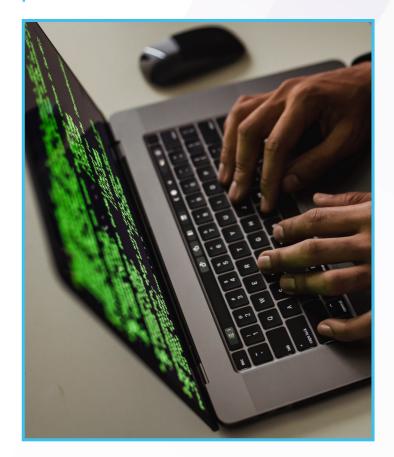# HPS /

Innovation Insights

Payment Data

Pathways to new banking paradigms

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In the modern banking environment, Data analytics has become an essential part of the commercial and competitive approach and as such, needs to be leveraged to tackle the great challenges posed by evolving consumers' expectations and the multiplication of competitors. Naturally, as a data driven company focused on helping our client's growth through value creation, HPS continuously investigates new thoughts areas when it comes to leveraging Payment data which, according to **PwC**, constitutes over 90% of all valuable and, most importantly, constructive banking data.

Research shows indeed that from a USD $3.88 billion market size in 2020, it is expected that AI generated revenues will reach $64.03 billion in 2030, according to **Allied Market Research predictions.**

Such a perspective does not leave banks insensitive, as 80% of banks are aware of the potential benefit of AI in banking.

The race is therefore on, not just qualitatively, but maybe most importantly, quantitively. Still according to **PwC**, the number of cashless transaction will more than double between 2020 and 2030, across all geographies, allowing for larger transaction information pools and more strategic insights to derive. For instance, Asia-Pacific alone will observe a 368% growth while Africa's cashless operations will rise by 292% in the same time frame.

As this data is mostly unstructured, extracting insights from it is a difficult task. The analysis of data can be done through several tools, such as Machine Learning, data fusion, signal processing, data integration, natural language processing, to then power its AI infrastructure. Banks can thus develop a few applications such as fraud detection, risk management, sentiment analysis, and enhanced customer experience.

Transaction and payment data can then lead to several use cases meeting these perspectives.

Personalized banking & marketing

According to a survey conducted by **Javelin Research and Strategy**, 72% of consumers cited "clear and understandable transaction information" as a trust factor towards their financial institution. To meet this expectation, offering clear transaction and payment information through data enrichment is becoming a must.

Banks and FSIs can develop detailed graphic information, helping their customers identify their consumption pattern, therefore creating a financial information enhanced service.

Such product development could allow for a strengthened customer interaction. Banks can now develop personalized and customized marketing. To present the most appropriate offers to a particular consumer, self-learning algorithms analyses the accumulated information.

The company, therefore, benefits from expanding its product and service offerings, and from increased sales, while the customer is, in return educated about his financial behaviour and can enter a partnership with the bank in which he is empowered with effective information.

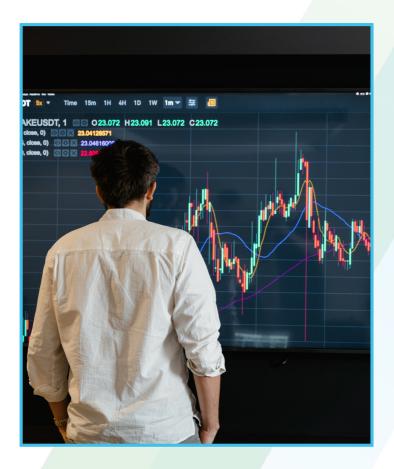# Transform customer service into customer excellence

As service-based business, banks rely heavily on the excellence of customer service to enhance client loyalty and reduce churn. However, need for personalized products and customer care are pushing financial institutions to develop new solutions.

Using Data and AI tools, and through customer data analysis, a better automation process can be achieved, as well as being more cost-effective in terms of employee time.

For instance, chatbots (or AI assistants) can now play the role of customer service agents, while having direct access to the customer data and historic patterns, therefore developing a customized approach and products catering to his or her needs.

A strong model of it is Bank of America's virtual robot assistant **Erica**. Erica can operate on voice and text commands, it can schedule the payments and helps in getting information regarding past transactions, allowing the consumer a fast-paced customer service interface, not contingent on other customers being served before put on hold while the agent looks for the answer.

Credit risk analysis

As most banks still rely on a simple model, based on historical transaction data and revenue pattern, they are facing two main challenges: Modeling credit offers tailored to their customers, and strengthening their risk analysis to ensure minimal liability.

Such product development involves new data patterns into the modeling such as spending habits, payment information categorization, inflation, social media status, etc.

Data science enables then an accurate assessment of borrower creditworthiness through predictive modeling and machine learning, leading to more informed lending decisions, as well as a product architecture that answers his specific needs. This empowers banks to optimize portfolios, minimize risk, and offer customized financial solutions.

An example of such an application is **Capital One**, who uses Machine Learning in its risk assessment process.

Fraud detection

Fraud detection lies at the forefront of banks' main challenges and will keep being so. A such, the financial sector spends billions of dollars worldwide every year on advanced analytics in banking and financial services to prevent fraudulent activities. By using a variety of data points, among which purchase amount, location, merchant, time, and others, thanks to historical transaction data, more accurate data models can point out an irregular activity and lead to a rapid swift reaction by the parties concerned.

Case in point, and although not a traditional bank, **Paypal**, a major player within the financial services landscape, invested in advanced Machine learning models to prevent fraudulent transactions and unauthorized activities via transaction data analysis. These models are powered by several tools and strategies analyzing the customer's behaviour to detect any unusual situation.

First, Paypal uses advanced analytical tools such as Biometric Authentification to confirm the user's identity. This process is strengthened by external data sources, such as public watchlist, and regulatory compliance standards, to meet a high standard of prevention and user protection.

Further down the transaction process, Paypal delves into additional preventive analysis, coupled with corrective and predictive strategies to run its inspections.
For instance, through behavioural analysis, using login patterns, transaction habits, and spending patterns, the company can identify any abnormal activity that would fall outside of the behaviour realm of the client and prevent any fraudulent transaction.

This would be completed by a corrective analysis tool such as Geolocation data analysis, thanks to which Paypal would identify if a transaction' request's location falls outside of the usual geographic area, therefore deeming it suspicious and pushing a stronger purchase authentication.

Another effective algorithm lies in monitoring customer service interactions. Natural Language Processing (NLP) is indeed leveraged to analyse voice and texts patterns and identify social engineering and phishing tactics. Paypal's strategy is thus completed by another predictive analysis, through which Machine Learning models predict potential fraud attempts thanks to evolving trends.

Having said all of that,

one of the most important aspects to bear in mind is that turning these use cases into a reality and, most importantly, a productive business vehicle, requires certain conditions:
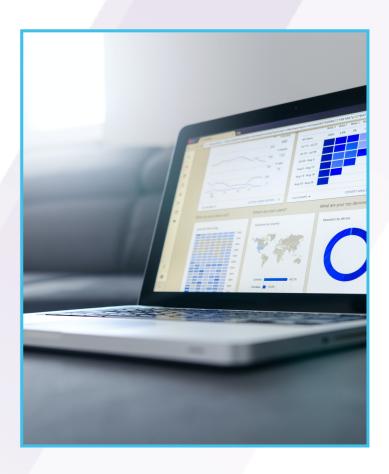
➤ Rich and granular data

Quality and quantity go hand in hand when it comes to turning data points into valuable insights. Data models and Artificial Intelligence generated scenarios and analysis require information that encompasses the entire chain of the processes or products they are mapping. Being then able to populate each step with its data-enriched model is therefore a must.

➤ A mature data generating infrastructure

From a payment standpoint, and to develop actionable information, it is necessary to have a strong and mature payment solution, that encompasses as much of the said payment process. From issuing to acquiring, through ATM and POS management, being able to count on a solid, and preferably unique, structure, has several advantages.

First, it provides one and only source of information, which can in return provide reconciled data points from the cardholder to the merchant and can therefore create accurate and realistic data models, as well as boost time efficiency and faster go-to-market

strategies. The said accuracy will then help drive efficient business decisions, diminishing the risk level and the uncertainty that comes with certain use cases such as Fraud Prevention and Credit Risk assessment.

Data science in banking is pivotal for the modern banking sector.

It should be at the forefront of banks' decision-making processes, enabling them to derive actionable insights from their client's data.
This integration of data science in banking offers a distinctive competitive advantage as banks would have a better understanding of their customers, leading to tailored offers and operational excellence.

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