

## The Relationship of Electronic Banking Tools to Consumer Satisfaction Concerning Cyber Security Threats and Risks of the Modern Epidemic Crisis

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### Abstract

This study aims to explore the various changes that occurred in the banking and financial industry, espically how e-banking has concurred the financial industry. It is also important to note how these changes affected customer satisfaction, while also keeping in mind the differences between traditional banking and e-banking, as well as the obstacles that each sector faces, and the benefits that each sector has to offer. The researcher explained the concept of adopting digital banking tools, achieving customer satisfaction, and showcasing the different points of view regarding these two concepts. In addition, the researcher clarified the most important dimensions and indicators for measuring the level of adopting online banking tools and achieving customer satisfaction. This study finds that there is a correlation between the various banking tools and their impact on customer satisfaction, i.e. the consumer behavior depends on various factors that differ by several circumstances. The study recommends the need to keep up with the latest banking tools and constantly upgrade their security systems.

**Keywords:** Islamic finance, Islamic banks, customer satisfaction, online banking.

### علاقة الأدوات المصرفية الإلكترونية برضا المستهلك بالإشارة إلى تهديدات الأمن السيبراني ومخاطر الأزمة الوبائية الحديثة

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### ملخص

تهدف هذه الدراسة إلى استكشاف التغيرات المختلفة التي حدثت في القطاع المصرفي والمالي، وعلى وجه التحديد كيف أن الخدمات المصرفية الإلكترونية اتفقت مع الخدمات المالية، ومن المهم أيضاً ملاحظة كيف أثرت هذه التغييرات على رضا العملاء. مع الأخذ في الاعتبار أيضاً الاختلافات بين الخدمات المصرفية التقليدية والخدمات المصرفية الإلكترونية، فضلاً عن العقبات التي يواجهها كل قطاع، والفوائد التي يجب أن يقدمها كل قطاع. وأوضح الباحث مفهوم اعتماد الأدوات المصرفية الرقمية، وتحقيق رضا العملاء، وعرض وجهات النظر المختلفة فيما يتعلق بهذين المفهومين. بالإضافة إلى ذلك، أوضح الباحث أهم الأبعاد والمؤشرات لقياس مستوى اعتماد أدوات الخدمات المصرفية عبر الإنترنت وتحقيق رضا العملاء. النتيجة التي تظهرها هذه الدراسة الارتباط بين الأدوات المصرفية المختلفة وتأثيرها على رضا العملاء، وتوصي الدراسة البنوك بمواكبة أحدث الأدوات المصرفية بالإضافة إلى ترقية أمانها باستمرار.

الكلمات الدالة: التمويل الإسلامي، البنوك الإسلامية، إرضاء العملاء، الخدمات المصرفية عبر الإنترنت.



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## Introduction

The traditional and Islamic banking and financial industry is going through continuous transformations which are extremely needed to ensure customer satisfaction, specifically in the internet age. One of the innovations that the traditional and Islamic banking industry has to offer is electronic banking or what also could be called Cyberbanking or Internet Banking.

Electronic banking can be defined as a form of banking in which funds are transferred through an exchange of electronic signals rather than through an exchange of cash, checks, or other types of paper documents. It includes the systems that enable financial institution customers, individuals, or businesses to access accounts, transact business, or obtain information on financial products and services through a public or private network.

Taking into account that customer satisfaction is the key parameter for banks to ensure how effective their services are, it is important to keep that in mind when transforming the basis of your services into electronic-based services. E-banking can give the traditional and Islamic banking industries several opportunities to measure the level of their customer satisfaction. If done successfully, e-banking could be a massive conversion for the traditional and Islamic banking industry, and it could affect not only the customers but also the microenvironment of the traditional and Islamic banking and financial industry.

There are specific terminologies that are required to be mentioned in this study to understand the more in-depth details of online banking. Such as E-banking: is defined as the automated delivery of new and traditional and Islamic banking products and services directly to customers through electronic, interactive communication channels. [1] E-Commerce: Electronic commerce is the trading of products or services using computer networks such as the internet. [2] E-Money: Electronic money is broadly defined as an electronic store of monetary value on a technical device that may be widely used for making payments to entities other than the e-money issuer. The device acts as a prepaid bearer instrument which does not necessarily involve bank accounts in transactions. [3] E-Finance: The provision of financial services and markets using electronic communication and computation. [4] Consumer Behavior: a process of choosing, purchasing, using, and disposing of products or services by individuals and groups to satisfy their needs and wants. [5]

## Research problem

1. Does the adoption of modern banking tools impact customer satisfaction?
2. Does online banking impact customer satisfaction?
3. Does the usage of ATMs banking impact customer satisfaction?
4. Do virtual banking tools impact customer satisfaction?

## Research Importance

### Theoretical importance:

- 1- The study sheds light on the different online banking tools, especially in the modern age, and how these tools could affect customer satisfaction in Jordanian banks.
- 2- There are limited studies that focus on the adoption of online marketing tools in Jordanian banks, and how they use these tools to achieve customer satisfaction.

### Practical importance:

- 1- This study will help banks understand the importance of adopting online banking tools, as well as how to use these tools to gain customer satisfaction.

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[1] Definition of E-Banking by The Federal Financial Institutions Examination Council (FFIEC)

[2] "Introduction to e-commerce combining business and information technology", By Dr. Martin kutz, 2016.

[3] Definition of Electronic Money by the European central bank, available on their official website, ecb.europa.eu

[4] E-finance: an introduction by Franklin Allen, James Mcandrews, Philip strahan. 2002.

[5] Consumer Behavior study, by Solomon et al, 1995.

- 2- The need for a successful implementation of online banking tools.

### **Research Objectives:**

This study aims to see the effect of the current global pandemic (Covid-19) on consumer behavior related to online banking. As well as understand the cyber environment and the various kinds of threats online banks face.

### **Theoretical objectives:**

- 1- Explaining the concept of adopting digital banking tools, achieving customer satisfaction, and showcasing the different points of view regarding these two concepts.
- 2- Clarifying the most important dimensions and indicators for measuring the level of adopting online banking tools, as well as, achieving customer satisfaction.

### **Practical objectives:**

- 1- Provide recommendations that managers and employees in Jordanian banks could take into account when adopting online banking tools to achieve customer satisfaction.
- 2- Identifying the extent of achieving customer satisfaction from the point of view of the employees working.

### **Literature Review**

Understanding the differences between traditional and Islamic banking and modern banking tools will allow us to see right through the importance of each field and how it affects consumer behavior and consumer satisfaction. There are various parameters to take into consideration when it comes to this matter. However, based on several studies [1] there are specific measures that can sum up the main differences. First, presence which is the most touched on attribute when it comes to differentiating between traditional Islamic banking and electronic banking, it is the physical presence. Traditional Islamic banks tend to have a physical existence when providing their services. However, electronic banks tend to have a more virtual presence. Second, customer satisfaction, i.e. if customers want to benefit from the services that traditional banks provide, they have to physically visit banks during working hours. On the contrary, electronic banking is available for customers at any time, as it is a 24-hour service. In relation to security, the security obstacles that traditional and electronic banks face may differ greatly from the security obstacles of electronic banking. For instance, the kind of security obstacle that traditional and Islamic banking may face is the fear of robberies, while the fear that online banking faces may be more of a cyber-threat. [2] Cost: The cost of operating a bank may differ based on several factors. But generally speaking, Online banking tends to be less costly due to the type of needs it requires to operate and exist efficiently. Interest rates: When it comes to interest rates online banks show a higher interest rate than traditional banks and that is the result of the lack of need for physical existence funding. In recent studies, it was shown that online banks had six times higher IR than the nationwide average. [3] Customer service: This parameter is quite interesting because it depends entirely on the customers' preferences. If the customer prefers a more face-to-face interaction then the ideal option is to go to a traditional bank, but if the customer prefers an online transaction without having to interact with the employee physically then electronic banking is the ideal option. Finance control: This parameter is for customers who go beyond the everyday traditional and Islamic banking services, and they require regular services with their financing decisions. For customers like this, it is ideal to choose an online bank rather than a traditional one because of the previously mentioned parameters, it would be a lot more convenient to make such a decision.

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[1] A study done by Dr. Md Kamrul Hasan on traditional banks and e-banks, and the differences between them.

[2] "Here's why online banks are better than traditional banks" article by Megan Durisin, 2013.

[3] A study done by MoneyRates.com on the interest rates of e-banks.

### **Online banking**

Online banking has shown obvious growth and adoption by banks due to its importance. Online banking makes the trip to your bank unneeded because you can do various kinds of services online. Many banks tend to adopt the presence of online banking nowadays because it has shown significant increase in customer's satisfaction. Online banking has many advantages, such as convenience, transaction speed, and high efficiency. However, online banking requires trust between the customer and the bank or the teller, who you conduct your banking services with.

Some of the services that online banking offers are:

- Review accounts and banking history.
- Transfer funds between accounts, whether within the bank network or local banks.
- Convert money into cost versus email and bank cost.
- Get live cards.
- View and print the electronic statements of the customers' accounts in the form of "Microsoft Excel" or "Adobe PDF", in addition to the ability to choose the period, and save them at any time.
- View photos of checks.

### **Usage of ATMs banking**

The usage of ATMs banking can be observed by the number of installed ATMs which has gone up to 3.7 million ATMs worldwide by 2018. ATMs allow customers to perform self-serving transactions and cash withdrawals, transferring between accounts, and even bill payments in exchange for a fee. The reason ATMs usage has increased is their presence near most neighborhoods which makes it easier to perform your needed tasks quickly without having to wait or perform difficult tasks.

### **Virtual banking services**

With the current advances that we have as the modern age we are privileged to have access to various services that make our tasks easier and more efficient. Virtual banking refers to the existence of banks in the virtual aspect without the need for a physical presence, with that, it gives the bank the opportunity to offer various virtual services that increase the satisfaction level for their customers.

The following are virtual services that both traditional and Islamic banks can provide. Immediate savings account creation, owning a virtual presence for a bank means that services become much easier and faster for the customer for instance when creating a savings account using the traditional way, the customer would have to visit the bank and fill out forms with their information, wait in queue, and deal with a long process. However, virtual banking helps make the creation process of savings account much faster. Investment and portfolio profiles enable customers to access their portfolios and their investment activities online which is more convenient for them especially for customers who are heavily interested in investing. One of the virtual banking services that is most commonly used is transferring money in real-time through the virtual bank which is a feature that is very convenient for people who would like to send-receive money without having to deal with various forms, waiting in long queues at banks, transportation to the bank ...etc.

### **The effect of cyber threats on electronic banks**

As previously mentioned in this study, one of the major factors affecting electronic banks is the security factor. It is quite important to mention the role that cyber security threats play in the operation process of electronic banks. Cybercrimes may affect everyone and anyone whether it was in our everyday operations and activities or in a broader sector such as the financial and traditional and Islamic banking sector. These cybercrimes can be defined in various ways but ultimately it is simply put as "also called computer crime, the use of a computer as an instrument to further illegal ends."

### **The motivations behind cyber-threats**

Cyber-crimes can vary and differ in their means depending on the main cause behind these crimes and threats, and their main purpose of persuading such actions. Based on the Canadian center for cyber security the motivations behind these actions can be classified into. First, profit-related motivations, i.e. it is not strange that the objective some cybercriminals have in their mind as they seek harm for the financial, traditional and Islamic banking industry is mainly to profit from the damages that they can cause. Second, satisfactions, i.e. people who mainly seek satisfaction out of causing cyber-crimes are what the cyber community calls "Hacktivists" or simply thrill-seekers. Their actions are randomized, and they often do not have a long-lasting effect on the target that they mean to affect. Discontent, these kinds of threats are often coming from inside the organization, they are considered quite dangerous due to the fact that they are coming from workers who have access to internal networks. The reasons that lead employees to seek such actions may differ depending on the employee and their relationship with their managers or co-workers.

### **The different types of cyber-threats**

For electronic banks and general online organizations to protect themselves in the cyber environment, it is important to understand the specific kind of threat or crime that is affecting the organization. These threats and crimes differ based on their nature and their target, based on a 2020 study [1] the most common threats that electronic banks face are as follows. First, Ransomware defined as "a type of malware from crypto virology that threatens to publish the victim's data or perpetually block access to it unless a ransom is paid." [2] This attack is the most common that electronic banks and online financial organizations are facing in the year 2020. Second, Phishing attacks are defined as "cybercrime in which a target or targets are contacted by email, telephone or text message by someone posing as a legitimate institution to lure individuals into providing sensitive data such as personally identifiable information, banking, and credit card details, and passwords." [3] They take a big percentage of the attacks that e-banks face nowadays. Third, Third-party agreements, many organizations and banks seek help from a third-party especially when converting into an all-digital presence. This could result in various kinds of risks, and it leads to a high threat level. Fourth, DDoS attacks represent a high-risk factor in the cyber community, and this was shown in the 2016 that DDoS attack [4] affected several online companies and websites heavily. These kinds of threats are still present today. Fifth, Multifactor authentication is defined as "an electronic authentication method in which a computer user is granted access to a website or application only after successfully presenting two or more pieces of evidence to an authentication mechanism: knowledge, possession, and inherence." [5] Based on the definition alone is it clear how this kind of attack would affect the financial sector, especially the ways hackers may exploit the vulnerabilities found in the electronic banking systems for their own advantage. Another threat worth mentioning is the "Spoofing" threat, which is a newer kind of cyber threat where the people behind it would manage to manipulate consumers by cloning the specified URL of the electronic bank. Doing such an action would put the security of the bank in such a vulnerable situation.

### **Relevant statistics to cyber-threats**

The following statistics are based on a 2017 – 2019 study that focuses on cyber security. Various technological experts were included in this study to help understand the security threat levels and how they affect electronic banks. The first statistic conducted by this study is the potential impact of attacks on online banks. After touching on the various kinds of attacks banks need to understand the level of impact that each cyber threat has on them. The second diagram represents the Security level of

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[1] "5 Critical Cyber Threats in Banking for 2020" Article, by Karol Przystalski, 2020.

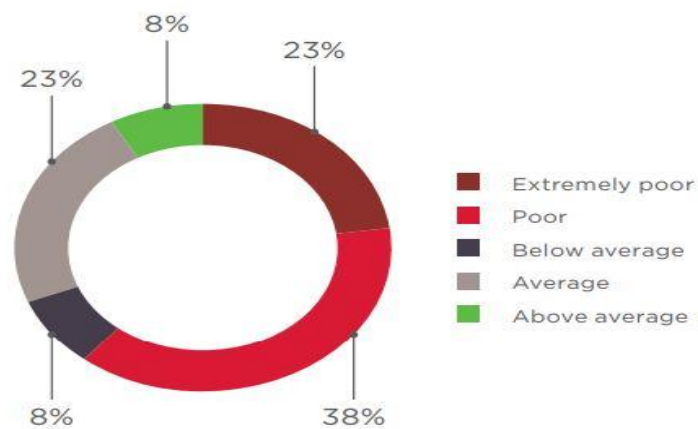
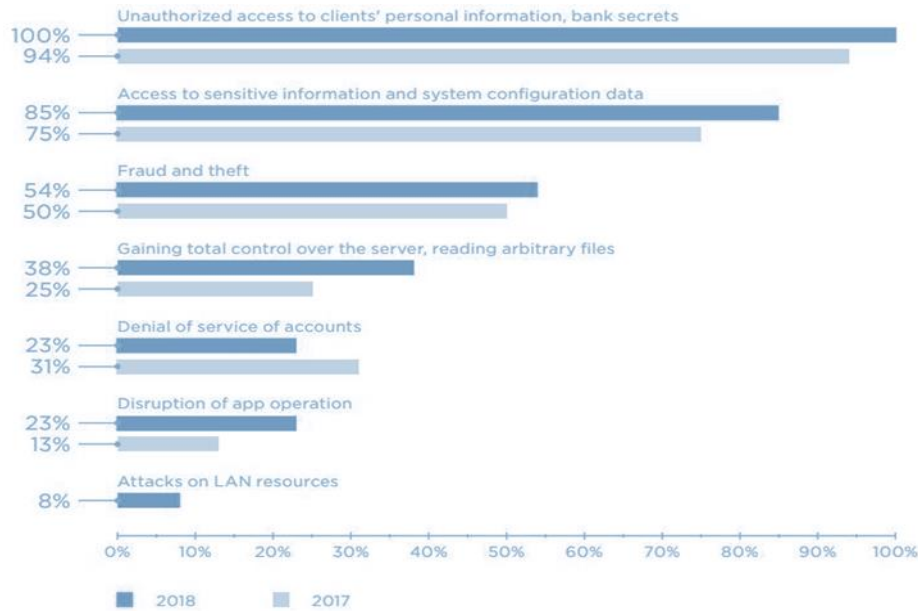
[2] Cryptovirology: extortion-based security threats and countermeasures. Young, A.; M. Yung (1996).

[3] "Phishing attacks and countermeasures" Ramzan, Zulfikar (2010).

[4] "WikiLeaks supporters claim credit for massive U.S. cyberattack, but researchers skeptical, Romm, Tony; Geller, Eric (2016).

[5] "Two-factor authentication: What you need to know ". 2015

online banks; it is kind of expected for electronic banks have a high percentage of “Extremely poor” security levels. It is not a simple task to achieve complete security specifically when threats surround the cyber community.]

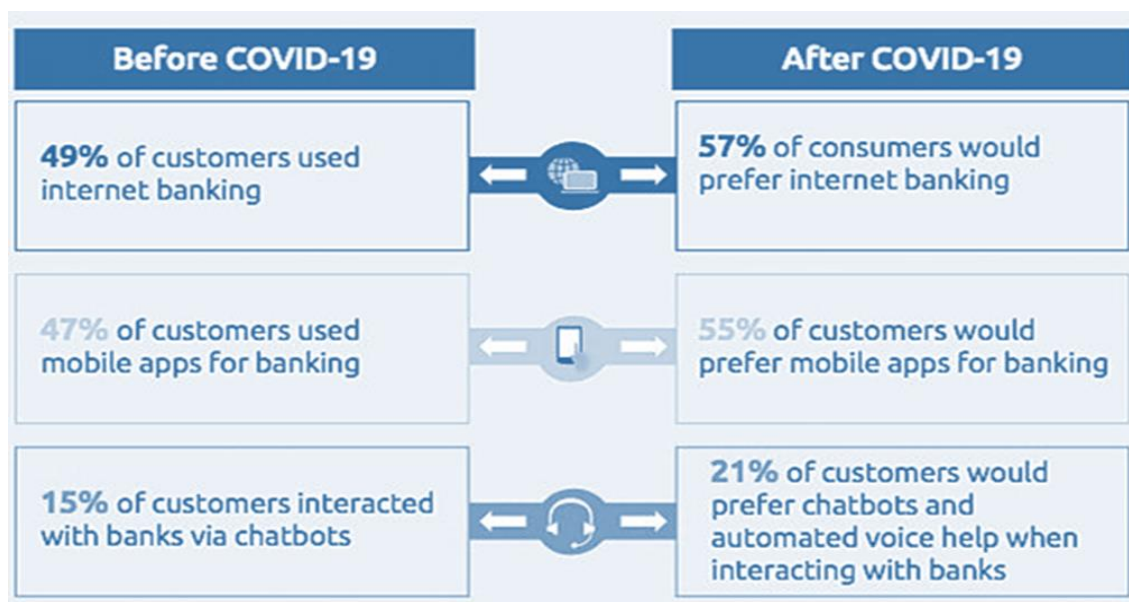


**Reference:** “Mobile Banking Outpaces Branch Banking for First Time in 2015”, JAVELIN.

**Global pandemic effect on online banking usage**

A crucial part of the study of online banking’s impact on consumer behavior is the current effect of the global pandemic that we are facing. The coronavirus (covid-19) pandemic affected every one of us in various ways, it surely affected online banking as well. The coronavirus (Covid-19) is a contagious respiratory and vascular disease, due to the widespread of this virus day-to-day activities had to change drastically. This mainly was presented by the reduction of physical and face-to-

face interactions which resulted in the heavy usage of online services to avoid being exposed to the virus. A study [1] has resulted in the following percentages revolving around the opinions of people after being affected by the global pandemic. It is quite clear that the usage of online services has heavily increased in 2020 due to the current circumstances. It was found that 82% of consumers are concerned about going to their bank, 73% are doing more remote work/errands, 63% are more inclined to try a digital app, and 56% are worried about being able to repay loans.



After conducting another study [2] on the consumer preference when handling their money before and after the spread of Covid-19, there was an extremely obvious increase in the preference of online banking usage. [3]

**Results:**

- 1- The study shows the correlation between the various banking tools and their impact on customer satisfaction.
- 2- Banks have adopted modern banking tools due to their importance.
- 3- Cyber-threats have a strong impact on the adoption of online banking by banks.

**Recommendations:**

- 1- The study would advise banks to keep-up with the latest banking tools.
- 2- The study would advise banks to pay attention to their security due to the various threats in modern banking tools.

**Conclusion**

Based on the various studies and statistics done on the impact of the current global pandemic and how it affects consumer behavior, as well as the studies on cyber-threats and how they affect the work of online banks it is a very interesting finding that consumer behavior depends on various factors that differ by several circumstances. But it is without a doubt a noticeable finding that the usage of electronic banking and online financial services increased heavily specifically in the year 2020.

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[1] Lightico (US data, 15 March 2020)

[2] Capgemini financial services analysis, 2020; Capgemini COVID-19 Consumer Survey.

[3] Consultancy.eu: Digital transformation in retail banking is shifting gear.

Banks need to consider expanding their online services while also maintaining a secure service platform that does not put its customers at risk. That being said, the success rate of online banking can go a long way in ensuring customer satisfaction.

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