Exploring Citizens’ Perception of Abu Dhabi Policing E-Service Quality

Mohammed Ibrahim Mohammed Ibrahim Alblooshi¹a, Erne Suzila Kassim²b

¹Abu Dhabi Police General Headquarters, Abu Dhabi Al Muroor, United Arab Emirates
¹Department of Postgraduate & Professional Studies, Faculty of Business and Management, Universiti Teknologi MARA, 40150 Shah Alam, Selangor, Malaysia, ²Faculty of Business and Management, Universiti Teknologi MARA Caw Selangor
Kampus Puncak Alam, 42300 Selangor, Malaysia
Email: aalblooshi120@gmail.com, bernekassim@uitm.edu.my

Abstract
The purpose of the study is to explore citizens’ perception on the quality of service of the newly transformed e-policing system in Abu Dhabi. The Abu Dhabi policing system has undergone a major change by utilizing information and communication technology in all aspects of service operations. The changes require an evaluation from the citizens as an assessment of the success. Hence, it is timely to assess the citizens’ perceptions on the policing system’s integrity, transparency, responsivity, interactivity and serviceability and to compare for gender differences in the perception. The study participants were citizens of Abu Dhabi. The sample was selected based on the convenience sampling technique. The data was collected from 260 respondents via an online survey. The results of the descriptive analysis show an acceptable level of e-service quality perception on integrity, transparency, responsivity, interactivity and serviceability. In addition, the results also indicate there is no significant difference in the perception of Abu Dhabi policing e-service between male and female respondents. At present, studies on Abu Dhabi policing are rather limited. Therefore, the findings demonstrate how smart policing could drive a greater acceptance of the e-service quality especially for the United Arab Emirates (UAE). In addition, the high perception of the policing integrity, transparency, responsivity, interactivity and serviceability will provide greater opportunities for future research to embark on how society-authority could work together for sustainable peace and harmony.

Keywords: Quality of Service, Abu Dhabi Policing E-Service Quality, Perception on E-Service Quality, Smart Policing, United Arab Emirates (UAE) Policing
Introduction

In considering the potentials of Information and Communication Technologies (ICTs) that are utilized to promote and seek public safety and social harmony, governments in many countries have embarked on e-government initiatives. One of the many countries’ government transformations around the world is the advancement of the policing services. Tam, Feng and Lai (2021) further stated the rising demand for national security has placed a great importance for police institutions to invest heavily in information technologies for supporting the mandates. The diffusion of information technology in the policing services lies in the entire operations. From the back-end strategies, the use of the information technology includes data security and data protection (Roseline & Geetha, 2021), distinguishing criminals from non-criminals by tapping into the power of social network analysis (Hassan et al., 2019), and early predictions of crimes by real-time analysis (Manjunatha & Annappa, 2020). Likewise, the success of the IT adoption and usage is also evaluated against the perception of the police officers. For instance, Baraka and Murimi (2021) assessed officers’ attitude and behaviour of Geographic Information Systems (GIS) in spatiotemporal crime analysis for Kenya National Police Service (NPS).

The rise of smart policing is deemed inevitable as there is an increasing citizens’ worries about security and privacy, connection issues, and public fear of the possibility of identity or information theft, lack of access, response delays, and suffocating bureaucracy (Osei-Kojo, 2017). Therefore, smart policing via policing e-services has allowed the police and the public to access, use, and feed information through meaningful engagement, allowing for more personal interactions (Eterno, Barrow & Silverman, 2017). Furthermore, the quality of policing that safeguards public safety and quality of life is a critical issue (Ekaabi, Khalid, Davidson, Kamarudin & Preece. 2020). Previous research has shown that enhanced electronic service quality leads to more flexibility and networking (Ahmad & Khalid, 2017). In fact, e-service exists in various forms and depends on the user groups with a community or country. The importance of safeguarding the public safety has urged many middle eastern countries from regions such as United Arab Emirates (UAE) to implement the fundamental e-services to provide integrated, simplified, and effective services and reduce the cost of government services delivery (Obaid & Ahmad, 2021).

The Abu Dhabi Police (ADP) is one of the police regimes that has been very aggressive in improving public safety through the newly reformed e-policing services. For the ADP, the existing e-service of policing is a priority of the citizens for fast response in safety purposes in the community. The provision of the e-service offered in the ADP comes with the impact creation to the citizens. From the lens of academic research, in recent years, studies on ADP have been rising. However, the focus varies. For example, Alameri (2018) conducted a study that measures front-line service employees' service recovery performance from customer complaint handling. Another study conducted by Alshamsi, Isaac, and Bhauemi (2019) evaluated the effects of intellectual capital on Abu Dhabi Police innovation. Likewise, Yates and Rossiter (2021) also conducted a study on ADP, but the aim was on the expatriate experiences and their relationships with the rulers. As ADP e-service impacts citizens and there is a lack of studies that have evaluated its quality, the study was conducted to explore how citizens of Abu Dhabi perceive the quality of the policing e-service. Evaluating public service quality is one of the approaches to assess the current operation for future improvement. More so, the gaps between policy framework and its impacts could serve as a post critical analysis for policy stakeholders (Mamah, 2016).
In addition, a different fulfillment happens according to gender when people have a good experience or achieve a goal, which leads to pleasure and positive responses. This affirms the social cognitive theory of Bussey and Bandura (1999), emphasizing that "gender difference is a basic phenomenon that impacts nearly every element of people's everyday lives." Hence, this research also aims to analyze the difference in the perception of e-service quality on smart policing according to gender in the relative social environment. This is to understand better the formation mechanism of gender differences and its influence on the satisfaction level of Abu Dhabi citizens regarding smart policing.

**Review of Literature**

**Abu Dhabi Police**

Leaders of some proto-state development programs, like several of the Arab Gulf States' leaders in the 1960s, have used foreign professional skills to help establish new state agencies such as the military, the police, and intelligence agencies (Yates & Rossiter, 2020). Also, Al Karaeen (2016) states that significant changes have transpired in the Abu Dhabi Police (ADP) modernization program over the past decade. As the program continues, the United Arab Emirates (UAE) government has provided sponsorship to ADP, which eventually fostered several projects. ADP's crucial area is listening to the public. Accountability is of paramount obligation and response to the public of ADP through a formal institution for this intention, or it may also be through other informal groups, of which some are entirely covered beyond government control. The police can enhance public consent as they demonstrate being receptive to the community, which is usually practiced being a precondition approach for effective policing in the democratic concept or structure (Alkareen, 2016).

As further provided by Al Karaeen (2016), ADP continuously updates its strategic plan annually according to the requirements of the general secretariat of the executive council along with the achievements of the Abu Dhabi government's outputs aligned with the constant variables as laid down in the population structure as well as urban expansion. In essence, ADP's ongoing updates of its plans follow the analysis of the internal and external factors surrounding ADP, knowledge of the best practices to realize its strategic goals and priorities, and organize all resources to achieve the set goals.

**E-Service Quality of the Policing**

The e-service quality of policing has been evaluated through many dimensions. These are transparency (Chanin & Courts, 2017; Ekaabi, Khalid & Davidson, 2020), integrity (Tsekeridou, Leventakis, Kokkinis, Charalambous, Anson & Sargsyan, 2019; Ekaabi, Khalid & Davidson, 2020), responsivity (de Guzman & Jones, 2012; Ekaabi, Khalid & Davidson, 2020), interactivity (Carter & Grommon, 2017; Ekaabi, Khalid & Davidson, 2020) and serviceability (Matlala, 2018; Ekaabi, Khalid & Davidson, 2020). Transparency is a fundamental attribute that defines institutional strength and healthy democratic governance (Sol, 2013). Transparency promotes accountability by eliminating information asymmetries, reducing corruption, and creating a greater trust among citizens when access to government data increases (Chanin & Courts, 2017). Some studies related to transparency in policing services include Chanin and Courts (2017), in which the study evaluated 360 police department websites using a 26-point index. The ICT used in government and policing services is significant to transparency initiatives (Ekaabi, Khalid & Davidson, 2020).

Integrity is a quality that involves having a deep sense of what is right and wrong according to the organizational core values and acting in alignment with these values (Ekaabi, Khalid &
Davidson, 2020). A police force with integrity is one with little or no misconduct or corruption. In the past, most studies viewed misconduct as one of the individual problem officers, the so-called bad apples on the force. More recent studies show that racial and demographic profiles create a different perception of policing integrity (Drakulich, Wozniak, Hagan & Johnson, 2020). Integrity is one of the focal issues in the studies related to the public sector as it is related to corruption and ethics (Rice, Jiang & Shaipov 2020. Likewise, the Dutch administration has also place integrity as a primary agenda, not only at the federal level, but its significance is spread to all aspects of integrity, including violations, policies, and various other perspectives (Huberts & Hoekstra, 2016).

Menezes, Sellitto, Librelato, Borchardt and Pereira (2016) defined responsivity as speed in troubleshooting difficulties, often referred to as quickness and agility in problem-solving in unexpected scenarios. Policing based on an individual’s responsivity factors increases chances for success. For example, a low-functioning individual should not be placed in a program requiring extensive journaling and insight-based therapy groups. In interactions with the individuals in a community, an officer must become aware of their unique responsivity factors (e.g., learning style, motivation, culture, cognitive abilities, and strengths). When possible, make strong ties to and beliefs in the tribe’s culture and practices while seeking out and incorporate an appropriate culturally-based supervision plan. This is primarily due to the manipulative nature of these types of offenders. An officer must be aware of non-criminogenic need factors that may impact responsivity to interventions.

The next dimension is interactivity. Interactivity is a vital component of any police-public reciprocal activity facilitated by smart technology (Elnaghi, Alshawi, Kamal, Weerakkody & Irani, 2018). Interactions between police personnel and people can range from civil to explosive in character. Even though the great majority of people encounters involve professional and business-like interactions, some digress into verbal and physical conflict. The police’s and suspect’s conduct during these interactions is heavily impacted by the situation. Therefore, the interactive context of police-citizen encounters is critical if the behaviour of both officers and citizens is to be understood fully. In this setting, interactivity provides a type of social capital for police officers, improving the quality-satisfaction relationship by increasing the perceived advantages of long-term relationships with smart policing (Bullock, 2018). As interaction improves satisfaction with smart technology (Ahmad & Khalid, 2017; Alsaadi, Ahmad & Hussain, 2018), recent research indicates the public-police capability of acting or influencing each other as an essential component of service quality. There has been limited research conducted on the level of force used relative to suspect resistance.

Finally, serviceability is the degree of practicality and ease of use of the policing content and operation of the service with provided resources and within a defined timeframe in the smart context (Ekaabi, Khalid & Davidson, 2020). Service quality is often regarded as a consequence of customers’ expectations of the service to be delivered vs their perceptions of the actual service experience, as described in the literature. In essence, service quality refers to a customer’s entire response to a company’s service. Studies in the field of behavioural intention have linked service quality to satisfaction. In government services markets, customer satisfaction is a key driver of performance, making its evaluation and management crucial (Ekaabi & Khalid, 2016). Satisfaction can, therefore, be described as a key construct for all aspects of relationships between two parties and is placed at the crux of an exchange-based relationship. Many authors concur that satisfaction stems from emotional experience derived from past consumer experiences.
Research Method

Measure
The study approach was the quantitative non-experimental research method using descriptive and inferential statistics. This technique is used when the goal is to define the status of the scenario as it exists to investigate the causes of a specific phenomenon at the moment (Campbell & Stanley, 2015). The items used to measure the variables were to demonstrate the citizens’ perceptions of Abu Dhabi policing e-serve quality on the five dimensions; integrity, transparency, responsivity, interactivity and serviceability. This study used a downloaded questionnaire from web sources. The questionnaire was adapted from Ekaabi, Khalid and Davidson (2020), as well as Ekaabi et al (2020). The items were then modified and contextualized to make it relevant and fit to the study, without losing the essence of the meaning.

There are four items to measure interactivity, that include “the police officers are concerned of the citizens and residents” and “the officers are willing to explain things”. Six items were used to measure integrity and they include “confidentiality of issues”, “adherence to laws, rules and ethical standards” and “acceptance of mistakes and weaknesses”. Transparency was measured with seven items and includes “up to date data for ensuring safety”, “online access to current regulations” and “provision of black and white list of under investigation”. Next, there are five items used to measure responsivity, and they include “providing coverage on vicinity to minimize errors”, “addressing potential nonresponse bias” and “following up planned and performances”. Finally, serviceability was measured with four items and they include “best support system”, “quick adaptation of change of work area” and “prepared in tough work situation”.

Each item was rated as a 5-point Likert scale, ranging from “1 = the quality of policing service embodied in the statement is never observed/experienced” to “5 = the quality of policing service embodied in the statement is observed/experienced in all occasions”. The instrument was pre-tested and validated by high-ranking officers of the Abu Dhabi Police to ensure each item represents the meaning of the construct and to ensure no bias on the policing service was presented. The face validity was assessed to indicate the content of the research is related to the dimensions and variables.

Data Collection and Data Analysis
Data was collected from citizens of Abu Dhabi who are locals, expatriates and residents of the United Arab Emirates. The criteria used were based on age, in which the respondents must be at least 18 years old to participate in the survey. In order to determine the appropriate sample size, the sample size for factoring a sample should not be fewer than 50 observations, and preferably the sample size should be at least 100. As a rule, at a minimum, the sample is set at five times as many observations as the number of variables to be analyzed. An acceptable sample size would have a ratio of 10:1. Hence, as the study is descriptive in nature, and each item will be used for the analysis, the sample was set as 260. The sample was chosen based on convenience sampling technique, and they were invited to participate by responding to an online survey. The period of data collection was within the month of February 2021. A total of 260 responses were obtained. There were 128 males (49%) and 132 females (51%) who participated in the study. Analyses were performed to answer the following research objectives:

1. To assess the acceptance level of the citizens' perception of the e-service quality of the newly transformed e-policing system in Abu Dhabi in terms of:
Findings and Discussion
Perception of Abu Dhabi Policing e-Service Quality
The respondents were asked to rate their perceptions on the policing e-service quality based on a 5-point Likert scale. The results of the overall perceptions are depicted in the chart of Figure 1 and also in Table 1. Based on the results, in general all dimensions of service quality have a very high acceptance of perception evaluation with the lowest score for interactivity (M=4.330, SD = 0.806) and the highest score for serviceability (M= 4.715, SD = 0.511) with integrity (Mean = 4.51, SD = 0.661), transparency (M = 4.634, SD = 0.482) and responsivity (M = 4.617, SD = 0.529). Hence, the results suggest Abu Dhabi citizens perceive the policing services as very good.

Next, the internal consistency test was performed for measuring the reliability of the item measurement. The results are shown in Table 1. It is measured using the Cronbach Alpha coefficient to indicate the degree that the items measure the unidimensional latent construct. Ursachi, Horodnic and Zait (2015). mentioned a general acceptance rule is that Cronbach alpha of 0.6 – 0.7 indicates an acceptable level of reliability, and 0.8 or greater indicates a very good level. The results in Table 1 shows all scores are within the acceptable values.
Table 1

Descriptive Analysis and Internal Consistency Score

| Item Measurement                          | Mean  | STDV  | Cronbach Alpha |
|------------------------------------------|-------|-------|----------------|
| **Interactivity**                        |       |       |                |
| INT1: enthusiastic of his/her job         | 4.332 | 0.806 | 0.659          |
| INT2: trusting his/her co-worker.         | 4.285 | 0.806 |                |
| INT3: concerned of the citizens/residents.| 4.358 | 0.803 |                |
| INT4: willing to explain things again.    | 4.392 | 0.784 |                |
| **Integrity**                            |       |       |                |
| IGRT1: confidentiality of issues.         | 4.510 | 0.661 | 0.734          |
| IGRT2: adherence to laws, rules and ethical standards. | 4.465 | 0.687 |                |
| IGRT3: avoidance to gossips, favoritism and cliques. | 4.477 | 0.682 |                |
| IGRT4: acceptance of mistakes and weaknesses. | 4.550 | 0.663 |                |
| IGRT5: honorable actions and responsibility. | 4.581 | 0.599 |                |
| IGRT6: earned trust and confidence by residents | 4.469 | 0.670 |                |
| **Transparency**                         | 4.634 | 0.482 | 0.703          |
| TRN1: Availability of list of residents in the area and vicinity. | 4.658 | 0.474 |                |
| TRN2: Monitoring programs in all daily life activities. | 4.585 | 0.493 |                |
| TRN3: up to date data for ensuring safety. | 4.642 | 0.479 |                |
| TRN4: online access to current regulations. | 4.608 | 0.488 |                |
| TRN5: production of regular reports about activities. | 4.635 | 0.482 |                |
| TRN6: schedule of regular performance reviews. | 4.642 | 0.479 |                |
| TRN7: provision of black and white list of under investigation. | 4.665 | 0.472 |                |
| **Responsivity**                         | 4.617 | 0.529 | 0.664          |
| RESP1: approachable in different situations and instances. | 4.600 | 0.520 |                |
| RESP2: Providing coverage on vicinity to minimize errors. | 4.615 | 0.539 |                |
| RESP3: Calculating response rates.        | 4.654 | 0.522 |                |
| RESP4: addressing potential nonresponse bias. | 4.596 | 0.536 |                |
| RESP5: following up planned and performances. | 4.619 | 0.524 |                |
| **Serviceability**                       | 4.715 | 0.511 | 0.729          |
| SERV1: best support system.              | 4.719 | 0.49  |                |
| SERV2: quick adaptation of change of work area. | 4.738 | 0.512 |                |
| SERV3: prepared in tough work situation. | 4.735 | 0.499 |                |
| SERV4: dealt with frequent changes and unexpected events. | 4.669 | 0.539 |                |

Perception Differences Between Gender

Two-sample t-tests were conducted to test the null hypothesis stating that there is no significant difference in the perception of e-service quality of Abu Dhabi policing when categorized according to gender. The results of the analysis are shown in Table 2.
The results indicate males and female were found to have no significant difference in the interactivity perception of Abu Dhabi policing e-service quality (t(258) = -0.264, p > 0.05), no significance difference in the perception of integrity (t(258) = -1.502, p > 0.05), no significance difference in the perception of transparency (t(258) = 0.152, p > 0.05), no significance difference in the perception of responsivity (t(258) = -0.202, p > 0.05) and no significance difference in the perception of serviceability (t(258) = 1.616, p > 0.05).

Discussion
The results of the study revealed that the perceptions of the citizens of Abu-Dhabi Policing e-service quality mean score of 4.56 which is high in its description. The five indicators ordered from highest to lowest are as follows; serviceability which is the highest with 4.715, next is transparency with 4.634, responsivity with 4.617, integrity with 4.51 and the lastly, interactivity with 4.33. These findings tell those citizens were satisfied of the e-service quality of the Abu-Dhabi Policing. The implication of the results revealed that Abu-Dhabi Policing e-service gives the highest services of the citizens.

On the other hand, the results that revealed between the male and female citizens perception of the Abu-Dhabi Policing e-service quality were of no significant difference in the indicators. This implied that the quality of e-services in Abu-Dhabi policing functioned equally whether male or female citizens of the country. There is no partiality in terms of giving the services. The potential harmony of e-service quality is shown in a number of ways. One way is by establishing the tasks for the policy makers following the essential competencies in the service they offer to the citizens. Another way is by showing that the activities are being executed accordingly in the area of responsibility and their performances are being reflected and anticipated. A potential criticism of the Abu-Dhabi policing e-service could be set out to challenge directly the problems in the current practice, delivery of services, monitoring and evaluation. The reason for this is that the citizens felt it would be more effective to validation of the e-services that would require some changes of the practice, rather than to criticize police services directly. Research will be necessary to establish whether this approach is effective.

The citizens and policing are a combination of togetherness that formulates an atmosphere in such a way that they can be a meaningful quality of services. This begins identifying and discussing policing strategies fitted for citizens that confront new ideas as a result of observations, experiences and research. E-service seeks, where possible, to involve all in the
construction of an experimental design which will yield answers for queries in the delivery of the service and normal set-up. If the citizens are not yet capable of such involvement the police must therefore give them a predefined experience. They must at least be aware of the development and process and the e-service norms. It is necessary to develop suitable presentations which broaden the citizens’ view of the holistic significance of the policing e-services.

Conclusions
The study seeks to explore the perceptions of Abu Dhabi citizens on the policing e-service quality. The findings suggest, in general, the citizens are satisfied with the services, with the highest quality perception on the serviceability, followed by transparency, responsivity, integrity and finally interactivity. Likewise, there is no significant difference in the citizens’ perception of the quality of service of the newly transformed e-policing system in Abu Dhabi in comparison between gender. The findings are important in providing a scientific basis in the assessment of utilizing information and communication technology as a strategy to improve public safety and social harmony. Through measures involving the public, ADP can appreciate societal concerns and note those interests as they set their priorities. Hence, policing institutions should not deny the importance of information and communication technology in the policing operation. In addition, the findings provide a greater opportunity for both policing and academic institutions to work together in looking for ways in educating the citizens about trust to police administration. However, as the study is limited to the descriptive analysis of the dimensions, future research should embark on linking the service quality with other outcomes, such as satisfaction to the services, or the trustworthiness of the policing and public services. Finally, as technology use is robust, future study should also evaluate the policing services across time and to consider the changes in the technological and innovation landscape.

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