

**ITC571 –202030**

**Emerging Technologies and Innovation**

**Assignment 4**

**Final Report**

**Challenges of implementation of biometrics in banking transaction**

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## **Abstract**

There are Several authentications mechanisms emerged with time. Banking transactions need an effective authentication system so that customers can easily access the services while the bank can manage security at high priorities. The traditional password-based authentication mechanism is prone to theft and attacks while it is also complex to remember. The banking sector is moving toward the adoption of biometric technologies. However, there are several challenges and risks to integrate biometric technologies into banking transactions. Most of the researches are being conducted to determine the potentials and advantages of technologies such as fingerprint and iris scanning, but it is significant to reveal the challenges associated with the integration of such technologies. The research is intended to identify the potential threats and challenges to the banking and finance sector during the implementation of the technologies on the transaction-level security. The research has positive impacts on the current research practices in the domain while it can help the banking sectors to assure secure and reliable integration of the technologies into practices.

## **Introduction**

Emerging technologies are the technical innovations that constitute progressive innovations in a specific field for the attainment of competitive advantages. Today, there is a wide range of emerging technologies available where every technology follows a sequential process. In this final report, I have intended to explain the earlier carried research work on “challenges of implementation of biometrics in banking transactions”. Addressing biometric challenges is very important as even a small threat can keep the entire banking institution at high risk. Appropriate utilization of biometric technology in banking is expected to bring profound changes but there are no fewer challenges faced with this technology as clearly explained in the previous report. Earlier reports have completely focused on addressing the issues where this report is comparatively different from others because it aimed to resolve the addressed issues. The primary objective of the study is to gather data related to the issues the banking domain is facing with the execution of biometric technology, while the secondary objective is carried on the identification of methods, tools, and schemes to resolve them (Alangoode,2018). The theoretical and practical implications were gathered form a total of twelve research papers where most of the papers presented the practical implications and very few of them have talked about theoretical implications.

The “challenges of execution of biometrics in banking” require new research works because most of the issues are left unsolved which can be viewed from the literature survey and earlier works carried by the authors. This assessment tried to solve the problems by providing the necessary recommendations. (Parusheva,2015)

The literature is carried on multiple arenas where the biometric technology is used in performing banking transactions. In this assessment, I strived to gather the research works carried on the same topic Research on biometric technology or its challenges are not new, but many issues were not provided with proper solutions. Besides, the literature review will let the banking sector know the development requirements and infrastructure

changes that need to be made for better performance of banking transactions. In this research report, I will elaborate on my research question in the discussion part, adoption of biometric technology, comparison between traditional technology and biometric technology, challenges of biometric technology, and solutions to optimize the use of biometric technology.

Before solving these questions, I strived to identify the main reason for its occurrence. Issues are common with every technology, but here the banking sectors are equally responsible for creating issues because they are supposed to thoroughly analyze the technology. Here analyzing does not specify advantages alone, it also specifies challenges.

## **Methodology**

For this situation, three research techniques will be utilized for exhaustive research. The principal strategy is that of a literature review. As far as the writing audit, it has been guaranteed that solitary the diary articles have been chosen. The second technique that has been utilized for this situation is that of the investigation of the open records. The optional information assortment technique has been utilized to gather information from the past investigates. Morals can be characterized as the key zones of research that should be considered to guarantee that the people associated with the exploration have been clinging to the key zones of moral administration. Ethical issues are the accuracy of the information, the authenticity of sources, and relevancy of the topic of the previous paper with the current paper. The secondary data collection method has been used to collect the data from the previous researches (Alangoode,2018). Also, I have read a lot of articles from various sources like Google Scholar, CSU Primo related to my topic. After reading these articles I choose the appropriate article which is related to my research topic.

## **Results**

After having a lot of articles, their quality and validity were checked by utilizing a few inquiries by CRAAP test which represents Currency, Relevance, Authority, Accuracy, and Purpose These all deliberate were done and at long last 13 articles were shortlisted. A portion of the articles depended on the writing audit while some had utilized the quantitative methodology as a poll. From the research conducted on the “challenges of biometrics in banking,” it can be argued that security & privacy are at the forefront while performing banking transactions. From the results, it can be viewed that there is a need to construct a more reliable & stable framework for performing secured banking transactions. The researchers believe that the present existing traditional authentication schemes like “password authentication” are unable to fight against evolving threats (Sabharwal,2017). This is the arena where the banking sectors started focusing on biometrics. From the results obtained from the qualitative research biometric technology

is prone to varied security issues were understanding them is of utmost importance for the banking domain before utilizing this technology in place. Besides, the results specify that having a brief understanding of biometrics will resolve most of the challenges before they take place. Moreover, future research is supposed to be carried for the better attainment of security & privacy in biometrics (Saralaya, Anjali, & et.al,2017).

## **Discussion**

In this report, the overall discussion is carried on the identification of varied issues the banking sectors facing with biometric implantation. The research has aimed to discuss the significance as well as the threats the biometric technology is creating in the banking sector (Sarma & Singh, 2015).

- **Adoption of biometric technology in banking**

The reception of biometric innovation as a method for distinguishing and verifying people has been suggested as one of the shifted answers for a significant amount of safety confronts looked by the financial business. In this document, the creators speak to the ATM exchange validation issue of investment exchanges utilizing unique mark recognizable proof as one type of biometric confirmation. The epic technique embraced proposes the utilization of a connected off-card unique mark confirmation, which includes the coordinating of the on the screen unique mark with pre-put away layouts peruse from the ATM keen card. The exploratory assessment of the intended approach gives a framework that presents quicker and moderately enhance the safety of confirmation when contrasted with past and existing techniques (Mireku, Yaro & Louis, 2015)

- The creators propose the structure and execution of an online off-card confirmation and biometric validation framework on ATMs that works without a remote association with an application server for check and verification on the ATM framework

Banking face many issues: -

- As indicated by (Aithal,2016), the primary difficulties with the biometric innovation in banking exchange are changes in the highlights. For example, a unique mark may be changed because of injury or harm, while the framework occasionally distinguishes the fingers when they are not perfect. So also, voice highly affects age. Retina occasionally changes with time, yet it is intricate to oversee in a hurry as it needs a consistent situation to guarantee a powerful examination of the retina.
- The financial part and the clients likewise need successful reconciliation of the necessary equipment and programming segments so that there is a requirement for changes in the framework of the banks. Furthermore, the resetting procedure of the validation for a client is unpredictable because the framework needs a successful appraisal of changes in contrast with the past subtleties. Unique mark

and retina examine are significant innovations that are being considered for the survey against their difficulties to the bank and clients (Blanco & Lunert,2018).

- Just the same as different sorts of verification, for example, passwords, biometrics look at a contribution with a base report or record hung on the document to check whether the two matches. There are a few different ways that such "static" biometrics can be a caricature. An engraving of the unique mark could be taken and introduced at the purpose of confirmation instead of the genuine article. On the other hand, on the off chance that a programmer can change the base record, at that point, the confirmation framework could be made to believe that someone else's unique finger impression is that of the approved client. (Aithal,2016)

- **Advantages of biometric technology in comparison to traditional technologies**

There have been a lot of progressions in the field of biometrics in recent years. From the earliest starting point of time to the current day, security frameworks have been an issue of worry for everybody hoping to shield crucial and significant data. Dividers, doors, and watchtowers were a portion of the security framework utilized around then and still nowadays to make sure about our home, office, or premises that necessary security from an undesirable interloper. The traditional technology system includes pin and password, ID cards, and CCTV cameras etcetera (Gunasinghe & Bertino, 2017) However, in this era biometric innovation is seen by numerous individuals as the best and safe strategy for singular distinguishing proof. There are a few differences between traditional technologies and biometric technology. First, biometric innovation likewise is an incredible cost saver. Present-day biometric recognizable proof administration frameworks are involved in equipment and programming that are easy to introduce and simple to utilize, which decreases the requirement for extraordinary preparation and progressing the executive's costs. Also, biometric distinguishing proof administration helps spare different costs, for example, the issuance of new ID cards, and supplanting lost or harmed ID cards, or the tedious and asset depleting need to reset overlooked or taken passwords. Likewise, one of the principal points of interest related to biometric development is high individual conspicuous verification precision. Biometrics relies upon the use of novel physical characteristics, for instance, a one of a kind finger impression, an iris model, or facial properties rendering biometric advancement a careful system of affirming end customers (Venugopal & Viswanath, 2016).

- **Major challenges the banking transactions might face due to the inadequacy of biometric technology integration**

Banking faces many security challenges if they didn't have biometric technology.

- Programmers have utilized phishing tricks to appropriate passwords and installment card information with amazing achievement. Counterfeit website pages and email messages professing to be from real money related foundations regularly stunt clients into unconsciously giving over delicate data that can be utilized in banking extortion. Malware, for example, keyloggers (which track keystrokes), and trojans that can perform screen catch of online login pages are other basic roads for qualification burglary (Blanco-Gonzalo, Lunert, 2018)
- The gigantic volume of taken qualifications on the web by and large tosses fuel on the fire. Numerous programmers utilize a strategy called qualification stuffing, whereby they test taken usernames and passwords on however many online administrations as could be expected under the circumstances. This strategy is effective for the sole explanation that many present clients are burdened by making long, complex passwords for each online record (Piotrowska, Polasik, & et.al,2017).
- Indeed, even disconnected, fraudsters utilize imaginative strategies to take installment information. One trick includes acting as a driver for a rideshare administration, for example, Uber and going after non-watchful clients. Con artists profess to be an individual's driver and charge toward the finish of the excursion with the reason that the installment framework is down, so, all in all, they request that the rider swipe their card, and to enter their PIN.

- **Solutions to optimize the use of biometric technology in banking transactions**

The solution to improve the utilization of biometric in banking exchange. Certis ID is a biometric client and worker recognizable proof answer for the banking and money related administration enterprises to help forestall misrepresentation, ensure resources, and set up a solid review trail of exchanges. With the capacity to help unique finger impression, finger vein, palm vein, iris, facial, and voice acknowledgment, CertisID enlists clients and representatives utilizing their interesting biometric certifications and gives a more elevated level of security than passwords, individual recognizable proof numbers (PINs), or ID cards. (Gatali, Park, & Kang, 2016)

CertisID will guarantee that a record holder's personality is exact through biometric distinguishing proof yet additionally has the special capacity to enlist and recognize all non-account holders to follow their exercises through inherent man-made brainpower (AI) abilities. Moreover, all representatives will be responsible for their information access and exchange exercises through CertisID if a solitary sign-on arrangement is included.

The recommendations essential for this research are as follows.

- Before getting associated with biometrics, it is recommended for the banking sector to have a prior understanding of all the core functions related to biometric technology.
- Issues are not new with biometrics, so continual research is required to be carried in this domain due to increasing data and evolving technologies.
- The banking sector must get associated with even better authentication mechanisms for even better handling of their banking-related procedures (Jain, Nandakumar, & Ross, 2016).
- Not only the banking individuals, but it is also recommended for customers to know what biometrics all is about along with the impacts it can while they are performing transactions.

## **Conclusion**

According to the assessment “Emerging technology & innovation” many new technologies are coming in to place where biometrics is one technology that is gaining huge focus and attention. In this research, biometrics is discussing in the arena of the banking sector. Previous reports have addressed the challenges the banking sectors are going with this technology specifically while making banking transactions. Taking those into account, this report has suggested several ways to deal and mitigate them via easier means. Apart from it, this report has suggested several ways to enhance banking transactions. The computation framework is considered beneficial not for the identification of issues but also for knowing the banking arenas that require more attention and research work to be carried. The literature review carried in the earlier reports made this research work simpler. From the above, it can be stated that this phase of the report has successfully achieved its objectives.

## References

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Venugopal, H., & Viswanath, N. (2016, November). A robust and secure authentication mechanism in online banking. In 2016 Online International Conference on Green Engineering and Technologies (IC-GET) (pp. 1-3). IEEE

## Weekly Progress reports

### Week 2

<b>Name:</b>	SANDEEP KAUR		
<b>Project title:</b>	Challenges of implementation of biometrics in banking transactions.		
<b>Week no.</b>	2	<b>DATE:</b> 15 March 2020	
<b>Planning</b>	I have read a lot of articles from google scholar then I selected one topic according to my interest then I get confirmation on the topic then I uploaded my abstract in CSU think space.		
<b>Milestone:</b>	<b>PLANNED</b>	<b>ACTUAL</b>	<b>COMMENT:</b>
search relevance article related to my topic. also watch youtube videos to gain more knowledge related to my topic.	13 March 2020	15 March 2020	No
<b>Issue</b>	No issue		
<b>Description</b>	<b>DATE:</b>	<b>ACTION RESULTS:</b>	<b>FINISHED(Y/N)</b>

### Week 3

<b>Name:</b>	SANDEEP KAUR		
<b>Project title:</b>	Challenges of implementation of biometrics in banking transactions.		
<b>Week no.</b>	3	<b>DATE:</b> 25 March 2020	
<b>Planning</b>	I have searched and read a lot of articles related to my topic on google scholar, Scopus, Science direct, etc. Also, I started working on a Gantt chart, work <u>break down</u> structure.		
<b>Milestone:</b>	PLANNED	ACTUAL	COMMENT:
Writing Review top to bottom and start my undertaking appraisal with the arrangement and proposition and progress report.	16 March 2020	Continue	No
<b>Issue</b>	I found some issue to install MS project and also I face difficulty how to make a Gantt chart and work breakdown structure.		
<b>Description</b>	<b>DATE:</b>	<b>ACTION RESULTS:</b>	<b>FINISHED(Y/N)</b>
Trouble to discover more articles for composing recommendations and plan and composing research questions.	18 March 2020	Checking on articles identified with my theme and get a thought for the arrangement.	Y

**Week 4**

<b>Name:</b>	SANDEEP KAUR		
<b>Project title:</b>	Challenges of implementation of bio-metrics in banking transaction.		
<b>Week no.</b>	4	<b>DATE:</b> 5 April, 2020	
<b>Planning</b>	Write project proposal and plan		
<b>Milestone:</b>	<b>PLANNED:</b>	<b>ACTUAL:</b>	<b>COMMENT:</b>
Done with proposal and plan (Assignment 2)	28 March,2020	5 April,2020	Search information related to my topic in Google Scholar, Primo search etcetera.
<b>Issue</b>			
<b>Description</b>	<b>DATE:</b>	<b>ACTION RESULTS:</b>	<b>FINISHED(Y/N)</b>
Difficulties in making Gantt chart and WBS as well as risk analysis. Also, difficulty find suitable research question related to my topic.	29 March,2020	With the help of youtube videos and read articles I did everything successfully.	Y

## Week 5

<b>Name:</b>	SANDEEP KAUR		
<b>Project title:</b>	Challenges of implementation of biometrics in banking transaction.		
<b>Week no.</b>	5	<b>DATE:</b> 26 april, 2020	
<b>Planning</b>	Working on annotated bibliography and journal synopsis and Using CRAAP test to check credibility of articles for make assessment of annotated bibliography and journal synopsis.		
<b>Milestone:</b>	<b>PLANNED:</b>	<b>ACTUAL:</b>	<b>COMMENT:</b>
Unable to find more relevant article and able to learn credibility test of the article.	17 APRIL,2020	Continue	No
<b>Issue</b>			
<b>Description</b>	<b>DATE:</b>	<b>ACTION RESULTS:</b>	<b>FINISHED(Y/N)</b>
Difficulties in finding relevant articles and checking credibility using metrics and making annotated bibliography.		Able to get idea from group discussion and only able to learn about the credibility and methods of doing annotated bibliography	N

**Week 6**

<b>Name:</b>	SANDEEP KAUR		
<b>Project title:</b>	Challenges of implementation of biometrics in banking transaction.		
<b>Week no.</b>	6	<b>DATE:</b> 4 may,2020	
<b>Planning</b>	final work on annotated bibliography.		
<b>Milestone:</b>	<b>PLANNED:</b>	<b>ACTUAL:</b>	<b>COMMENT:</b>
Finalize Annotated Bibliography Plan for Journal synopsis.	2 may,2020	Continue	No
<b>Issue</b>			
<b>Description</b>	<b>DATE:</b>	<b>ACTION RESULTS:</b>	<b>FINISHED(Y/N)</b>
lack of relevant article and managing time and confuse with the format.	3 may,2020	As due date approaching for this assignment, I couldn't manage time and find out relatable article to related about my topic.	N

**Week 7**

<b>Name:</b>	SANDEEP KAUR		
<b>Project title:</b>	Challenges of implementation of biometrics in banking transaction.		
<b>Week no.</b>	7	<b>DATE:</b>	9 May 2020
<b>Planning</b>	finish my work on annotated bibliography and journal synopsis.		
<b>Milestone:</b>	<b>PLANNED:</b>	<b>ACTUAL:</b>	<b>COMMENT:</b>
completed Annotated Bibliography Plan for Journal synopsis.	3 april,2020	10 may,2020	No
<b>Issue</b>	No		
<b>Description</b>	<b>DATE:</b>	<b>ACTION RESULTS:</b>	<b>FINISHED(Y/N)</b>

## Week 8

<b>Name:</b>	SANDEEP KAUR		
<b>Project title:</b>	Challenges of implementation of biometrics in banking transaction.		
<b>Week no.</b>	8	<b>DATE:</b> 16 May 2020	
<b>Planning</b>	I am just start working on my final report and presentation.		
<b>Milestone:</b>	<b>PLANNED:</b>	<b>ACTUAL:</b>	<b>COMMENT:</b>
It is very important to make final report with proper requirements which can be analysed from different perspectives.	13 may, 2020	continue	No
<b>Issue</b>			
<b>Description</b>	<b>DATE:</b>	<b>ACTION RESULTS:</b>	<b>FINISHED(Y/N)</b>



## Week 9

<b>Name:</b>	SANDEEP KAUR		
<b>Project title:</b>	Challenges of implementation of biometrics in banking transaction.		
<b>Week no.</b>	9	<b>DATE:</b> 25 May 2020	
<b>Planning</b>	I am working on my final report and presentation.		
<b>Milestone:</b>	<b>PLANNED:</b>	<b>ACTUAL:</b>	<b>COMMENT:</b>
I have composed last report according to the necessities headings currently yet taking a shot at introduction part to make it progressively powerful.	17 MAY,2020	CONTINUE	No
<b>Issue</b>			
<b>Description</b>	<b>DATE:</b>	<b>ACTION RESULTS:</b>	<b>FINISHED(Y/N)</b>
Confusing with the template requirements.	18 MAY,2020	The template has been released but still some confusion with the headings and its contents. To discuss this in the next class.	N

## Week 10

<b>Name:</b>	SANDEEP KAUR		
<b>Project title:</b>	Challenges of implementation of biometrics in banking transaction.		
<b>Week no.</b>	10	<b>DATE:</b> 27 May 2020	
<b>Planning</b>	I am still working on my final report and presentation.		
<b>Milestone:</b>	<b>PLANNED:</b>	<b>ACTUAL:</b>	<b>COMMENT:</b>
Due to the Rescheduling of assignment submission, Re-start to write the final report and review the report. Plan on the format, style, and content of presentation slides	23 MAY,2020	CONTINUE	No
<b>Issue</b>			
<b>Description</b>	<b>DATE:</b>	<b>ACTION RESULTS:</b>	<b>FINISHED(Y/N)</b>
Understanding the template requirements. Also, Few confusions on formatting and typical contents in Presentation. Also, I am confusing about the format of presentation slides and plan on delivery methods and play with screen-O-Matic	23 MAY,2020	The template has been released but still some confusion with the headings and its contents and difficulty to manage a time for final report as well as presentation.	N

**Week 11**

<b>Name:</b>	SANDEEP KAUR		
<b>Project title:</b>	Challenges of implementation of biometrics in banking transaction.		
<b>Week no.</b>	11	<b>DATE:</b> 31 May, 2020	
<b>Planning</b>	Final Examination		
<b>Milestone:</b>	<b>PLANNED:</b>	<b>ACTUAL:</b>	<b>COMMENT:</b>
Make final examination on all the aspect carried so far for the purpose of issues identification in the project.	As a part of planning, necessary checks are conducted on every aspect carried in the proper so far.	The project is successfully completed on right time.	The research outputs are re-evaluated in order to make sure that they are obtained in accordance with the project goals.
<b>Issue</b>	No kinds of issues are identified		
<b>Description</b>	<b>DATE:</b>	<b>ACTION RESULTS:</b>	<b>FINISHED(Y/N)</b>
Project goals are appropriately met.	31-05-2020	There are no kind of mistakes are addressed in the results.	Y