Kabarak Journal of Research & Innovation

https://journals.kabarak.ac.ke/index.php/kjri/

RESEARCH ARTICLE

CUSTOMER SATISFACTION AS A MANAGEMENT PRACTICE IN PUBLIC REGULATORY AGENCIES: A CASE OF THE NATIONAL BIOSAFETY AUTHORITY, KENYA

Michael M. Kamau
University of Nairobi.
Email:mkamau@uonbi.ac.ke

Submitted: 17th February 2025; Accepted: 19th September 2025; Published (online): 4th November 2025

ABSTRACT

The understanding of customer satisfaction as a management practice is a space that has attracted scholarly gaze and remain contested. Although good customer satisfaction rating is considered as a good indicator for good management such studies remain scarce in Kenyan regulatory agencies' sector where National Biosafety authority domicile. To understand the connection between customer satisfaction and good management, this study examined 71 key stakeholders of the National Biosafety Authority. The survey aimed to gauge NBA's customers' satisfaction level index and evaluate the perception of NBA's customers on the authority's service delivery. The survey deployed both experience sampling methods and behavior rating scales methods. The key findings were that, NBA had a customer satisfaction index of six (6/10) a rating considered average and low in terms of net-promoter score. It also emerged that, more efforts were needed in the area of lowering NBA's customers' negative perception of the authority's service delivery practices. In particular, NBA's customers thought that the Authority's GMO messaging was unclear and lacked promptness in its delivery thus lowering their trust in NBA's messages and engagements. It is concluded that NBA must leverage both the inside-out (products) and the outside-in (experience) strategies to improve on its customer satisfaction index.

Key words: customer satisfaction, organizational management, National Biosafety Authority

INTRODUCTION

Customer satisfaction approaches in institutional management

The primary objectives of a customer satisfaction survey are to assess an institutions' customer perceptions, quality of service delivery and suggest areas of improvement. Such surveys aids in decision making processes that are helpful for strategic planning. To deliver customer satisfaction, organizations use 'getting it right by doing it right.' Philosophy. To get it right requires listening to diverse voices (users of services, products, employees and other stakeholders) and incorporating their inputs in the improvement of service, product, approaches, processes and other outputs. The customer is perceived as an active participant in the value creation (Vargo and Lusch 2008). Indeed, Skalen *et al* (2015) found that consumers can co-create value within consumer communities.

In essence 'getting it right approach' is a cautionary mechanism that reminds institutions' managers that organizations' activities can: go wrong, produce the wrong story, produce wrong perception or be based on the wrong strategy. Frow, P. (2014) called it the 'Skunk paradox'. Clearly, all institutions need to understand their skunk's elements. Happy customers can be conceived in many ways and generally happiness variables include elements such as being: cheerful, sociable, friendly, well-being and excitement/pleasure. These happiness elements are generally used whenever clients express their satisfaction index with product and services.

Scholars Lusch & Vargo, 2014 and Mele et al. (2015) considers customer satisfaction as a strategic asset that can drive business growth, profits and reputation. Generally speaking, to achieve these three goals, organizations must make sure that products and services are *socially constructed* and are planted in peoples' minds and emotions. Humphreys (2010) and Martin & Schouten (2014) argue that, to plant products and services in peoples' mind requires top notch strategic management which Iansiti & Levien, (2004) says creates a networks of ecosystems that consider both the 'inside-out' perspective (excellent products and excellent service) and the 'outside-in' perspectives-the *experience perspective* (Molineux 2002).

NBA is a regulatory institution in Kenya that oversee the safe development, transfer, handling, and use of GMOs in a manner that upholds human and animal health while safeguarding the environment. The Authority has a service charter that defines its obligations to its clients. This charter represents a tangible expression of the Authority's commitment to service excellence by outlining specific promises, performance standards, and measures aimed at ensuring customer satisfaction.

METHODOLOGY

The 2023 National Biosafety Authority (NBA) Customer Satisfaction Survey employed a cross-sectional mixed-methods approach that integrated both qualitative and quantitative techniques. This research design enabled the study to capture a comprehensive picture of stakeholder perceptions, attitudes, and experiences with NBA's service delivery. The study was conducted across fifteen counties in Kenya, namely: Uasin Gishu, Kisumu, Baringo, Kilifi, Kirinyaga, Kitui, Kwale, Lamu, Machakos, Makueni, Meru, Tana River, Tharaka Nithi, Kakamega, and Nairobi. The study's population comprised a wide range of NBA's stakeholder categories such as: GMO applicants, suppliers, public universities, the Kenya Medical Training College, research institutions, international partners, non-governmental organizations, GMO reviewers, farmers cultivating Bt-cotton, NBA's conferences participants, journalists, and financial institutions. These groups represent the Authority's key partners and service beneficiaries.

Seventy-one (71) respondents were purposively selected from eleven stakeholder sectors and purposive and census sampling techniques were employed (see Table 1)

Table 1: Sampled Participants

Item	Category	Total	Cases Selected
1	Farmers	556	30
2	Public universities	13	5
3	Reviewers	37	5
4	Journalists	10	6
5	Conference participants (KII)	41	5
6	GMO applicants	8	5
7	NGOs	7	5
8	Suppliers	4	4
9	Research institutions	3	3
10	Kenya Medical Training College	1	1
11	Financial institutions	2	2
Grand Total			71

The Data was collected using structured and semi-structured questionnaires, focus group discussions (FGDs), and key informant interviews (KIIs). The instruments were designed to align with the study's objectives and to elicit detailed responses regarding stakeholders' experiences, expectations, and satisfaction levels with NBA's services.

To gain deeper insight into customer satisfaction levels, the Experience Sampling Method (ESM) was employed. This method enabled the researchers to capture real-time perceptions and attitudes of NBA's clients. Within this framework, several performance appraisal techniques were utilized, including objective and subjective measures. Objective measures focused on quantifiable aspects such as the frequency of unassisted visits or delays in service delivery. Subjective measures included ranking and rating scales, such as the five-point Likert scale, which evaluated performance from "very unsatisfactory" (1) to "excellent" (5). Additional approaches such as the Behaviorally Anchored Rating Scale (BARS) and the Critical Incident Method were used to assess specific instances of client interaction and service quality. These methods ensured that both behavioral and perceptual aspects of service delivery were systematically examined.

Data analysis followed a mixed-methods framework. Quantitative data were processed using Google Forms, Microsoft Excel, and SPSS software to generate descriptive statistics, including

means, averages, and standard deviations. The findings were presented through tables, bar charts, line graphs, and pie charts for clarity. Qualitative data were analyzed thematically, and key insights were integrated into the infographic results using illustrative quotations and photographs. This triangulated analytical approach provided a holistic understanding of NBA's customer satisfaction and service performance.

Ethical Consideration

Approval to conduct the study was received from the National Commission for Science, Technology and Innovation (NACOSTI) (License No. NACOSTI/P/24/33793). Similarly, both the University of Nairobi and the NBA's ethical policies and standards were strictly adhered to in handling all the information and data that was received. Respondent who consented to participate were assured of their confidentiality and use of Pseudo names. All the data that was obtained was robustly stored securely and accessed by only the research team. Use of photo and image of farmers were sought and written consent given. No minor was interviewed.

DISCUSSION

Demographic Data and category of stakeholder

A total of 50 participants responded to the survey constituting a response rate of 70%. 64% of the respondents were male and the rest female. In terms of age distribution, 16%, were between 18-35 years, 34% were aged 36-50 years, 32% were 51 to 60 years, and 20% were older than 61 years. Six in ten of NBA's customers were aged between 36-60 years. Only two in ten of NBA's customers were youthful. About 42% of the respondents were farmers, 18% local public and private universities, 16 % service providers, 12 % from NGOs and the civil society, 4% service providers, 4% research institutions, 2% GMO applicants, 2 % standard body institutions, and 2% mass media (See Figure 1).

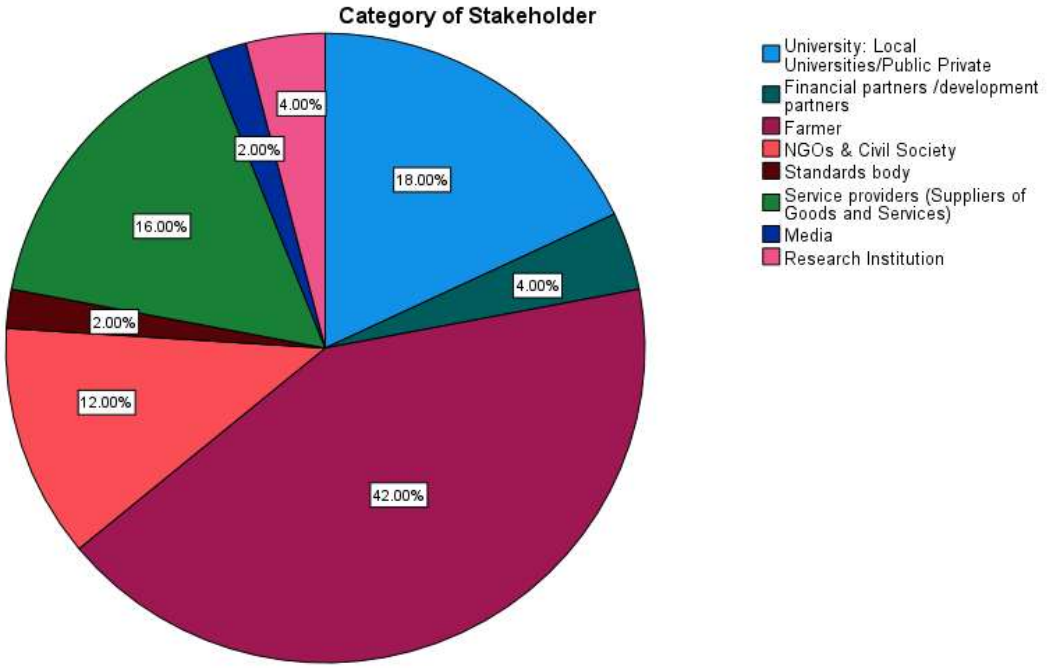

Figure 1 Category of stakeholder

NBA's Communication channels and their Accessibility to the Customers.

As shown in Figure 2, the NBA's customers accessed information from the Authority from variegated channels. Four in ten of the customers received their communication via emails (36%), two in ten of the customers received their communication via telephones (20%), and one in ten received their information via conference, exhibition and face to face encounters. Nine percent of the NBA customers received their information via WhatsApp and the mainstream media, 7% accessed their information via the website, 4% of the customers interacted with NBA in face to face meetings, and another 4% via apps technologies. Generally, the email was the most popular means of communication across the age subcategories of the NBA customers followed by the telephone calls. These two accounted for almost 60% of usage (see figure 2).

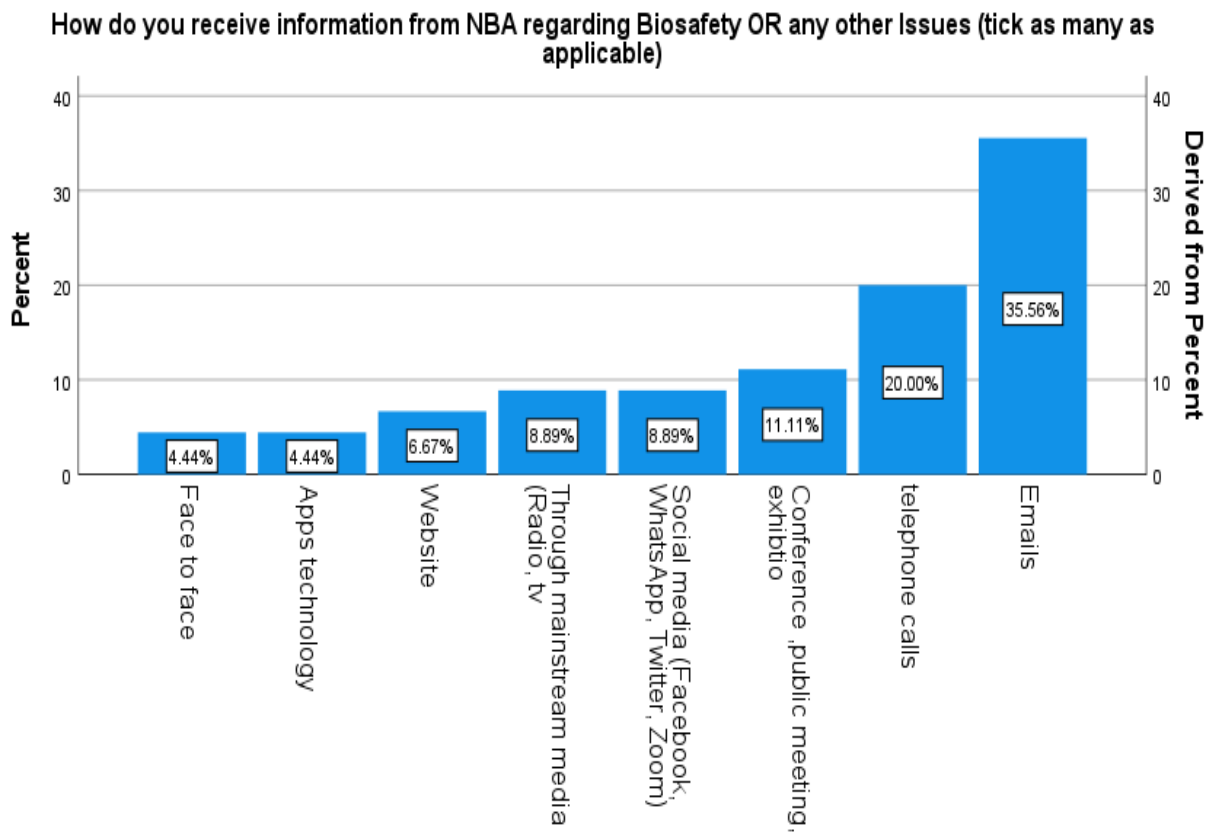

Figure 2 Stakeholder's use of communication channels

Accessibility of NBA's information by age and Channel

The NBA's customers used information channels unsymmetrically. From Table 2, Farmers and university-based stakeholders used more channels of communication than any other category of stakeholders. The youthful customers (aged between 18-35 years) did not use the mainstream mass media to access NBA information they preferred emails (42%), and app technology (14%), Facebook (14%), and conferences (14%). Generally, the mass media outlets were not preferred by most of the stakeholders such as Non-Government-Organization (NGO), Standard bodies like Kenya Bureau of Standard (KEBS), and research institutions such as Kenya Medical Research Institute (KEMRI). NBA's service providers have a preference for emails, telephones and WhatsApp channels for their communication with the Authority. From Table 2, it can be inferred that the farmers, universities and NGOs have a good appetite for GMO information. It can also be concluded that customer satisfaction requires institutions to have their contents in channels that their customers can access and use.

Table 2. Channels preference by age of stakeholder

	How do you receive information from NBA regarding Biosafety OR any other Issues (tick as many as applicable)	Total

			mainstream media	Whatsapps	Web site	Face to face	public meetings	Emails	Apps technology	telephone calls	
Age	18-35 years	Count	0	1	0	1	1	3	1	0	7
		% within age category	0.0%	14.3%	0.0 %	14.3%	14.3%	42.9%	14.3%	0.0%	100.0%
		% within whole % in NBA	0.0%	25.0%	0.0 %	50.0%	20.0%	18.8%	50.0%	0.0%	15.6%
		% of total	0.0%	2.2%	0.0 %	2.2%	2.2%	6.7%	2.2%	0.0%	15.6%
	36-50 years	Count	2	1	2	1	1	6	0	4	17
		% within age category	11.8%	5.9%	11.8 %	5.9%	5.9%	35.3%	0.0%	23.5%	100.0%
		% within whole % in NBA	50.0%	25.0%	66.7 %	50.0%	20.0%	37.5%	0.0%	44.4%	37.8%
		% of total	4.4%	2.2%	4.4 %	2.2%	2.2%	13.3%	0.0%	8.9%	37.8%
	51-60 years	Count	1	2	1	0	1	5	0	3	13
		% within age category	7.7%	15.4%	7.7 %	0.0%	7.7%	38.5%	0.0%	23.1%	100.0%
		% within whole % in NBA	25.0%	50.0%	33.3 %	0.0%	20.0%	31.3%	0.0%	33.3%	28.9%
		% of Total	2.2%	4.4%	2.2 %	0.0%	2.2%	11.1%	0.0%	6.7%	28.9%
	61 years and above	Count	1	0	0	0	2	2	1	2	8
		% within age category	12.5%	0.0%	0.0 %	0.0%	25.0%	25.0%	12.5%	25.0%	100.0%
		% within whole% of NBA	25.0%	0.0%	0.0 %	0.0%	40.0%	12.5%	50.0%	22.2%	17.8%
		% of total	2.2%	0.0%	0.0 %	0.0%	4.4%	4.4%	2.2%	4.4%	17.8%
Total		Count	4	4	3	2	5	16	2	9	45
		% within age category	8.9%	8.9%	6.7 %	4.4%	11.1%	35.6%	4.4%	20.0%	100.0%
		% within whole % of NBA	100.0%	100.0%	100. 0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
		% of total	8.9%	8.9%	6.7 %	4.4%	11.1%	35.6%	4.4%	20.0%	100.0%

Source: Authour's data

From Table 2, It emerged that the choice of communication channel is variegated and depended on stakeholder's preference and the stakeholders' age.

c. Usefulness of Information by Communication Channel

i. The email

9 out of 10 (92%) of NBA's stakeholders perceived emails to be useful in delivering information. The NGOs rated the email the highest in its usefulness with a score of 60%. Only 2 in 10 farmers (19%) perceived the email as a useful channel for delivery of information. The Standard Body Institutions like KEBS did not rate the email as the most useful mean of communication. The email was a critical and important communication channel for NBA. Indeed, respondent No. 6 commented as follows about email:

"*In my opinion the email is key for NBA communication. I have received conference invite via it and have always gotten clarification of issues from NBA via email."*

Respondent 16 observed as follows;

"I wrote a complaint email to them and they responded quite quickly and my issue was resolved amicably."

Although the majority of NBA's customers thought the email was an effective communication channel other customers thought that, the email had challenges as captured by one respondent:

'The email is good, but its content is not for rural people, it operates in English. Many rural farmers are not well conversant with English language'

ii. The telephone

Nine out of ten of NBA's stakeholders perceived the telephone as a useful channel for communication from NBA on GMOs. Indeed, 64% of NBA stakeholders perceived the telephone as a very useful channel of communication, while 18% perceived it as a useful channel of communication. Only one in ten (9 %) perceived the telephone as not being useful for communication. Four categories of stakeholders, financial institutions, service providers, the farmers, and research institutions gave this channel a 100% ranking in the quality of usefulness. The standard institutional bodies like KEBS saw this channel as not being very useful in delivering information on GMOs

iii. The conference/exhibition

The data revealed that all but one stakeholder (providers of services to NBA) perceived the conferences/exhibitions and workshops as useful channels for disseminating information on GMOs. The conferences and exhibitions were rated very highly for fit of purpose to deliver information on GMOs. Research institutions scored conferences at 100%, university at 88%, NGO at 80%, farmers at 70% and service providers at 25%. From Figure 3 only one category of stakeholder perceived this channel negatively (See Figure 3)

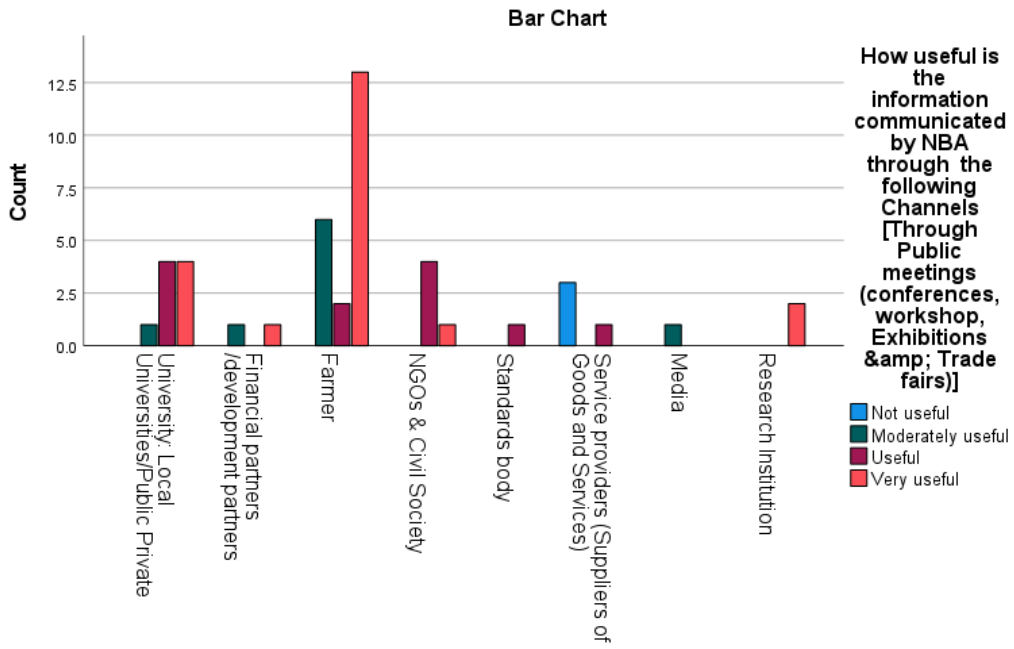

Figure 3. Usefulness of conferences for GMO information

A respondent put it this way about effectiveness of conferences

"*I attended three of NBA conferences and the knowledge and motivation I got from there was immense. But they (NBA) should purpose to have farmers' issues conference only. This would help a lot."*. Respondent 39.

iv. Mainstream mass media

The data revealed that 1 in 10 (13%) of the NBA's stakeholders perceived the mainstream mass media made up of radio, TV and the local vernacular radio stations as not useful channels of communicating GMO information. Four in ten (35%) considered it moderate in its usefulness to deliver GMO information. Mainstream mass media was very popular with the farmers at 46%. It scored 20%, 11% and 9% for university stakeholders, NGOs and research institutions, respectively. It is inferred that the mainstream media in Kenya are not highly regarded as carrier for GMO information.

v. Face to face

Although only 4% of NBA's stakeholders considered this channel an important means of disseminating information on GMOs, the channel was perceived to contain very useful information by those who used it. Indeed, 98% of the respondents who used this channel claimed that it contained useful information. The greatest number of its supporters were farmers, 47%, while the rest of the stakeholders rated it as follows: NGOs (9%), service providers (9%) and financial institutions (9%). Only one category of stakeholders (the university) thought the channel was moderately useful. A respondent observed as follows: Respondent 36-

"*Hii mambo ya GMO ni mazito na inabidi watu wazungumze kinaganaga na ana kwa ana ndio watu waelewe vyema kuhusu GMO" translated as* (GMO issues are weighty and need an open discussion and whenever possible in a face to face setting). Another respondent from Kitui county put it as follows:

"*I started this cotton demo farm after I attended an NBA conference and visited a Bt cotton farmer in Tharaka Nithi and we had a one on one communication. Now I have received visitors from all over Kenya and I reap big from cotton farming."*

vi. WhatsApp

The data revealed that the NBA's stakeholders used WhatsApp channels to access information on GMOs. The greatest support for this channel, in terms of its usefulness, came from farmers at 46%, university stakeholders were at 20%, service providers-stakeholders at 9%, while financial and research institutions averaged 4 % each.

vii. The website

The Data revealed that 1 in 10 (7%) of NBA's stakeholders used the website to access GMO information. Indeed, of the stakeholders using this channel, 11% perceived it as very useful, 31% as useful, and 55% as moderately useful. Only 2% of the respondents perceived this channel as not useful. The channel rating for usefulness was as follows: farmers (47%), university (20%), NGOs (11%), standard institutions and bodies (9%), financial and research institutions (4%) each, and mass media (2%). However, the information provided at the website was not as comprehensive as customers would like to have. One of the respondents put it this way;

Where are your (NBA's) celebrations of key success; where are images and short films on the websites? Respondent 40.

viii. App technologies

The usefulness of the app technology was very similar to that of websites only that 2 in ten (22%) of the stakeholders perceived it as not useful, 51% as moderately useful, 22% as useful, and 4% as very useful.

Perception of Service Delivery

The data revealed that 5 in 10 (53%) of the respondents moderately agreed that NBA was a trustworthy institution. 4 in 10 (38%) of the NBA's Stakeholders agreed that NBA was competent in handling GMO matters. One in ten (11%) of the respondents thought the Authority was not competent in handling GMO issues, while more than a half (51%) of the respondents were not sure whether the Authority was competent. It is worth noting that the farmers and the Standards Institutions had lower levels of trust towards NBA. From Figure 4, close to 6 in 10 of the respondents (58%) agreed that the information provided by NBA regarding Biosafety was clear, while 2 in 10 (20%) thought the information was not clear (see figure4)

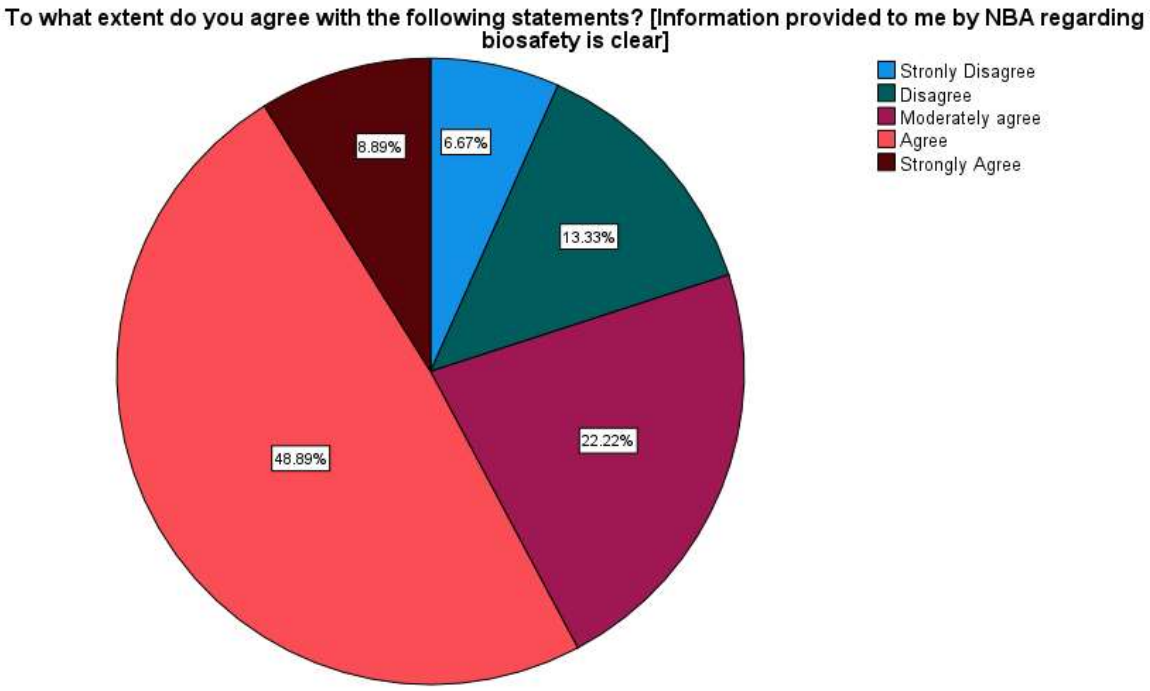

Figure 4. Clarity of Information from NBA.

Freedom to raise issues with NBA

The data revealed that only 3 in 10 (31%) of the respondents felt they had freedom to raise issues with the Authority, while 6 in 10 (56%) moderately agreed that they felt free to raise issues with NBA. When asked to state to what extent they agreed with the statement 'NBA listens to and addresses my GMO concerns/questions', 33% of the respondents disagreed that that was the case, while 40% moderately agreed and 26% agreed to the statement. It merged that the farmers were the majority in disagreeing that NBA listens and addresses concerns (24%), followed by the university stakeholders, (6%) and the Standards institutions (2%).

In terms of agreeing with the statement that NBA listens to and addresses concerns the score was 24%, the Standards institution like KEBs and the mass media gave it a score of 0%, the universities had 8%, financial institutions were at 2%, NGOs at 2%, research institutions at 4%, service providers at 6%, and farmers at 2%. Respondent 33 (a farmer) captured the complaints issue as follows:

"*We are alone (*farmers*). NBA never do follows up to evaluate the kind of trouble we (*farmers*) encounter. We have no mechanism of reaching out to NBA. You (NBA) come here for research and then leave us with our challenges."*

Respondent 9 (scientist in a Biosafety Institute) captured the complaints issues as follows:

"*NBA has buried its head on the sand for long. There ar the concerns about effects of GMO seeds on production; what are the effects of replantingthe seed; what are the effects of cross-breedings of GMO seeds and others? No research! No data! Limited data information about the BT maize (others) replanting and their outputs. No follow up assessments if crossbreeding and their effects on the people, plants and animals is there in Kenya. There is perpetual exploration and dark driving without navigation and NBA is keeping Mum."*

On the question of whether NBA addressed the stakeholders' concern in a timely manner, only 2 in 10 (19%) agreed that that was the case, while 7 in 10 (71%) respondents moderately agreed, with 1 in 10 (8%) respondents disagreeing with the statement. Eight in ten of the respondents were of the view that customer satisfaction was impacted negatively when customers' concerns were not addressed promptly and respectively.

Customer Satisfaction Index

A customer satisfaction score (CSAT) scale was used to measure how NBA's customers rated service delivery by the Authority. The respondents were asked to rate their satisfaction levels from a score of 1 to 10, where 10 indicated the very highest possible satisfaction 100% and 1 indicated the worst possible satisfaction 10%. The measurement approach is similar to the logic of what is called 'Net Promoter Scores' (NPS). The approach measures customers' satisfaction index and their likelihood of taking an action such as: not likely to recommend the institution to others and extremely likely to recommend the institution to others. (see Figure 5)

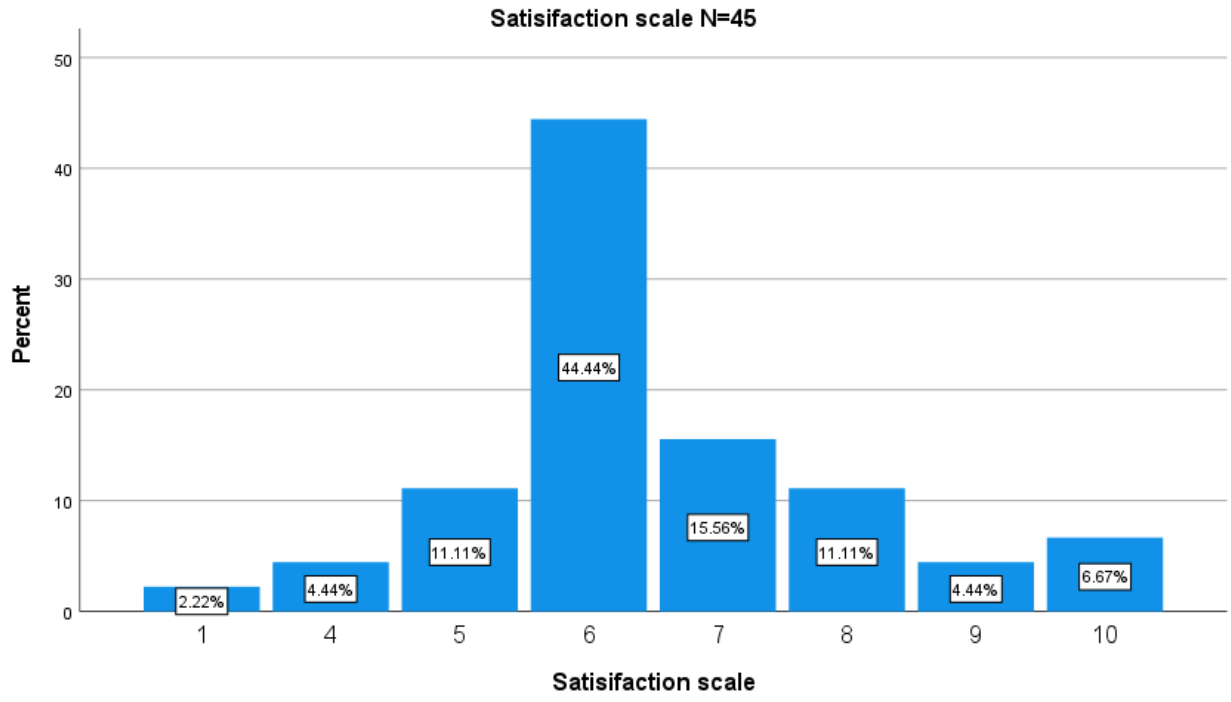

Figure 5. Customer satisfaction scale.

From Figure 5, the NBA's customer's satisfaction index for the year 2023 was a score of 6 (6/10), constituting about 44% of all respondents. Generally, the satisfaction index is rated as follows: a score of 5 (50%) is taken as an average service to your clients, a score of 6 (60%) is taken as a good service, a score of 7(70%) is taken as a great service, a score of 8 - 9 (80-90%) is taken as an excellent service and a score of ten (100%) is taken as exceptional service to your clients. From Figure 5, only one in ten (7%) of NBA's customers thought they were getting exceptional service and only two in ten of the NBA's customers (15%) believed that they were getting excellent service. About one in every ten NBA respondents (7%) were not happy about the service they received from the authority (score of 4/10 and below). Two respondents captured their frustrations with NBA services as follows:

"*I have visited the place more than six times pursuing matters of approval and payments..yet I have not yet received my approvals … this is unfair."* (Respondent 9). Another respondent put it this way; *'their services are ok, but they don't do follow up on the challenges farmers encounter.'* Respondent 23.

Such farmers feel that NBA is far removed from supporting their farming activities at the rural areas.

Policy Implication from customer satisfaction Index for NBA.

a. Misunderstanding and misconception of GMO processes and NBA's role

It emerged that NBA was greatly misunderstood and as a result service delivery was seriously affected. For instance, an expert working in a biotechnology institute observed that

"*The greatest challenge of the biotechnology industry and activities is lack of consensus in cementing GMO value to the individuals and to the societies – there is cynical and deep mistrust between GMO actors on what they do and their intention of doing those activities."* (Respondent 15).

The fear of the unknown leads to synergy of oppositions against NBA and its activities. The resistance to some GMO products in Kenya is attributed to a misunderstanding of what biotechnology issues are and their consequences. For instance, maize farmers in Embu have in their mind a bad imagery of Bt-maize as a product. Some years ago, the farmers were invited to go to Kenya Agricultural and Livestock Research Centre (KARLO) in Embu research demonstration center. They were shown various demonstration farms where Bt-maize seeds were planted in experimental format. The demonstration farms had Bt-maize planted under various strains and conditions such as; planted with fertilizer/without fertilizer, polanted under regulated rain water conditions/semi-arid level water etc. the demonstration farms were aimed at stimulating Bt-maize production in different climatic conditions. Community based organizations (CBOs), the clergy and selected influences innovators were also invited.

"*We were amazed by the good quality seedlings and good performance of Bt maize on those demonstration farms and everyone wished to plant the wonderful maize whenever it would be available."* (Farmer respondent observed).

Later on, the farmers were re-invited to the same farm venue to witness the destruction of the Bt-maize that had been harvested from the demonstration farms. All the Bt-maize produced at the demonstration farm was destroyed.

"'I tell you, that picture is still fresh in my mind and we (farmers) spoke about it for months and years. The image stuck in our minds and erased the benefits we had been told about Bt maize – how can government burn food? how can government ban a good product? The burnt, banned and forbidden food (BT maize) must be very, very dangerous. I swore personally never to try planting the BT maize seeds nor ever use any GMO products" (Farmer respondent (38) in Embu County).

b. Cross-breeding of GMO plants, GMO security data and GMO research

It emerged that issues such as: cross-breeding, lack of security data on GMO, lack of research among the controversial GMO topics such as the impact of GMO food on human reproductive life, are major concerns for stakeholders, and dents NBA's status as a major player in the GMO arena.

There is also a lot of misconception, misinformation, and disinformation about GMO technologies and related activities. The public is made to believe that GMO is harmful (without adequate knowledge) and as a result there is "collective condemnation." For instance, the perception that the Bt maize will lead to 'sterility' in consumers and that it promotes perpetual dependence for seeds is fueled by this kind of mistrust. Clearly, there is a serious information gap about GMO toxicology and also a serious gap between the scientists, the government, the general public and those directly using the GMO products such as the farmers about the benefits and cost of GMO to society. For the pessimistic the easier way out is "Ban the GMO products". An expert retorted as follows:

'Take the case of BT maize, the matter was taken to court. One of the arguments in the court petition was that, the BT Maize when planted by farmers will cause perpetual dependence for the farmer will forever rely only on manufacturers of the BT maize seeds for supply of seeds for planting.' 'These fears are genuine, yet there is no research done on this matter! no data!" 'There is limited information about the BT maize and the consequences of replanting and the production/output of replanted BT maize seeds in a consequent planting. There is no follow up assessments research about crossbreeding and their effects on the people, plants and animals'. 'There is perpetual exploration and dark driving without navigation aids' a Human Science Parasitology's respondent.

Another respondent put it this way:

'*Bt cotton and other related GMO products are not only intended to be used and be planted by highly educated, they are intended also for 'wanjiku' down there at the village' 'Crossbreeding is*

real danger and need to be understood – don't (NBA) bury the head under the sand - implement your mandate'

c. Lack of adequate collaboration with Community based organization (CBO)

It emerged that, farmers growing GMO related plants such as BT cotton have formed corporative societies, development societies and community-based organizations to help them navigate the challenges emanating from farming these GMO related plants. For instance, in Embu County, there are community-based-organizations (CBO (s) like Isiara–Kanyambura Embu Association and within it the Avurore Cotton Growers Association. It is here (at Avurore) where the miracle of what collaboration with other sectors in the GMO field can achieve is vividly demonstrated. In collaboration with Kirinyaga University Engineering Department, the Department has innovated a micro purpose general generator that is a micro-gin processer that add value to cotton produced by the farmers in the area. The key issue is that, the multipurpose micro-generator helps the farmers add value to their cotton harvest and as a result they increase their earning from the cotton crops four folds. The research cites this collaboration as the most transformative and significant move that has managed to empowers the farmers financially in a major way. The farmers noted that NBA was insignificantly involved in helping the farmers on matters value-additions and even via provision of certified seeds.

d. Inadequate training, field Demos, field officers and follow ups

It emerged that, the farmers are not fully trained on BT cottons and its management processes. One farmer in Gicheru Murinduko location in Kirinyaga put it this way.

"*Here in Kirinyaga county there is no demonstration farm for BT cotton, where farmers can go learn about good farming practice". "There is no demo farm that can offer us instant and practical farming knowledge where the farmer can experience first-hand the issues at a farm level that are easy to relate with his/her own farm''. "I am willing and ready to give one acre of my land to NBA and other collaborative institutions a cotton farming demo farm which would act like a classroom for farmers. tell them (NBA) to reach out to me"*

Indeed, in Nzamba Subcounty, Katumbo village Kitui East, in Kitui County, a farmer has set up her own one and half acre's demonstration farm for cotton farming. She reported that, she has hosted researchers and farmers from all over the world. The greatest lesson from the Lady farmer was that, she got motivated after she attend a seminar and exhibition that was arranged by NBA about Bt-Cotton. She never looked back in farming the "miracle plant". Hers was just among one of the NBA's success stories. She claimed that, the biggest challenge with cotton farming was lack of certified seeds, lacks of specified places where the BT coton seed are available, lacks of follow-up meetings and lacks of support from government institutions like NBA. She recommends that NBA should be the custodian of certified Bt cotton seeds (See Figure 6) photo of the farmer and the Researcher in her cotton demonstration farm)

Figure 6. A farmer in her demonstration Farm in Kitui County

CONCLUSION

In conclusion, this study has shown that institutions that are desirous of delivering customer satisfaction to their clients must do more than just produce good products and provide good services. They must also have in-depth knowledge of the nature and kind of their clients and the kind of communication channels that their clients prefer and use as sources of their information. In particular, it has emerged that good customer satisfaction index emanates from a combination of many variables: a judgement of about how an institution delivers its mandates, a judgement about how an institution interact with its clients, a judgement about trust of processes and procedures that the institution have, a judgment about how innovative an institution is perceived to be and a judgement about the kind of relationship that an institution has with its clients. Clearly, customer satisfaction index is affected by many management errors and omissions such as: Poor choice of communication channels to use in their communication, lack of clear provision of information, low trust levels, lack of accountability, unclear procedures, lack of promptness of response and lack of knowledge on matters of concerns such as the effect of GMO seeds on cross pollinations. It can be inferred that, to achieve good customer's satisfaction index from their clients, institutions need to do serious planning on how they relate and communicate with their clients and stakeholders.

RECOMMENDATIONS

Based on the study's findings, the following recommendations are suggested; to increase on its customer satisfaction score (CSAT) NBA should undertake the following; first, it must do a targeted marketing campaigns that address the specific needs and preferences of its customers based on factors like gender and age. Second, NBA should also establish a quality assurance office that regularly follows up on issues of service delivery. Third, NBA should enhance its website and make it the key platform for GMO campaigns in Kenya, for instance, it should provide the electronic links to key information, texts, short films, videos and other documentary dealing with GMO information. Fourth, NBA should have an elaborate grievance mechanism and should hire staffs to serve as community Liaison Officers (CLOs) to engage with NBA clients handle their complaints and coordinates the responses to those complaints. Fifth, NBA should develop BOTS (machine assisted communications such as emails) and barcodes scanning technologies to assist in information dissemination and service delivery. And finally, to enhance the authority's resource base, especially to support its supervisory role. It is suggested that a levy can be charged from GMO products in Kenya to support NBA's activities. Clearly, from the foregoing discussions customer satisfaction process is a valuable asset that needs to be harvested and harnessed. To improve on its customer satisfaction rating, NBA must wear the boots and hit the ground running in the environmental loci where its mandate meets the masses. Happy customers in any given organization indicates good management strategies.

ACKNOWLEDGEMENT

This study was funded by the National Biosafety Authority of Kenya.

REFERENCES

Frow, P., McColl-Kennedy, J., Hilton, T., Davidson, A., Payne, A., & Brozovic, D. (2014). Value propositions: A service ecosystems perspective, *Marketing Theory*, *14*(3), 327351. https://research.brighton.ac.uk/en/publications/value-propositions-a-service-ecosystems-perspective

Geiger, S., Kjellberg, H., & Spencer, R. (2012). Shaping exchanges, building markets. *Consumption Markets & Culture*, *15*(2), 133-147. http://dx.doi.org/10.1080/10253866.2012.654955

Humphreys, A. (2010). Megamarketing: The creation of markets as a social process. *Journal of Marketing*, *74*(2), 1-19. http://dx.doi.org/10.1509/jmkg.74.2.1

Kim, W. C. & Mauborgne, R. (2009). How strategy shapes structure. *Harvard Business Review*, *87*(9), 72-80.

Lusch, R.F., & Vargo, S.L. (2014). *Service-Dominant Logic: Premises, Perspectives, Possibilities*. Cambridge, UK: Cambridge University Press. https://link.springer.com/article/10.1007/s11747-007-0069-6

Martin, D. M., & Schouten, J. W. (2014). Consumption-driven market emergence. *Journal of Consumer Research*, *40*(5), 855-870. http://dx.doi.org/10.1177/2051570714540497

Mele, C., Pels, J., & Storbacka, K. (2015). A holistic market conceptualization. *Journal of the Academy of Marketing Science*, *43*(1), 100-114. https://link.springer.com/article/10.1007/s11747-014-0383-8

Molineux, P. (2002), *Exploiting CRM: Connecting with Customers*. London: Hodder & Stough ton. https://uwsprimo.hosted.exlibrisgroup.com/primoexplore/fulldis-play/44PAI_ALMA2124699330003931/44PAI_V1

Moore, J.F. (1993). Predators and prey: a new ecology of competition. *Harvard Business Review*, *71*(3), 75-86.

Nenonen, S., Kjellberg, H., Pels, J., Cheung, L., Lindeman, S., Mele, C., Sajtos, L., & Storbacka, K. (2014). A new perspective on market dynamics: Market plasticity and the stability-flu idity dialectics. *Marketing Theory*, *14*(3), 269-289. https://www.researchgate.net/publication/271468676

Payne, A., & Frow, P. (2014). Developing superior value propositions: a strategic marketing im-perative. J*ournal of Service Management*, *25*(2), 213-227. https://researchonline.gcu.ac.uk/en/pub-lications/value-propositions-a-service-ecosystems-perspective

Payne, A., Storbacka, K., & Frow, P. (2008). Managing the co-creation of value. *Journal of the Academy Marketing Science*, *36*(1), 83-96. https://researchonline.gcu.ac.uk/en/publications/value-propositions-a-service-ecosystems-perspective

Schneider, C. Q., & Wagemann, C. (2010). Standards of good practice in qualitative comparative analysis (QCA) and fuzzy-sets. *Comparative Sociology*, *9*(3), 397-418. https://brill.com/view/jour-nals/coso/9/3/article-p376_5.xml

Skålén, P., Gummerus, J., von Koskull, C., & Magnusson, P. (2015). Exploring value propositions and service innovation: A service-dominant logic study. *Journal of the Academy of Marketing Science*, *43*(2), 137–158. https://link.springer.com/article/10.1007/s11747-013-0365-2

Vargo, S.L. & Lusch, R.F. (2004). Evolving to a new dominant logic for marketing. *Journal of Marketing*, *68*, 1-17. http://dx.doi.org/10.1007/s11747-007-0069-6

Vargo, S.L. & Lusch, R.F. (2008). Service-dominant logic: Continuing the evolution. *Journal of the Academy of Marketing Science*, *36*(1), 1- 10. http://dx.doi.org/10.1007/s11747-007-0069-6