Big data and machine learning

Smarter mobile money through big data analytics

Approximately 2.5 quintillion bytes, or 2.3 trillion gigabytes of data is generated every day around the world. The full potential of all this information is yet to be discovered with estimates that only 0.5% undergoes analysis, while one in three business leaders make decisions based on insufficient data.

The volume of data available to service providers today, both within their system and in the surrounding networks (social networks, etc) provides an enormous resource for better understanding the customer base and delivering a customer experience which promotes faster adoption of new services and a higher number of transactions. The service provider is surrounded by data – both structured and unstructured – on a daily basis. However, it is not the volume of data that is important; it is the way it is exploited. To extract meaningful value from big data, you need optimal processing power, analytics, capabilities and skills.

How data analytics supports service providers

The mobile money service providers access to big data offers them a huge advantage over formal financial institutions, who cannot easily tap into their client's daily life. Through the analysis of service usage it is possible to identify customer habits, in order to build lists of eligible customers for mobile financial services, and unlock hidden value in the ecosystem, with areas such as fraud management and credit scoring.

Fraud Management   Credit Scoring

Fraud management

Suspicious behaviour manifests in different ways. Big data analytics link heterogeneous information from transaction data, which enables the service provider to pick up on this behaviour. For example, a series of cash-in transactions to the same account, from different locations, might be an attempt to avoid paying for domestic transfers, or several cash-ins immediately followed by a cash-out could indicate money laundering. There are two methods of reporting for suspicious behaviour. The

first is system generated in real time upon anomaly detection, which is then approved or rejected by the fraud analyst. The second requires the fraud analyst to generate a daily report for post-analysis. Best practice states that no actions are purely automated, the fraud analyst always has the final say. This prevents unjustified automatic rejection cases.

Machine learning further complements fraud management processes. In using the past to predict the future, fraud analysts define detection parameters based on normal behavioural patterns from transaction history. As a population's behaviour evolves over time, the parameters must adapt to remain optimal. In response to this, machine learning predicts a natural evolution of behaviour based on historical data as well as previous actions taken by fraud managers in decision making. It then proposes modifications to the detection model for future anomaly detection.
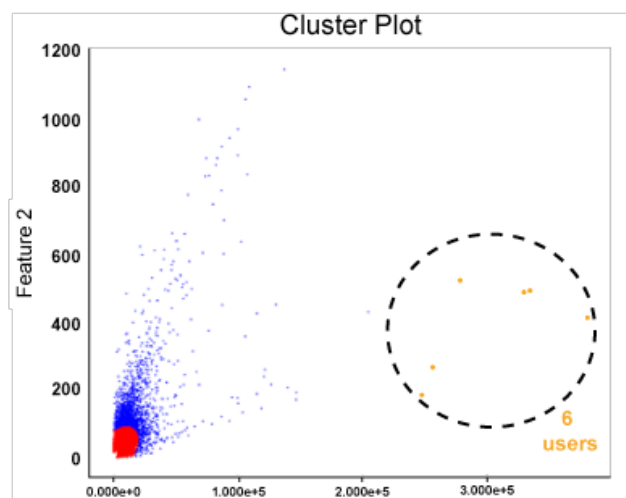
Figure 1: Anomolies detected from service usage data analytics according to machine learning parametres which indiciate potentially suspicious activity.

Credit scoring

Limited access to financial services in emerging countries means that some people aren't able to generate a financial diary to produce a credit score. This is problematic for a lender needing to rate an individual's loan repayment capacity. Big data supports credit scoring technology for mobile financial services through in-depth analysis of a subscriber's records.

Here, credit scoring is employed in two ways.

1. A subscriber wants to receive a loan. Once approached, the agent uses transaction data to decide whether to accept or decline the request.

2. A service provider wants to offer a credit lending service to a broad section of society. The population's data is scanned, and categorised according to a given credit score used to evaluate the viability of offering this service to certain categories.

For example, a local farmer needs to invest in crop fertiliser to increase his income, but has insufficient funds to make the purchase. The service provider identifies this common problem as an opportunity to provide a mobile loan service tied to the provision of a product. Before targeting farmers for a new campaign, the service provider uses credit scoring analytics extracted from several sources to determine lending eligibility.

Firstly, the service provider looks at their own data for indicators of trustworthiness, starting with a subscriber's mobile money transactions and electronic recharge records as these may demonstrate behavioural similarities to a bank account. A responsible borrower may keep their phone topped up to a minimum threshold so they have credit in case of emergency. They may also search information previously provided to comply with customer due diligence. Know Your Customer (KYC) details a subscriber's age range, noteworthy as those between 30-50 years old are considered mature and healthy enough for responsible lending. When this information is not available, the service provider can obtain additional data from third parties such as financial institutions to complete a thorough assessment.

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Segmentation

Segmentation is the process of identifying groups of consumers likely to use a technology or service, to understand their requirements and to evaluate their awareness, understanding and usage of a service. It is only after segmenting the base of potential customers that service providers can select a target market.

Harness big data to drive faster adoption of revenue-generating services

Marketing & Promotions:
Targeting marketing & promotions efforts through customer segmentation using mobile data, leads to increased customisation of service provision.

Service Offer:
Using data analytics to increase service provider efficiencies.

Pricing:
Adapt pricing taking into account customer behaviour.

eServGlobal's Apeiron module allows service providers to manage, analyse and use rapidly growing volumes of data, by applying advanced data analytics and machine learning to drive customer engagement. This solution allows service providers to capitalise on the data to ensure rapid service adoption and increased transactional throughput. The Apeiron module applies data mining capabilities to existing data, which can be used to build customer segmentation lists to launch timely and compelling offers. The analytics provided by Apeiron allow service providers to evaluate service awareness, understanding and usage.

About eServGlobal

eServGlobal (LSE: ESG, ASX: ESV) offers mobile money solutions which put feature-rich services at the fingertips of users worldwide, covering the full spectrum of mobile financial services, mobile wallet, mobile commerce, recharge, promotions and agent management features. eServGlobal invests heavily in product development, using carrier-grade, next-generation technology and aligning with the requirements customers worldwide.

Together with MasterCard and BICS, eServGlobal is a joint venture partner of the HomeSend global payment hub, a market leading solution based on eServGlobal technology and enabling cross-border money transfer between mobile money accounts, payment cards, bank accounts or cash outlets from anywhere in the world regardless of the users location.

eServGlobal also builds on its extensive experience in the telco domain to offer a comprehensive suite of sophisticated, revenue generating Value-Added Services to engage subscribers in a dynamic manner. eServGlobal has been a source of innovative solutions for mobile and financial service providers for 30 years.

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