

# Technology Acceptance of Artificial Intelligence in Banking and its Impact on Banking Efficiency

S.Venkatesan, N.Sumathi

*Abstract: synthetic Intelligence is decided as the key to convert various critical issues that the customers are facing thereby retaining the competitive facet. artificial Intelligence is the precept of advancement in computer structures which allow us to execute task which normally need the intelligence of human beings, including speech reputation, visible identification, translation of languages and hassle solving. The ARTIFICIAL intelligence (AI) approach is quite aggressively being adopted with the aid of the banking region in India. The have a look at turned into conducted to perceive the numerous internal and outside elements influencing the consumer awareness, belief, mind-set and popularity of AI in banks by using the customers. Correspondingly the modifications can be recommended inside the AI adoption method in order that the competitive advantage and offerings of the banks can reach to the masses.*

*Keywords: Artificial Intelligence, Customers acceptance, attitude and customer perception, Cognitive decision making.*

## I. INTRODUCTION

Artificial intelligence (AI) Is the sector of technology that deals with rivaling the competencies of modern-day-day computer structures to clear up problems the use of human-like complicated abilities of reasoning, gaining knowledge of and self-correction. opportunities of using artificial intelligence in various fields are a protracted manner reaching, and with latest improvement in each hardware and software program application technologies had extended the skills of synthetic intelligence structures. artificial Intelligence is rapid evolving due to the reality the flow into-to era for agencies the world over to customise enjoy for people. The era itself is getting higher and smarter every day, allowing extra and extra modern industries to adopt the AI for numerous applications. Banking place is becoming one of the first adopters of AI. And just like other segments, banks are exploring and imposing the era in various processes. Banking has emerge as increasingly more relying on information systems and the use of maximum contemporary era has furthermore come to be increasingly more massive. The banks need to apply artificial Intelligence based absolutely in reality technological programs to provide customized services and products to its clients. At the ones fluctuating times knowledge of banking troubles becomes a assignment. The Banks in recent times can't live quite satisfied of their obligations. They need to often display and compare their critical fulfillment element in view of drastic adjustments driven with the aid of

advancements in laptop generation and aggressive additives. concerning the announcement of know-how the requirement to change over the technique of carrier from the conventional systems in which people did majority of the lower once more forestall operations and become not splendid time eating however moreover did no longer offer development within the customers satisfaction and enjoy. The implementation of AI is important to be observed in banks because it cannot fine hold clients, however moreover enhances the techniques and customise the client's enjoy thereby offering sustainable services. therefore artificial intelligence is probably the tremendous approach to convert severa essential issues that the customers are going through thereby preserving the aggressive factor.

The services the usage of synthetic Intelligence embody offerings like computerized cheque book re-order facility, and so on, banks internally use them for employees' universal performance assessment, credit score rating evaluation of customers and so forth and merchandise like custom designed investment advice for customers after for their portfolio evaluation and customized funding solutions after evaluation the credit rating statistics in addition to profits pattern.

## II. DECLARATION OF THE PROBLEM

The network is at the verge of transformation because of drastic tendencies in IT which include social networks, internet communications, synthetic intelligence, and analytics in massive facts. in the meanwhile of upgrades banking faces fluctuating times in delivering its offerings. Banks conflict to find out the coins for complacent. ordinary monitoring and evaluating their fulfillment hassle in view of profound modifications pushed by way of enhancements in IT and is crucial to resist competition inside the vicinity. nearly about the winning situation inside the sector, information the want to shift the focus from the historically observed banking device in which humans did majority of the jobs within the course of era oriented offerings to enhance the purchaser revel in. keeping of clients and improving of customers services activates the need to undertake AI in the banking vicinity. artificial Intelligence will act as the determinant to trade maximum of the unsolved issues of the customers within the banks thereby retaining the competitive advantage. artificial Intelligence is the want human intelligence like recognition of speech, visual perception, hassle solving, and language identity and

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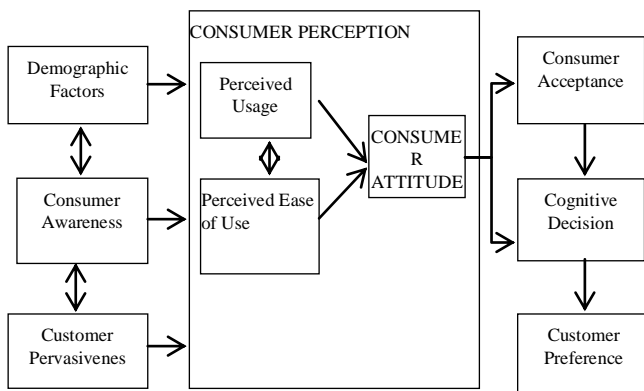


translation. because of this those aspects are simply useful to supply the services of banking correctly consequently ensuing banks to use artificial intelligence in their region. The have a take a look at have come to be completed to emerge as aware about the numerous inner and external elements influencing the client recognition, notion, mind-set and popularity of AI in banks through the customers. Correspondingly the adjustments may be suggested within the AI adoption approach just so the competitive advantage and offerings of the banks can gain to the masses.

### III. GOALS

1. To find out the factors influencing the customer popularity in the path of the artificial Intelligence inside the determined on banks for the observe in Tamil Nadu.
2. To measure the extent of recognition of the customers in the course of the artificial Intelligence and its use in the banks.
3. To study the customer belief closer to deciding on synthetic Intelligence within the banks.
4. To understand purchaser attitude toward adopting the synthetic Intelligence inside the banks considered inside the have a look at place.
5. To clarify the beauty of synthetic Intelligence and cognitive have an impact on that inhibits client choice towards desire of the banks in Tamil Nadu.

### IV. PROPOSED RESEARCH MODEL



### V. REVIEW OF LITERATURE

AI in the monetary group region is able to interact with, assist, and manual customers through bank errands (Hoikkala& Magnusson, 2017), similar to the current customer service channels, however automated (Leffler, 2017). In the near destiny, big actors which includesNordea hope that AI can help clients now not simplest open new economic organization debts and cancel credit gambling cards, however additionally provide funding hints (Lazzaro, 2017). Parsons, Gotlieb and Denny (1993) in their look at offers with the impact of IT on banking productivity. Computerization is one of the elements which improves the performance of the banking transactions. They concluded that higher performance tiers had been achieved without corresponding increase inside the huge kind of personnel. Additionally, it's been possible for Public sector Banks and antique non-public Banks to beautify their productivity and efficiency by the usage of IT. Matthew Sainsbury, FST

Media (2012) synthetic Intelligence (AI) has been recognized as the next technological frontier for banks as they appearance to leverage their funding in mobile to power greater consumer engagement. Banks consisting of elegant Chartered and Citi are developing AI solutions to assist with body of workers attrition and training, and reduce human errors the least bit factors in the engagement and transaction way.

### VI. RESEARCH METHOD

In this enjoy, the research technique acts as a basement of any kind of research. The survey is primarily based on number one statistics and is an analytical observe. For this have a look at, Coimbatore district is taken because the geographical place located in Tamil Nadu. The intention of this phase is to give an explanation for the conceptual framework and the analytical gear used in this have a study. The studies tries to show that the artificial Intelligence structures are properly-best for the town environment and are a tested powerful technology, and offer the financial institution clients approximately the attention of synthetic Intelligence through converting their attitudes towards availing the services. This kind of behavioral alternate is terrific to the adoption of AI technology as it increases the compatibility of the services with modern-day banking system. The study attempts to distil the scale of patron perceptions and mind-set that drives in to patron recognition it is a pre-needful for cognitive choice making for who select the banks services in the selected district of Tamil Nadu considering Coimbatore district.

The studies study takes up respondents the numerous decided on taluks of Coimbatore district. The desk 1.1 shows the pattern distribution and the total pattern of clients taken into consideration for the take a look at. The 4 taluks of Coimbatore district specifically Coimbatore North, Coimbatore South, Sulur, and Metuppalayam are taken into consideration for sampling. The customers of the personal banks who're citizens of the selected taluks had been taken into consideration as the pattern respondents. The sample duration became calculated to assure a sufficient number of respondents in every determined on taluks. Therefore, the following formula has been used to estimate the population sample duration (The Survey System, 2007):

$$n = \frac{t^2 pq}{m^2}$$

Where:

- n = required sample size (minimum size)
- t = Confidence level at 95% (standard value of 1.96)
- p = Estimated fractional population of subgroup
- q = 1-p
- m = Margin of error at 5% (standard value of 0.05)

**Table – 1.1 The determined sample size**



Selected Taluks	Samples considered for response	Selected samples for Sample size
Coimbatore North	221	138
Coimbatore South	243	151
Sulur	119	88
Metuppalayam	203	123
<b>Total</b>	<b>786</b>	<b>500</b>

Source: Output generated G-Power software

These samples are selected on the basis of purposive sampling method. Eliminating the incomplete questionnaires of the respondents, the estimated response rate of the survey was up to 65% for each taluks selected for the study. Hence the sample size was arrived in to 500 respondents for the analysis.

**VII. ANALYSIS AND INTERPRETATION**

**CONCEPTUAL MODEL FIT FOR CUSTOMER PERCEPTION AND ACCEPTANCE USING SEM (Structural Equation Modelling)**

Structural equation modeling, or SEM, is a completely popular, especially linear, specifically flow into-sectional statistical modeling approach. thing assessment, route assessment and regression all constitute special instances of SEM. SEM is a in huge thing confirmatory, in preference to exploratory, technique. this is, a researcher are more likely to use SEM to decide whether or not or not or not a exquisite version is valid., in vicinity of the usage of SEM to find out a appropriate model--irrespective of the fact that SEM analyses often include a positive exploratory element.

The variables used in the structural equation version are positioned, endogenous variables

- customer pervasiveness towards artificial Intelligence in Banks
- Cognitive choice Making
- customer's recognition of synthetic Intelligence era in Banks determined, exogenous variables
- awareness of customers within the route of artificial Intelligence generation in Banks
- Attitudes of clients inside the course of artificial Intelligence technology
- clients' perception in the path of artificial Intelligence

*Unobserved, exogenous variables*

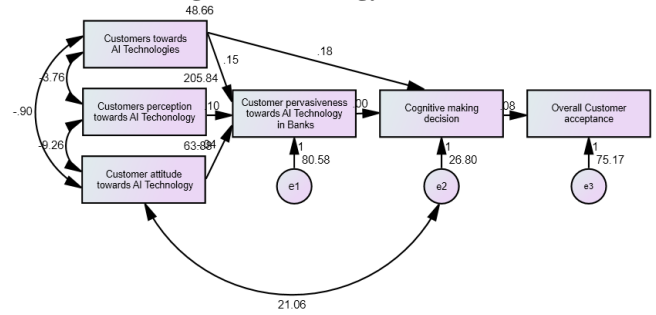
- Error 1 for Customer pervasiveness towards Artificial Intelligence in Banks
- Error 2 for Cognitive Decision Making
- Error 3 for Overall Customer's acceptance of Artificial Intelligence

**Table – 1.2 Summary of the variables used for the analysis**

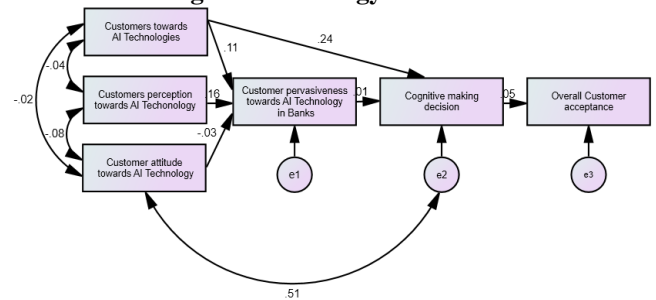
Number of variables in your model	9
Number of observed variables	6
Number of unobserved variables	3
Number of exogenous variables	6
Number of endogenous variables	3

Source: Output generated from Amos 20.

**Figure – 1.1**  
**Unstandardized estimate for Structural Equation Model of Customer's perception and acceptance of Artificial Intelligence technology in Banks**



**Figure – 1.2**  
**Standardized estimate for Structural Equation Model of Customers' perception and acceptance of Artificial Intelligence technology in Banks**



**Table – 1.3 Co-variance relationships for using Structural Equation Model**

Regression weights	Estimate	S.E.	C.R.	P
Awareness of Customers towards Artificial Intelligence in Banks <--> Attitudes of Customers towards Artificial Intelligence	-0.904	2.496	-0.362	.717
Attitudes of Customers towards Artificial Intelligence <--> Customers' perception towards Artificial Intelligence	-9.262	4.455	-2.079	.038
Awareness of Customers towards Artificial Intelligence in Banks <--> Customers' perception towards Artificial Intelligence	-3.756	4.483	-0.838	.402

Source: Output generated from Amos 20.





**Table – 1.4 Model Fit Summary for Customers’ perception and acceptance of Artificial Intelligence technology in Banks**

Indices	Value	Suggested Value
Chi-square value	9.522	
P value	0.090	>0.05 (Hair et al., 1998)
CMIN/DF	1.908	< 5 (Marsh&Hocevar,1985)
GFI	0.994	>0.90 (Hu and Bentler, 1999)
AGFI	0.974	>0.90 (Hair et al. 2006)
CFI	0.977	>0.90 (Daire et al., 2008)
RMR	2.602	<0.08 (Hair et al. 2006)
RMSEA	0.043	<0.08 ( Hair et al. 2006)

Source: Output generated from Amos 20

From the above table it is found that the calculated P value is 0.090 which is greater than 0.05 which indicates the model is fit. And also CMIN value is 1.908 which is less than 5 which indicates the model is fit. Here GFI (Goodness of Fit Index) value and AGFI (Adjusted Goodness of Fit Index) value is greater than 0.9 which represent it is a good fit. The calculated CFI (Comparative Fit Index) value is 0.977 which means that it is a perfectly fit and also it is found that RMR (Root Mean Square Residuals) value is 2.602. And RMSEA (Root Mean Square Error of Approximation) value is 0.043 which is less than 0.10 which indicated it is perfectly fit.

## VIII. FINDINGS AND DISCUSSIONS

The studies takes demographic profile of the customers, customer attention inside the course of synthetic Intelligence in Banks, consumer pervasiveness of synthetic Intelligence, consumer perception in the direction of synthetic Intelligence era, attitude of client inside the route of synthetic Intelligence generation in Banks and Cognitive choice making of artificial Intelligence technology in Banks due to the fact the essential variables for analysis. here, those variables are the unbiased variables on one hand and the purchaser’s recognition of synthetic Intelligence is the set up variable on the alternative. it’s far studied how and to what extent the impartial variables make changes inside the set up variable. The proposed conceptual studies model confirms that the number one variables (demographic profile of the clients, patron’s recognition of synthetic Intelligence, client pervasiveness of artificial Intelligence, patron perception towards synthetic Intelligence generation, mind-set of patron toward artificial Intelligence technology in Banks and Cognitive choice making of synthetic Intelligence era in Banks) make effect at the patron’s elegance of artificial Intelligence through manner of using structural Equation version and different SPSS equipment. The feature of the variables is at huge extent simply so the consumer’s recognition of synthetic Intelligence generation in Banks relies upon on them. however, it’s far very vital that no single variable affects the general satisfaction. even as greater variables combine collectively, then the customer’s elegance of synthetic Intelligence technology in Banks increases or decreases.

5. quit

The motive of this thesis have become to find out the attitudes that clients have within the path of AI era adoption and splendor of the gadget in Banks. The empirical information, collectively with assist from present literature, encompass a deeper information of the selected subject matter, exploration of purchaser perception, attitudes, and comprehension of what the underlying factors are inside the formation of cognitive decision making for consumer desire. consequently, it can be suggested that banks want to evaluate the mistake, safety, and privateness components of AI customer service systems. A in addition problem for banks to don't forget is social have an effect on, which turn out to be located to have a terrible, and effective, effect on mind-set that effect on the elegance of AI generation in banking services. this is, however, associated with the general performance of the service, a person’s person perception of it, and the preceding mentioned factors. for this reason, banks need to make sure that the tool works as perfectly as feasible, and that the individual revel in is amazing to a immoderate degree, as with all carrier. ultimately, it is another time actually simply really worth mentioning that AI ought to be implemented to all traditional banking channels in par with customer’s preference.

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