



SMART BANKING

Approach fundamentals

Data





Summary

Smart Banking is a smart approach to the development of relevant relationships between Financial Institutions and their customers. It is based on the conceptual framework expressed in the White Paper called "Life Banking" (2015). It defines how value propositions should be in the context of the "new banking".

The Smart Banking approach comes to life in a six-step framework, which allows obtaining data related to customers and the use of the banking platform, analyzing the results, having a better understanding of the business and having decision-making models that are useful for Financial Institutions in the current business context.

Framework

Every customer-centric Financial Institution requires a customer-centric banking platform. Therefore, among other things, it contributes to the Institution's ability to know its customers and satisfy their wants, needs, and expectations in a profitable manner. This is where the platform's analytics and data science capabilities become particularly relevant (see: "A Customer-Centric Banking Platform", 2020).

In 2015 we published a White Paper called "Life Banking". There, we indicated that the essence of the banking transformation was related to a change in the way Financial Institutions relate to their customers. And that this new relationship implied that the Institution's propositions must have the following attributes or qualities: Proximity, Convenience, and Efficiency.



Image 1: It shows the three attributes that value propositions should have in today's banking context (adapted from Life Banking, 2015).

We will now give three examples to illustrate the following three intersections represented in the image above, as well as highlight the importance of developing solutions with these three attributes in mind.

A. *Bad experience:* The bank offers a product that meets the customer's needs and is developed with an efficient use of resources, but in order to hire such a product, for example, it requires going to the bank and filling many forms, which is not very convenient.

B. *Good for someone else:* The bank offers the customer an efficient and convenient solution, but aims to satisfy a need that the customer does not have, so it is not close.

C. *Expensive:* The bank offers a solution that meets one of the customer's specific needs, in a near and convenient way. However, its process is inefficient, generating excessive costs and, therefore, making it an inefficient solution.

"Proximity" and "Convenience" are related to the degree to which the solution meets the customer's needs and expectations and the level of physical and mental effort faced by the customer when acquiring and using the solution, respectively. On the other hand, efficiency mainly refers to how the banking platform works. In order for the Financial Institution to offer efficient solutions, it must have an efficient banking platform, which ensures the efficiency of business processes, reducing service times, allowing scalability, and automating everything that can be automated.

Close, convenient, and efficient propositions tend to generate relationships with three key features for any business: Permanence, Volume, Variety. Permanence implies the amount of time that the person stays as a customer of the Financial Institution. Volume refers to the consumption the products and variety refers to the different products and services consumed.

By knowing the customer, it is possible to offer propositions that are near, convenient and efficient, resulting in greater loyalty, increased permanence, higher consumption, and a greater variety of products consumed.

Naturally, these three variables generate increases in the lifetime value of each customer, the organization's revenue, and profitability.

Smart Banking

Smart Banking is a smart approach to the development of relevant relationships between Financial Institutions and their customers. This comes to life in six steps that involve the use of a set of processes and Tools and Techniques (T&T) taken from analytics and data science, which generate business information and knowledge used to make smart decisions. Each one of the steps leads to a specific product.

The six steps of the Smart Banking framework

1. Observation

Actions and facts related to the Financial Institution's customers and their behavior are identified through observation. The output of observation is Data, such as: customer's operation times and channels, the amounts they transact, and how often they do so.

2. Solution Design

Based on the data gathered, the Financial Institution is able to design and develop near, convenient, and efficient propositions. The output

of Solution Design is the specific Proposition that the Financial Institution will

promote. These may involve new products and services or modifications to propositions, such as simplifying a digital onboarding process or introducing changes that impact customer experience when using a mobile application to transfer to third parties outside the bank or between their own accounts. In other words, and just to clarify the idea, if the Observation phase identifies that many bank transfers are made on the same dates, for the same amount, and to the same account, the Financial Institution could incorporate the functionality of scheduling payments or suggesting account numbers and amounts. This would be a very simple case of designing a near, convenient and efficient solution through Observation.

3. Measuring

Once the value exchange between the Financial Institution and its customers is done, the next step is measuring results based on defined Key Performance Indicators (KPIs). Although there may be multiple KPIs, it is important that they contemplate the three key features mentioned above: Permanence, Volume, and Variety.



Image 2: The six steps of the Smart Banking framework

The output of Measuring is the set of KPIs, from which we highlight: number of products hired, volume of transactions, retention rate by customer segment, customer lifetime value, gross profit by product and customer segment, etc.

4. Interpretation

When the Financial Institution has performance indicators of the propositions made, it is able to make hypotheses and understand reality, achieving a business understanding that enables modeling information. The product of Interpretation is Modeled Information. Some examples of modeled information are the correlation between different variables, the identification of distributions, variations, etc. Here we get the inputs needed to build predictive models.

5. Conclusion

In this process, data is used with analytical, statistical, data mining, and machine learning techniques in order to create a model that allows the prediction of future events. For example, these models could help predict demand across different channels, predict new customer acquisition, or anticipate customer churn in certain segments.

6. Prescription

Once we have models, it is possible to get recommendations for operational optimization and proposition design, in order to increase loyalty, business volume, and the variety of products and services acquired by the Financial Institution's customers, as well as to increase the number of new customers.

Smart Banking framework dynamics

The framework's dynamic is both iterative and incremental. Once the prescriptions have been made and the Financial Institution has implemented the changes in the solutions offered to its customers, new facts and actions will be generated, which will then be observed again and generate feedback to optimize the models. This iteration also occurs at the level of the framework's first steps, where data analytics T&T are used to design solutions that will generate relevant customer relationships.



Esquema 3: Los 4 cuadrantes de BData

The following are examples with information on some of the solutions and T&T used in the Smart Banking framework. There are two major solutions and T&T groups: those used in the first three steps of the framework, which are focused on data analysis, and those used in the last three steps, which are related to data science. Additionally, it is possible to classify solutions into those that are process optimization oriented, ensuring an efficient business operation, and those that seek insights and enable innovation in order to grow the business, increasing customer loyalty, consumption volume, and the variety of products acquired (see "Image 3").

BData Analytic

This model's first steps are framed in what we call: BData Analytics. It is a set of solutions that aim to provide the Financial Institution with customer behavior and banking platform performance visibility. These use extraction and processing tools to prepare data for further analysis and visualization. The following are some examples.

BData Analytics – Closing process

It provides organized information regarding the execution of the closing process, which allows the visualization of relative times and deviations, as well as historical queries regarding executions.



Figure 1: Illustrative example of the closing processes obtained through BData Analytics -Closing Processes

BData Analytics – Services

It provides real-time visibility of Bantotal's service layer (API), making it possible to identify errors and delays in the execution of services and to obtain a full operation dashboard for monitoring and control based on the ELK stack.

BData Analytics – Customers

It provides data regarding customers and their behavior, allowing segmentation by demographic and behavioral variables, such as age, gender, products hired, transaction times, business volume, etc.



Figure 3: Illustrative example of data regarding customers and their behavior, obtained through BData Analytics - Customers

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Figure 2: Illustrative example of data related to the execution of services, obtained through BData Analytics - Services

Data Science

The framework's last steps are nourished by the inputs obtained in the first steps, as well as procedures and techniques typical of data science, such as the ones that can be grouped under the concept of artificial intelligence.

Here the focus is on gaining business insight, from data and cause-and-effect relationships, in order to predict and prescribe actions. In these stages, we not only answer specific questions that we have already identified, but we also discover new questions and seek to answer them based on predictive models. For example, it is possible to predict customer churn, profitability levels, new product acquisition, strengthening customer relationships, improving decision making, optimizing the use of resources, and minimizing risks. Additionally, it is possible to apply this type of procedures and T&T to facilitate decision-making in process optimization.

The last three steps (Interpretation, Conclusion, and Simulation) require tailored work to model information, build the models, and adjust them, in order to run model simulations and generate recommendations that allow the development of near, convenient, and efficient propositions, which are prone to increase the amount of time a customer stays in the Institution, the number of products and services consumed, and the volume of business in each of them.

Data Science – Segmentation

Creation of clusters (segments) using the K-Means algorithm, which allows finding groups or segments that are different from the others, but with members that are similar to each other.

Among the expected results, we highlight:

• Product recommendation by profile assimilation. For example, if many customers in a certain segment are buying a certain product, we could offer it to the other customers in that segment and probably have a greater acceptance.

• Observation of segment evolution to anticipate trends in order to better plan resources.

• Deeper understanding of customer behavior, allowing to increase customer loyalty.



Figure 4: Illustrative example of data regarding customer segmentation, obtained through Data Science - Customer segmentation

Data Science - New product acquisition

Through a decision tree with pipelines, it is possible to predict which products a customer might buy. Allowing decision-making regarding product offerings, the target audience for campaigns, and similarities between different customers, among others. These are some examples of the solutions and T&T used in the Smart Banking framework. However, this framework is not prescriptive, and it allows the use of multiple techniques and the development of different solutions, depending on the needs of the organization.



Figure 5: Illustrative example of data related to product acquisition, obtained through Data Science - New Product Acquisition



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