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Net Promoter Score (NPS) optimization with expansion factors; A reputational risk measure of customer experience

Optimización del Net Promoter Score (NPS) con factores de expansión; una medición de experiencia de clientes en riesgo reputacional

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Abstract

Customer experience is currently analyzed through satisfaction surveys, which play a key role in creating and/or maintaining the economic value of an organization, as well as in measuring reputational risk. As a result, there is a growing interest in measuring the degree of satisfaction and loyalty. In this way, the objective of this research is to propose an optimum alternative to measure the organization's client-user satisfaction. This paper introduces an innovative approach by integrating a monthly expansion factor into the NPS conventional calculation, which assigns levels of importance for each service channel used; this factor considers the number of visitors and the surveys applied by channel. The results demonstrate, a significant underestimation of the conventional calculation of approximately 38% compared to the proposed method. Organizations should consider additional factors beyond the simple proportion of promoters and detractors, such as the relative importance of each service channel available to customers.

JEL Code: G2, G20, G21
Keywords: customer satisfaction; Net Promoter Score; service channels; reputational risk

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Resumen

Actualmente, la experiencia de consumo del cliente-usuario es analizada mediante encuestas de satisfacción, jugando un papel importante en la creación y/o mantenimiento del valor económico de una organización, así como medida del riesgo reputacional. Derivado de ello, surge el interés creciente por la medición del grado de satisfacción y lealtad. De esta manera, el objetivo de la presente investigación es proponer una alternativa y optimización para medir la satisfacción del cliente-usuario de una organización. El presente trabajo innova con proponer la integración de un factor de expansión mensual al cálculo ortodoxo del NPS, mismo que determina niveles de importancia para cada canal de atención; dicho factor considera el número de afluencia y las encuestas realizadas por canal. Así, los resultados arrojan una importante sobreestimación del cálculo convencional de aproximadamente 38% en comparación con el método propuesto, por lo que las organizaciones deben considerar elementos complementarios a la proporción de los promotores y detractores, tal es el caso de la relativa importancia de cada canal de atención ofrecida a los clientes.

Código JEL: G2, G20, G21
Palabras clave: satisfacción del cliente; Net Promoter Score; canales de atención; riesgo reputacional

Introduction

The reputational deterioration of an organization, whether public or private, can generate significant economic impacts, such as monetary losses. As with other risks, it is critical to continuously monitor this type of reputational risk by assessing and measuring it to limit and control such losses.

Constant economic, social, and technological transformations bring significant changes in the demands of customers-users of products and services. Thus, learning and knowledge of these new demands urge organizations to maintain a two-fold balance: on the one hand, the capacity of institutions to create or maintain their added value, and on the other, their permanence in the market.

For the above reasons, organizations face the challenge of maintaining a beneficial relationship with their customer-users through the ability to offer experiences that impact them positively when consuming the product or providing the service. Therefore, creating value for organizations is achieved through positive experiences that generate customer-user satisfaction.

Rechhield (2012) stated that the real growth of an organization is achieved when it can keep its customers satisfied in such a way that they promote the product or service to their family and friends through recommendations. Consequently, the author proposed the Net Promoter Score (NPS), an indicator for measuring customer-user satisfaction that helps identify the customer's consumption experience. It is through the customer service channels that this experience arises. As a point of contact, service channels play an important role in communication and, above all, in establishing a relationship with customer-users.

From this perspective, any organization—public or private—concerned about the perception of its customers, clients, representatives, businesspeople, or other stakeholders with whom it interacts can monitor the NPS indicator, reflecting the level of user satisfaction and, in turn, the possibility of considering the different service channels available to the organizations. Nevertheless, derived from empirical experience, the conventional calculation usually yields mostly positive results, leaving a gap in its actual calculation and the results obtained from surveys in different service channels.

The customer service channels will be relevant to the results of this work since, given the specific conditions in which they are presented, both the flow of customers-users and the application of surveys will have a different degree of importance for calculating the NPS of any organization.

This paper proposes an alternative and optimized way to measure customer-user satisfaction in any given organization. The hypothesis will be that taking the influx of the service channels to measure it and considering the number of surveys applied in each channel will not bias the results as in the orthodox calculation of the NPS.

This paper provides a theoretical review of the different conceptions of customer satisfaction and its importance—in which the NPS is mentioned as a metric for satisfaction—as well as some techniques derived from it. It also explains the conventional calculation of the NPS and the proposed monthly expansion factor. The results section presents the analysis performed emphasizing the underlying findings of this research. Finally, the conclusions with some possible recommendations derived from the optimization results of the new calculation are presented.

Review of the literature

Given the constant dynamism of the environment, mainly economic, social, and technological, companies and institutions providing goods and services continuously need to implement strategies to meet the new demands of customers or users. They do this to protect their reputation with customers and ensure their permanence in the market while guaranteeing the organization's sustained growth. The interest in this growth—especially in the medium and long term—and in controlling reputational risk has motivated the search for indicators to measure the degree of satisfaction and loyalty and the experience in the service provided by public and private entities and institutions in society.

In recent years, the challenge for organizations has been the generation of measurement indicators for understanding the user-customer, which has become an essential pillar for the company's growth (Reichheld & Markey, 2012). Similarly, evaluating satisfaction is crucial for defining quality management processes (Medina et al., 2014). Thus, organizations concerned with the creation and

delivery of added value to the customer benefit in the long run (Kotler & Armstrong, 2013), whether in the form of revenue, profits, market value (Pérez, Martínez, & Lagunares, 2014), or others.

Satisfaction, loyalty, and a better experience are promoted through the creation and delivery of value. Therefore, organizations or companies seek fruitful relationships with customers or users to increase satisfaction and loyalty (Guadarrama & Rosales, 2015) through service quality. Consequently, this relationship implies, on the one hand, satisfaction, and on the other hand, reciprocity, called loyalty (Kotler & Armstrong, 2013).

Considering that satisfaction is the fulfillment of the needs and desires of the customer-user (Oliver, 1999), satisfied customers or users repeat their purchase or consumption and attract more and new users (Guadarrama & Rosales, 2015). Nevertheless, the main component of increasing customer satisfaction is the experience, achieving circumstances that originate knowledge in the consumer; these can be positive or negative (Torres & Mora, 2016).

Usually, the experience is not arrived at through customer-user satisfaction without considering quality. This is why the SERVQUAL[1] model was proposed, which measures service quality through consumer feedback (Cruz, Orduña, & Álvarez, 2018), considering perception, expectations, and experience, all within a scale. The integrated dimensions in this model are: i) reliability, the organization performs the promised service reliably, ii) responsiveness, offering fast and adequate service, iii) security, employees generate credibility and trust, iv) empathy, personalized service tailored to the consumer, and v) tangible elements, physical appearance[2] (Matsumoto, 2014). The method of information collection of this model is through a questionnaire in which the first section captures the expectations about the service, the second, the perception of the company, and the third, the rating of the service considering the five dimensions mentioned (Cruz, Orduña, & Álvarez, 2018). Subsequently, modifications to this same model arise[3].

The Multidimensional Hierarchical Model, proposed by Brady and Cronin in 2001, was also included in this study. The model consists of determining perceptions of service quality using a multilevel evaluation to obtain a global perception, thus making perceived quality a multidimensional variable (Colmenares & Saavedra, 2007). The methodological proposal is based on applying a questionnaire that determines quality factors used for a subsequent factor analysis. Nonetheless, the global perception is the most important, and is considered a general evaluation of the organization's performance.

Up to this point in the time frame, these models were only considered proposals for measuring service quality evaluation; although some research had already made contributions, they were proposals

[1]Proposed between 1985 and 1988 by Parasuraman, Zeithaml, and Berry
[2]For example: facilities, infrastructure, equipment, and materials
[3]Deficiency Models in 1985, and the SERVPERF Model in 1992 (Cruz, Orduña, & Álvarez, 2018)

at a conceptual level on service satisfaction and quality. It should be noted that these measurement models consider the user experience, either directly or implicitly.

The NPS was introduced in 2003. It is a metric based on a question that allows organizations to know customers' feelings and attitudes, thus reflecting an organization's performance.

This indicator was proposed by Rechhield (2012), considering that the real growth of an organization is achieved when customers are satisfied to the point of recommending it to their acquaintances and colleagues. For that reason, a relationship must be established with customers by listening to them, knowing what they dislike about the service, and creating experiences that satisfy them. This relationship is established by analyzing satisfaction factors that have to do with the consumer experience, such as attention to requests, complaints, claims or requests, personalized attention, trust generated by the Institution, ease of procedures, digital services, loyalty program, brand advertising, waiting times at customer service locations, and added values (Deloitte, 2018). All these factors are identified through the service channels available to users and customers of goods and services.

The NPS indicator has become the favorite for most organizations due to its practicality in calculation and easy interpretation. As mentioned, additional models have emerged that take the customer experience as a reference without considering the weight or importance of the service channels made available by the producers of goods and services.

In the follow-up, the conventional NPS (Rechhield, 2012) was used as a customer experience management model with two phases. In the first approach of this calculation, called top-down, the survey is applied at different points of contact to obtain the categories, thus obtaining the critical points of contact that generate promoters (customers with a positive opinion of the good or service) and detractors (customers with a negative opinion of the good or service). The second approach, named bottom-up, allows the identification of root causes, specifically detractors (Brian & Company Inc., 2012). Also, with this knowledge of the cause of the choice of detractors, the same roots can be weighted.

Likewise, it has been proven that there is a reasonable relation between satisfaction factors: response, delivery times, delivery reliability, quality and price competitiveness, customer loyalty, and NPS. The latter was measured in a single recommendation question (Gonzáles & Baldemar, 2014).

The EMO Index was also proposed, which summarizes a customer's emotional state or that of a group of customers (EMO Cluster) according to their experience with the company and finds an underestimation of detractors with the NPS. Finally, it is concluded that this index is a better predictor of actual customer leakage or retention behavior (EMO Insights, 2022).

In Mexico, in search of competitiveness and profitability, the main strategy of organizations is customer satisfaction, which is sought through increasingly closer, personalized, and differentiated relationships. The best practices and trends in terms of experience in the industries arise from this (KPMG,

2019). According to the Customer Experience Center of Excellence, the industries with the best quality experience evaluation are hospitality and transportation, entertainment, self-service, specialized stores, and restaurants and fast food.

It should be noted that this research aims to provide a contribution and innovation to improve the conventional NPS methodology, considering an expansion factor with influx levels by channel, in addition to considering conventional experience surveys. Therefore, the central consideration of this work focuses on experience and loyalty, but mainly to take it to an economic-social impact measurement.

Methodology and data used

For the purposes of the proposed methodology, the starting point is the orthodox or conventional calculation of NPS. As mentioned, this indicator considers one question: "Would you recommend us (or this product/service/brand) to your friends or colleagues?" This question has a scale of 0 to 10 points, allowing the customer-user to choose the score according to their perception of the service received. Accordingly, customers are classified into three categories (Reichheld & Markey, 2012):

- Promoters: those who rate the company at nine or ten and indicate that their relationship with the company has positively affected their lives, and talk about the company with their family and friends.
- Neutral: they rate the company with a seven or eight; they are satisfied customers but neutral; they are not loyal customers, and their behaviors and attitudes differ. They make few recommendations; if they do, they are lukewarm and conditional.
- Detractors: they rate the company at six or below. This score indicates a degree of dissatisfaction; they are discouraged and even annoyed by the service.

The next step after classification is to determine the percentages of the categories for the total number of surveys. Specifically, it is necessary to know the percentage of promoters and detractors to determine the difference between the participation of Promoters and Detractors versus the total number of surveys. In this way, the NPS calculation with a monthly cut-off can be represented with the following formula:

$$NPS_j = \left(\frac{Promoters_j}{TE_j}\right) - \left(\frac{Detractors_j}{TE_j}\right) \quad (1)$$

where:

TE refers to the total number of surveys conducted,

Promoters is the share of promoters or satisfied users out of the total number of surveys, and

Detractors is the share of detractors or dissatisfied users out of the total number of surveys,

when j is the observed month.

The importance of customer service channels for communication and customer-user relationships has already been discussed. Therefore, integrating an expansion factor (as a weighting measure) into the NPS calculation is proposed.

The purpose of this weighting is to correct the imbalance that may arise in the elements of a sample using a factor that increases or decreases the importance of each element. In this case, the service channels are referred to as elements with different characteristics regarding influx and number of surveys applied.

The technique behind this proposal is found in the expansion factor technique used by the National Institute of Statistics and Geography (INEGI; Spanish: Instituto Nacional de Estadística y Geografía) for population estimation through the inverse of the probability of selection of each of the dwellings in the i-th Primary Sampling Unit (PSU) of the h-th stratum, of the e-th entity (INEGI, 2020).

Considering INEGI's (2020) expansion factor technique mentioned above, it is proposed to emphasize the influx of users in each channel available to the company or organization and, therefore, the monthly probability of flow for each channel (PA_{ij}) is calculated with respect to the total number of channels available in monthly observation periods. That is:

$$PA_{ij} = \frac{A_{ij}}{TA_j} \tag{2}$$

where:

A_{ij} refers to the monthly influx of the study channel, and

TA_j is the total influx of all channels in the study month.

when:

j is the observed month

i is the observed channel

In other words, it represents the monthly proportion of the influx of the study channel (Equation 2). Similarly, the monthly proportion of surveys per channel (PE_{ij}) is calculated.

$$PE_{ij} = \frac{E_{ij}}{TE_j} \tag{3}$$

where:

E_{ij} is the monthly number of surveys conducted for the study channel, and

TE_j is the total number of surveys conducted in all channels in the study month,

when:

j is the observed month

i is the observed channel

Then, the probability (P_{ij}) of choosing a survey of the study channel and with a certain amount of influx is:

$$P_{ij} = \frac{PE_{ij}}{PA_{ij}} \tag{4}$$

The probability presented would highlight those channels that apply a greater number of surveys.

Assuming a channel type with a respondent ratio of 50% and an influx ratio of 25%, the ratio according to Equation 4 would be 200%. This is interpreted as more weight to this channel because more surveys are applied. A second assumption is that the influx in this channel has a lower percentage (25%) due to a lower number of influxes than other channels. Considering that there is not only one customer service channel but other channels as a point of contact with the customer-user, the proportion is not significant enough to give greater weight to this channel because it implies that the other channels account for 75% of the influx. This situation clearly leaves the channels that provide greater attention to the user-customer with less weight.

Based on the above assumptions and to avoid not considering the participation of all the service channels available to users or customers, it is proposed to calculate an expansion factor considered as the inverse of the probability of choosing a survey conducted in a channel with a certain number of influxes considering Equations 2 and 3.

$$F_{ij} = \frac{PA_{ij}}{PE_{ij}} \tag{5}$$

Where, F_{ij} is the monthly expansion factor of the study channel.

Recalling the established assumption and applying Equation 5, a factor of 0.50 was established, indicating a ratio of proportions of less than one, giving a lower weight to the channel under consideration. Therefore, this factor penalizes the channel for the low number of influxes in relation to the other channels.

As a result of the incorporation of the proposed expansion factor (Equation 5) in the monthly NPS (Equation 1) per channel (i), the following results are obtained:

$$NPS_{ij} = \left(\frac{Promoters * F_{ij}}{TE_{ij}}\right) - \left(\frac{Detractors * F_{ij}}{TE_{ij}}\right) \tag{6}$$

In the case of the Institution's Overall NPS, the equation would be:

$$NPS_{j} = \left(\frac{\sum_{i}^{n} Promoters * F_{ij}}{TE_{j}}\right) - \left(\frac{\sum_{i}^{n} Detractors * F_{ij}}{TE_{j}}\right) \tag{7}$$

Thus, the proposed expansion factor will increase or decrease the value of categories of promoters or detractors, depending on the influx per service channel and the number of surveys conducted. It should be noted that this factor will absorb the changes that may occur due to the influx levels and the number of surveys observed per month.

Representative data from a sample of care and service were used to verify the above, as well as service experience surveys belonging to an organization that, for reasons of confidentiality, reserves the right to disclose its name. For this work, it will simply be called 'the Institution.'

The Institution has four types of customer service channels where customer service is provided as a point of contact:

- Channel 1, which represents the branches where customer-users go for any procedure;
- Channel 2, where the Institution informs users about the services it provides through a web page;
- Channel 3 is a personalized mobile application in which the customer-user can consult information and movements; and
- Channel 4[4], which provides telephone assistance.

The monthly influx of users available from July to December 2021 for each channel is shown in Figure 1:

[4]This channel records the influx by number of calls.

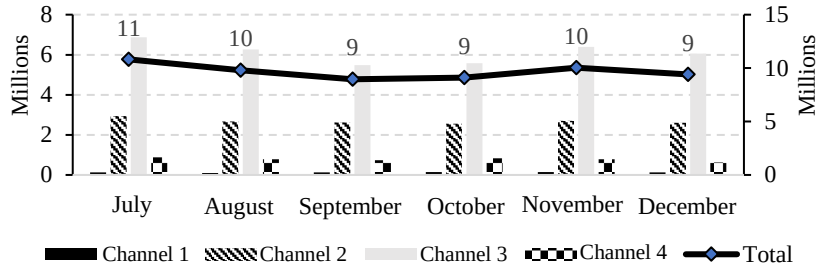
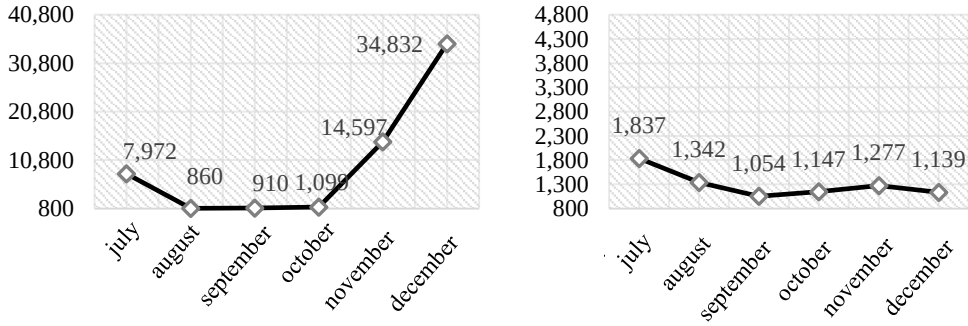


Figure 1. Influx by channel, July-December 2021
Source: created by the authors with data provided by the Institution.

As can be seen, Channel 3 leads in the number of influxes for every month. The evolution of technology has evidently set the trend to consider new tools to provide service and efficiently establish contact with the customer (KPMG, 2019). Therefore, it is not surprising that a personalized application for the client is the channel with the highest influx, although there is an important variation as the months go by.

The temporary context of the repercussions of the COVID-19 health emergency restricted Channel 1 during 2021, as it provides personalized and face-to-face attention. For this reason, it presented little influx in the months coinciding with the epidemiological red light, although when it returned to green in several states at the end of the year, the figures were re-established. In general, in the face of this emergency, the influx of all channels decreased.

On the other hand, considering the number of surveys applied by the Institution, the data for Channel 4 are omitted due to lack of information. In general, the number of surveys in each channel and in total were not representative in relation to the influx (Figure 2).



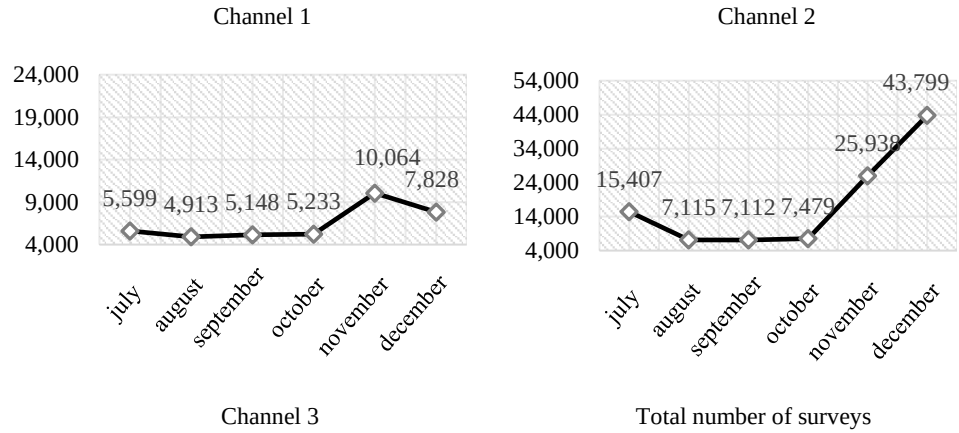


Figure 2. Number of surveys conducted by channel from July to December 2021
Source: created by the authors with data provided by the Institution.

Figure 2 shows that Channel 1 had a significant decrease in August and September 2021 due to the effect of the COVID alert, which limited both the availability of face-to-face service in branches and, thus, the number of surveys applied. Subsequently, Channel 1 significantly increased in November and December of the same year, so 4 times more surveys were applied in the latter month than in July. Therefore, it was the channel with the highest number of surveys in December.

Channel 2 had moderate behavior in the months under study, with its most notable drop from July to August 2021, with 495 fewer polls from one month to the next. Subsequently, the surveys had no major changes other than a decrease from November to December of 138 surveys.

Channel 3, corresponding to the information web portal, doubled the number of surveys applied from October to November, which contrasts with the decrease in the following month (December) of 2 236 fewer surveys. Relatively, it is possible to establish a relation between the decrease in the last months of Channels 2 and 3 with the opening of branches and, therefore, the significant increase of Channel 1 in the respective months. It should be noted that this channel applied the highest number of surveys from August to October 2021.

The total number of surveys applied was based on the behavior of Channel 1 due to the modest behavior of the other channels. Nevertheless, it should be noted that these surveys represented only 0.28% of the total influx of the channels for November.

These data show the importance of considering the behavior observed in both the influx by service channel and the number of surveys applied since they are not the same proportionally across the channels, in addition to having a certain variability throughout the months of the study.

The results of this research are presented below, starting from the consideration of the available data analyzed, as well as the conditions of the proposed model to objectively measure the levels of experience at the level of the group of channels made available by the Institution for customer-users.

Results

As mentioned above, this paper aims to present a monthly expansion factor by channel. Therefore, Equations 2 and 3 are used to obtain the monthly influx ratios (Table 1) and monthly survey ratios by channel (Table 2).

Table 1
Monthly influx ratios by channel, 2021

Channel	July	August	September	October	November	December
Channel 1	1.16%	1.00%	1.33%	1.58%	1.50%	1.34%
Channel 2	27.22%	27.22%	29.21%	28.04%	26.98%	27.67%
Channel 3	63.47%	63.87%	61.27%	61.24%	63.71%	64.44%
Channel 4	8.15%	7.91%	8.18%	9.14%	7.82%	6.54%
Total	100%	100%	100%	100%	100%	100%

Source: created by the authors with data provided by the Institution.

Table 1 reports what was seen in Figure 1: Channel 1 has a lower influx of attention, and Channel 3 has a higher influx.

Table 2
Monthly survey ratios by channel, 2021

Channel	July	August	September	October	November	December
Channel 1	51.74%	12.09%	12.80%	14.69%	56.28%	79.53%
Channel 2	11.92%	18.86%	14.82%	15.34%	4.92%	2.60%
Channel 3	36.34%	69.05%	72.38%	69.97%	38.80%	17.87%
Total	100%	100%	100%	100%	100%	100%

Source: created by the authors with data provided by the Institution.

Table 2 is consistent with Figure 2, which mainly reflects a spike in the number of surveys in Channel 1 in the last two months of 2021 due to the return of the COVID-19 alert to green.

The above data show the monthly expansion factor per channel, which complies with Equation 5 in Table 3.

Table 3
Monthly expansion factor by channel, 2021

Channel	July	August	September	October	November	December
Channel 1	0.02	0.08	0.10	0.11	0.03	0.02
Channel 2	2.28	1.44	1.97	1.83	5.22	10.64
Channel 3	1.75	0.92	0.85	0.88	1.56	3.61

Source: created by the authors with data provided by the Institution.

The greater weight given to Channel 2 in most months derived from the influx-number of surveys ratio is noteworthy.

Now, remember that in the conventional NPS calculation, the number of promoters, detractors, and neutrals is obtained through the survey conducted (Table 4). In this case, the Institution obtained the following number per category and per channel.

Table 4
Number of promoters, neutrals, and detractors per channel, 2021

Month	Channel 1			Channel 2			Channel 3		
	Detractors	Neutrals	Promoters	Detractors	Neutrals	Promoters	Detractors	Neutrals	Promoters
July	245	403	7 324	773	322	741	3 727	786	1 086
August	41	62	757	522	234	586	3 219	704	990
September	31	69	810	297	216	541	3 338	510	1 300
October	42	75	982	305	244	598	3 482	500	1 251
November	349	587	12 427	424	216	636	6 452	991	2 621
December	838	1 518	32 478	422	174	545	5 624	705	1 499

Source: created by the authors with data available from the Institution.

Table 4 shows that customer-users who are promoters come particularly from Channel 1 and Channel 3 in all months. Channel 3, the personalized application, has the highest number of promoters in August, September, and October 2021. Meanwhile, Channel 1, the branch office, has more promoters in July, November, and December—the latter two months with a very high level of promoters. The highest number of customer-users who are neutral are in Channel 3 from July to November. Channel 1 has the highest number in this category in December. The most detractors are concentrated in Channel 3 in all months (see Figure 3).

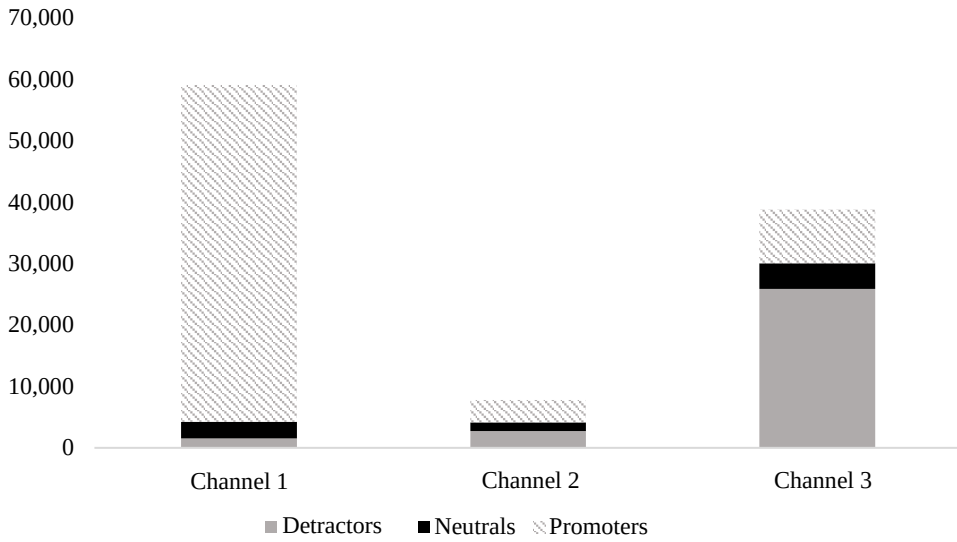


Figure 3. Total number of detractors, neutrals, and promoters by channel, 2021
Source: created by the authors with data available from the Institution.

The channel where promoters are most concentrated is Channel 1, while detractors are in Channel 3. Channel 2 has a lower number considering all categories. The monthly ratios by channel would result as shown in Table 5:

Table 5
Monthly ratios of promoters, neutrals, and detractors by channel, 2021

Month	Channel 1			Channel 2			Channel 3		
	Detractors	Neutrals	Promoters	Detractors	Neutrals	Promoters	Detractors	Neutrals	Promoters
July	3.07%	5.06%	91.87%	42.10%	17.54%	40.36%	66.57%	14.04%	19.40%
August	4.77%	7.21%	88.02%	38.90%	17.44%	43.67%	65.52%	14.33%	20.15%
September	3.41%	7.58%	89.01%	28.18%	20.49%	51.33%	64.84%	9.91%	25.25%
October	3.82%	6.82%	89.35%	26.59%	21.27%	52.14%	66.54%	9.55%	23.91%
November	2.61%	4.39%	93.00%	33.23%	16.93%	49.84%	64.11%	9.85%	26.04%
December	2.41%	4.36%	93.24%	36.99%	15.25%	47.77%	71.84%	9.01%	19.15%

Source: created by the authors with data provided by the Institution.

In Channel 1, most respondents were promoters in all months; Channel 2 has a more or less equal distribution between promoters and detractors; and in Channel 3, the majority were detractors.

Following the idea put forward in the proposal with Equation 6, which is to multiply the absolute value of the categories per survey by the respective expansion factor obtained in Table 3, Table 6 is obtained:

Table 6
Promoters, neutrals, and detractors with monthly expansion factor by channel, 2021

Month	Channel 1			Channel 2			Channel 3		
	Detractors	Neutrals	Promoters	Detractors	Neutrals	Promoters	Detractors	Neutrals	Promoters
July	6	9	165	1 765	735	1 692	6 510	1 373	1 897
August	3	5	63	753	338	846	2 977	651	916
September	3	7	84	585	426	1 066	2 826	432	1 101
October	5	8	105	557	446	1 093	3 048	438	1 095
November	9	15	315	2 212	1 127	3 318	10 089	1 550	4 098
December	14	26	548	4 491	1 852	5 800	20 281	2 542	5 406

Source: created by the authors with data provided by the Institution.

There is a significant change in the number of surveys per category for Channel 1 and Channel 3 caused by the monthly expansion factor, which already considers the weights of each revised element (influx of attention and survey).

With the data presented up to this point and according to Equation 6, a comparison is made (Table 7) between the conventional calculation of the NPS and this same indicator, but now with the expansion factor.

Table 7
Conventional NPS versus NPS with monthly expansion factor

Month	Channel 1		Channel 2		Channel 3	
	Conventional NPS	NPS with expansion factor	Conventional NPS	NPS with expansion factor	Conventional NPS	NPS with expansion factor
July	88.80%	88.80%	-1.74%	-1.74%	-47.17%	-47.17%
August	83.26%	83.26%	4.77%	4.77%	-45.37%	-45.37%
September	85.60%	85.60%	23.15%	23.15%	-39.59%	-39.59%
October	85.53%	85.53%	25.54%	25.54%	-42.63%	-42.67%
November	90.38%	90.38%	16.61%	16.61%	-38.07%	-38.07%
December	90.83%	90.83%	10.78%	10.78%	-52.70%	-52.68%

Source: created by the authors with data provided by the Institution.

Table 7 shows no meaningful change per channel in the NPS indicator. This is due to the proportional effect of the factor as it is applied to the value of promoters and detractors.

Based on Equations 6 and 7 for calculating the overall NPS for the Institution, the difference in the totals by category with and without the expansion factor can be identified. Table 8 presents the totals by category (first columns) and the totals of the values weighted by the expansion factor (last columns) by category for all months.

Table 8
Promoters, neutrals, and detractors of the Institution, 2021

Month	Category (conventional calculation)			Total	Category (with expansion factor)			Total
	Detractors	Neutrals	Promoters		Detractors	Neutrals	Promoters	
July	4 745	1 511	9 151	15 407	8 280	2 117	3 753	14 151
August	3 782	1 000	2 333	7 115	3 734	994	1 824	6 552
September	3 666	795	2 651	7 112	3 414	865	2 251	6 530
October	3 829	819	2 831	7 479	3 610	892	2 293	6 795
November	7 225	1 794	15 684	24 703	12 310	2 692	7 732	22 733
December	6 884	2 397	34 522	43 803	24 787	4 420	11 754	40 960

Source: created by the authors with data provided by the Institution.

It can be noted that when the expansion factor is used to count by category, the number of promoters, neutrals, and detractors changes proportionally; therefore, there is no bias of information toward a specific category using this factor. It is evident that the Institution has more detractors than promoters and neutrals in all months, and it is also evident in the increase in the number of surveys in the last months, derived from the change to green alert status of the health emergency. Now, the ratios are those presenting a change, as shown in Table 9:

Table 9
Ratios of categories with monthly expansion factor, 2021

Month	Category (conventional calculation)			Total	Category (with expansion factor)			Total
	Detractors	Neutrals	Promoters		Detractors	Neutrals	Promoters	
July	30.80%	9.81%	59.40%	100.00%	58.51%	14.96%	26.52%	100.00%
August	53.16%	14.05%	32.79%	100.00%	56.99%	15.17%	27.84%	100.00%
September	51.55%	11.18%	37.28%	100.00%	52.29%	13.24%	34.47%	100.00%
October	51.20%	10.95%	37.85%	100.00%	53.12%	13.12%	33.75%	100.00%
November	29.25%	7.26%	63.49%	100.00%	54.15%	11.84%	34.01%	100.00%
December	15.72%	5.47%	78.81%	100.00%	60.51%	10.79%	28.70%	100.00%

Source: created by the authors with data provided by the Institution.

Table 9 shows a different distribution of the ratios between the categories under the conventional calculation and the calculation with the expansion factor. In the case of promoters, using the factor, it is possible to smooth their ratio in those months where the percentage was skewed toward this category. The same is true for the months when the detractors had very low ratios as opposed to the other categories. Then, derived from the use of the expansion factor, it is observed that promoters have a lower ratio in all months as it was when the conventional calculation was used. Therefore, the advantage of the monthly expansion factor that regulates the effects of the channel with the highest number of surveys conducted and with the highest number of promoters is observed; it is the same that was overestimating the conventional NPS indicator (see Table 5). Table 10 below shows a comparison of the NPS results with the conventional calculation and with the use of the expansion factor.

Table 10
Orthodox NPS versus NPS with monthly expansion factor, 2021

Month	Conventional NPS	NPS with monthly expansion factor
July	28.60%	-31.99%
August	-20.37%	-29.15%
September	-14.27%	-17.81%
October	-13.34%	-19.37%
November	34.24%	-20.14%
December	63.10%	-31.82%

Source: created by the authors with data provided by the Institution.

In this case, there is an overestimation with the conventional method, and the opposite is the case with the proposed method. The overestimation was only due to the number of surveys of Channel 1, which reported the highest number of promoters and thus skewed the indicator well above with 63.10% at the end of December. Meanwhile, with the proposed expansion factor, which considers both the number of surveys and the influx of attention to customers-users, the result was an NPS of -31.82%, a more realistic value with a strong actuarial basis. The average overestimation in the study months is 38.04%.

Conclusions

Due to the inherent changes in society, economy, and technology, new demands are arising from consumers, which organizations must meet to ensure their growth and try to control the reputational risk involved in their activity.

As mentioned, organizations with a good relationship with their customers have greater possibilities of growth and permanence in the market, which is why a non-quantifiable risk—such as reputational risk—becomes essential. Therefore, it is important to know stakeholders' perceptions of a company's image or the reputation of an organization.

Satisfying these consumer demands for the product or service provided goes hand in hand with the consumer experience. This experience commonly occurs at the points of contact with the customer-user: the customer service channels.

As noted in the literature, the most common metric used for this measurement of satisfaction and loyalty is the Net Promoter Score (NPS) with the ratio of promoters to detractors. The technique proposed in this work incorporated the importance of the channels to the NPS calculation. Through the monthly expansion factor, it was possible to determine a weighting for each channel, making it possible to measure its importance according to the influx of attention, its number of surveys, and the changes in these variables in each of the study months of 2021, considering the COVID-19 health emergency.

The results reflect no change in the monthly calculation of NPS per channel. Nonetheless, for the overall NPS per month, there is an overestimation of the conventional NPS compared to the proposal of an NPS calculated with the monthly expansion factor (with influx and survey information). The overestimation identified is derived from the sole weight conventionally given to the ratio of promoters of a specific channel when it was identified that there are even cases with a higher ratio of influx, a situation that was not considered.

It is then that the overall NPS calculated with the monthly expansion factor makes it possible to absorb the changes in the number of influx and surveys conducted in each channel in the months of study. Thus, based on the analysis of the behavior of variables, a monthly expansion factor was calculated mathematically for each channel to assign importance to each relevant element (influx and surveys).

An important point to consider in this research is that in the case study there was no significant representation of the number of surveys about the number of influxes of the Institution. Up to this moment, no literature or studies have been identified that mention a specific number of surveys to consider the calculation of the NPS reliable in any organization; nevertheless, the availability of the data used allowed the objective of optimizing the NPS indicator with expansion factor to be achieved.

Given the relevance of the service channels as a point of contact with the customer-user, when establishing an NPS result as an indicator for monitoring the service experience, it must be consistent with the importance of each service channel used and, above all, the quality of the service provided in each one of them, which is identified through the surveys.

Finally, this research represents a guideline for the improvement of satisfaction measurement, so it should be considered by risk managers, companies, and researchers, as well as professors and students of finance, as it is a more accurate method to identify the true position of an organization for the customer. In this way, reputational risk can be managed more accurately. Therefore, objectively knowing this importance brings with it management strategies to strengthen those channels with a lower influx or lower number of surveys applied. Furthermore, a brand's economic, financial, and reputational impact when generating quality services implies growth and permanence in the market and allows the risk in these areas to be considered when it cannot be measured.

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