Homework 1: Fitch Case Study: Signifyd by Patty Yaghmaei

Overview and Origin

* Name of company: Signifyd

* When was the company incorporated? 2011

* Who are the founders of the company?
  Rajesh Ramanand, Co-Founder & CEO
  Michael Liberty, Co-Founder & Chief Product Officer

* How did the idea for the company (or project) come about?

  [From their site]: "Since their days at PayPal and FedEx more than a decade ago, Signifyd's
  founders knew something wasn't right about the way online retailers were on the hook for fraud.
  Fraud protection at the time was a world of cryptic scores that humans puzzled over before
  deciding whether an order should be shipped or cancelled as fraudulent. A wrong answer meant
  either losing out to fraudsters or withholding orders from legitimate customers.
  There had to be a better way — a way that relied on big data, machine learning and domain
  expertise to offer a yes-or-no decision on an order in milliseconds. And so, Signifyd was born."
  In short, they saw an opportunity to utilize technological advancement and data mining to
  transform fraud detection from manual to automated thus reducing fraud through real-time and
  faster decision making tools.

* How is the company funded? How much funding have they received?

  Venture backed. They are in their Series D and have raised over $100M so far.

Business Activities:

* What specific financial problem is the company or project trying to solve?

    The goal of the company is accurate identification, detection and ultimately prevention of
    fraudulent online payments for ecommerce merchants. Signifyd leverages big data, machine learning
    and expert manual review to provide a financial guarantee against fraud on approved orders.

* Who is the company's intended customer? Is there any information about the market size of this
set of customers?

    The company servers Business to Consumer (B2C) online businesses, specifically retail ecommerce
    merchants. According to research the global B2C e-commerce market size value in 2021 is USD 4.01
    trillion. The recent pandemic has accelerated the rate of going digital for eCommerce providers
    and significant increase in digital payments.

*   What solution does this company offer that their competitors do not or cannot offer? (What is
     theunfair advantage they utilize?)

    They offer 100% financial guarantee to their customers against fraud on approved orders!
    Automation is also a big advantage for them; Signifyd prides itself in cutting down frequency of
    manual reviews by 80%. One of their solutions is fully automated enabling easier management and
    lowering costs for the ecommerce business while still offering the 100% guarantee against fraud.

* Which technologies are they currently using, and how are they implementing them? (This may take
a little bit of sleuthing— you may want to search the company's engineering blog or use sites
like Stackshare to find this information.)

    Signifyd runs their environment on AWS cloud. Their technology stack includes: Linux, Kubernetes,
    Gradle, Docker, ElasticSearch, Cassandra as well as MySQL.
    The core of their product relies on machine learning and processing large amounts of data for
    detecting fraud. To achieve this, they use AWS redshift, S3 and EMR for data warehousing, storage
    and running their data frameworks. Their analytical code is mainly written in Python (h2o and
    Tensorflow)/Scala/Java, and use Apache Spark for their ETL pipeline.

    ## Landscape:

* What domain of the financial industry is the company in?

    Payments: Online Fraud detection specifically eCommerce and retail fraud detection (ERFM)

* What have been the major trends and innovations of this domain over the last 5-10 years?

    The evolution of eCommerce and ability to shop from various digital devices has introduced
    increased touch points allowing hijacking the identity of the users more easily and as result
    fraud. The potential risk of fraud is expected to grow in line with the availability of these
    digital customer relationships. Faster payments and the broader digital transformation in
    financial services is leading to the need for faster and more accurate fraud detection
    capabilities in a more automated, dynamic, real-time fashion than the current manual and rules
    based processes.

    The recent disruptions in AI and machine learning has enabled automated solutions for near real-
    time fraud detection that go beyond the traditional predictive models to a more dynamic approach.
    This coupled with rise of the clouds has allowed easy and more affordable access to technology to
    process large amount of data enabling various players to enter the market and develop their own
    criteria for what constitutes fraud, based on vast amount of historical data now available.

* What are the other major companies in this domain?

    Forter, Kount, Riskified and SiftScience are direct competitors but there are many in the field
    including: CyberSource/Visa, Experian, FIS (Worldpay), PerimeterX, Radial, SAS, Seon, ClearSale,
    Feedzai, Ravelin, Sift, Fraud.net, Nethone, Precognitive, SEON and FraudLabs Pro.

Results

* What has been the business impact of this company so far?

    Signifyd's large-scale automation and partnerships with payment processors and gateway providers

are creating significant growth opportunities for Signifyd in the ecommerce fraud prevention market. They have over 10,000 customers and serving over 100 countries.

* What are some of the core metrics that companies in this domain use to measure success? How is your company performing, based on these metrics?

   The metric include: Review Rate, approval rate, False positive rate, investigator load, Investigator decline rate, Attack rate (Attempted Fraud rate), Detection rate, Investigator false decision rate, Chargeback rate, Chargeback dispute rate, Won chargeback rate. Based on research and their placement in the market they are doing well across all metrics, however, their confidence and their 100% financial guarantee indicates they are doing best in the charge back categories.

* How is your company performing relative to competitors in the same domain?

   They are consistently mentioned as one of the top players in the market, mentioned by Gartner and Forrester. They were named market leader by Frost and Sullivan in 2020.

Recommendations

* If you were to advise the company, what products or services would you suggest they offer? (This could be something that a competitor offers, or use your imagination!)

   The company currently provides fraud detection decision-making based on information and data received from the merchants. This data allows them to make decisions on fraud detection pre and post transaction completion. They would benefit from expanding their data collection to include cardholder and transaction information from the credit card issuers to have visibility end to end for every single transaction. This would be accomplished through partnerships.

* Why do you think that offering this product or service would benefit the company?

   Having access to credit card issuer data will enable them to see the entire cycle of a single credit card transaction enabling them to make better decision making and added benefit of fraud detection at the actual transition time.

* What technologies would this additional product or service utilize?

   API, AI, RegTech, Edge computing and Quantum computing

* Why are these technologies appropriate for your solution?

   Access to the issuer data provided by partners can be achieved simply by using API's. The challenge will be in data normalizing and incorporating the new data into their machine learning models, which means further investments in their current technologies and new advancements in AI. They will be taking in a new set of (regulated) data and unparalleled visibility into a single transaction and with it comes great responsibility. They will have to expand on their data governance and look into regtech options that enhance their data modeling for various privacy regulations, regional governance/regulatory requirements, and future regulatory requirements. Another area will be to leverage Edge computing to provide information closer to source as their foot print expands and they are taking in both issuers and merchants information which will most likely be more local. Lastly, they would greatly benefit from quantum computing, given the data processing power needed as they expand both in partnerships and customers, and may want to invest in becoming early adaptors. Most importantly, no amount of cutting technology will replace the human instinct so they will need to continue to invest in hiring data scientist, perhaps ones who are have experience in the financial industry!

Sources:
   Company website: https://www.signifyd.com/
   Various market reports I have access through my work including Gartner and Forrester reports
   https://www.prnewswire.com/in/news-releases/signifyd-named-market-leader-by-frost-amp-sullivan-for-dominating-ecommerce-fraud-prevention-with-an-exceptional-consumer-experience-805345639.html
   https://www.grandviewresearch.com/industry-analysis/b2c-e-commerce-market