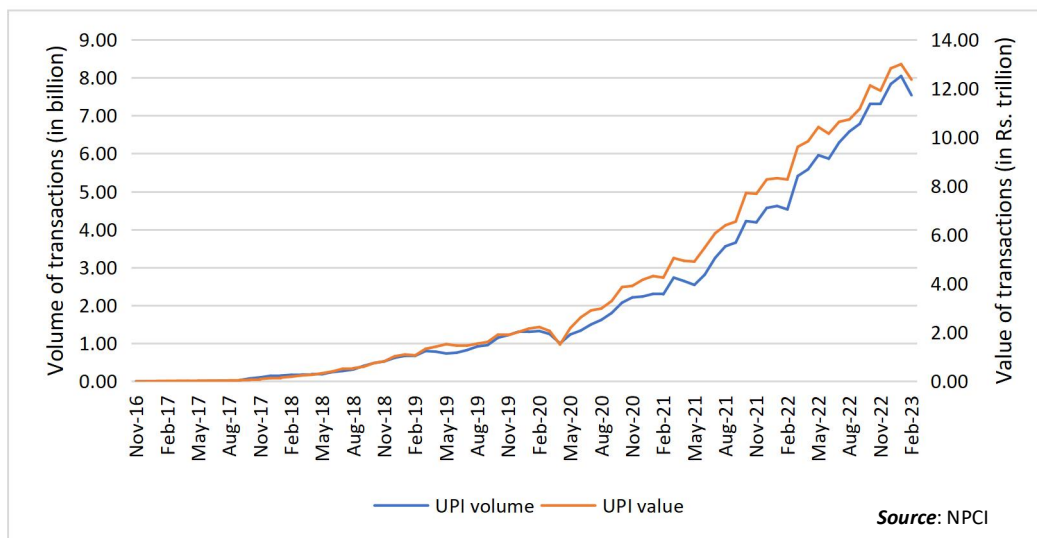
The simplicity of making payments using UPI, combined with its widespread acceptance among merchants at all retail levels, has made it a popular choice for customers across different income levels, even for small-ticket transactions. Given the popularity of UPI, even a 0.1% transaction failure rate is likely to impact approximately 8 million transactions in a month. In reality, as of February 2023, the top ten UPI remitter banks had a technical decline (TD)[3] rate in the range of 0.04% and 4.57% (National Payments Corporation of India, 2022). In the past year (March 2022 – February 2023), the average monthly technical decline rate has been in the range of 1.89% and 3.66%. The magnitude of this impact on Indian customers warrants the development of a method that can assist providers and regulators in the identification of issues faced by UPI users in a near-real-time frequency.

While this can be achieved by analysing grievances received by redressal channels available to both the provider and regulator, identification of issues by independent researchers remains difficult as their visibility is limited to the above two. Even with publicly available aggregated figures, our study of relevant categories of complaints from RBI's different Ombudsman reports reveals that between July 2020 and March 2021, there were, at most, 58,767 complaints pertaining to UPI. However, in February 2023 alone, the top 50 remitter banks accounted for 8.04 billion transactions, out of which only 7.22 billion transactions were successful. Amongst those transactions identified for debit reversal, a failure rate close to 26% was observed, impacting close to 14.68 million transactions (National Payments Corporation of India, 2022). Thus, the traditionally available data appears limited in scope.

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[1] NPCI describes UPI as "*a system that powers multiple bank accounts into a single mobile application (of any participating bank), merging several banking features, seamless fund routing & merchant payments into one hood*" [[i]].
[2] This includes UPI modes available within mobile bank applications, third-party payment applications (TPAPs) and BHIM UPI.
[3] The NPCI defines Technical Declines (TD) as those transaction failures which are a result of errors (such as network errors, server downtimes etc.) arising at any point in the UPI ecosystem (National Payments Corporation of India, 2022).

Social media monitoring can help solve these concerns to a large extent. It allows supervisors to listen to the collective voice of customers "*by gathering insights into their experiences and issues with financial services and products*" (CGAP, n.a.). From our analysis across Twitter and Google Play Store, we note that the voices of customers are not simply expressions of anger, but of desperate pleas or demands for action. Below are some examples to illustrate this:

> "*Why do I have to do all things, I have mailed but I have to waiythere response and getting response after 6-7 days, I have give all details but still struggling, my money was stucked and you all playing with me. @myntra @MyntraSupport @GooglePay @GooglePayIndia @ANarayanan24 https://t.co/6bPoIJoIVG*"(sic.)

> "*@GooglePayIndia I have escalated on 20 Aug 2019 about my 2 transactions wherein amount got debited and still I haven't got the refund despite raising it multiple times. I am unable to understand why have you not resolved it till now.*
> *Kindly reply and help here*" (sic.)

With this background in mind, Dvara Research is developing a tool that automates the identification and prevalence rate of different customer-facing issues in the UPI ecosystem through collected social media data. For this exercise, data has been scraped from Twitter and Google Play Store for several UPI providers that are currently contributing over 90% of the transaction volumes. Following the collection, the data goes through stages of pre-processing and modelling using Natural Language Processing (NLP)[4] methods, leading to the identification of an exhaustive list of issues and calculation of their prevalence rates, among other useful indicators.

The tool thus yields a broad range of insights. These include (but may not be limited to):

i. ***Categories of customer issues and grievances regarding UPI:*** Based on the authors' survey of pre-existing literature and media reportage on UPI and customer-facing issues, collected and modelled data can be categorised into issues such as onboarding issues, inadequate grievance redress, incurring of authorised charges etc.

ii. ***The extent of overlap of disparate customer issues:*** Often, discrete data points do not map to a singular issue, but a combination of issues. Through topic modelling, we can determine whether the grievance indicates an overlap of different concerns.

iii. ***Interaction and responsiveness of the provider:*** By analysing response time of providers to Tweets and Google Play Store reviews, we can determine the responsiveness of providers to aggrieved customers.

iv. ***Periodic traffic on Twitter and Google Play Store regarding providers:*** By analysing the number of times the provider may be mentioned in any given time period (i.e., periodic traffic data), reasons behind the same can be further studied to identify any concerns that may be arising.

v. ***Temporal evolution of customers' perceptions of providers:*** By observing Google Play Store review ratings and the nature of topics raised on Twitter, we can determine whether ongoing issues or discussion topics are experienced by a sizeable number of individuals and whether providers and regulators must caution themselves against upcoming issues.

Currently, the team is working towards automating and adding more features to the designed tool.

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[4] The **Natural Language Toolkit (NLTK)** is a leading platform for building Python programs to work with human language data. It provides easy-to-use interfaces to over 50 corpora and lexical resources such as WordNet, along with a suite of text processing libraries for classification, tokenization, stemming, tagging, and parsing, amongst other functionalities.

For further details regarding the project, please contact Dwijaraj Bhattacharya, at dwijaraj.b@dvara.com

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