

Factors Contributing for Adoption of E-Banking in Rural Area of Himachal Pradesh

***Dr Vijeta Sharma, **Chetna**

*Assistant Professor, Department of Commerce, Himachal Pradesh University, Shimla (H.P), India.

** Research Scholar, Department of Commerce, Himachal Pradesh University, Shimla (H.P), India.

Abstract

In today's digital age, rapid technological advancements are transforming industries worldwide, with the banking sector experiencing some of the most profound changes. As a critical pillar of economic development, banking has undergone a major shift through the integration of electronic banking (e-banking), fundamentally altering how financial services are delivered and accessed. In India, the adoption of e-banking reflects this global trend, offering not only enhanced convenience and operational efficiency but also expanding the reach of financial services to previously unbanked and underbanked populations. The increasing penetration of the internet, declining costs of smartphones and digital devices, and rising digital literacy have collectively accelerated the growth of e-banking across urban and rural regions. E-banking enables seamless, real-time access to financial services, reduces dependency on physical branches, and supports the broader agenda of financial inclusion. Moreover, the digital infrastructure developed under government initiatives and regulatory support has further strengthened the e-banking ecosystem. This study examines the complex factors influencing rural customers' perceptions and uptake of e-banking in Himachal Pradesh, utilizing data from a substantial sample of 360 respondents in Shimla, Mandi, and Solan. The empirical findings reveal seven critical factors—efficiency, responsiveness, privacy and security, customer service, reliability, convenience, and accuracy—that collectively shape user engagement and confidence in digital banking environments. Among these factors, privacy and security concerns exert the most significant influence, whereas promotional outreach has minimal impact. The study emphasizes the necessity for financial institutions to strengthen cybersecurity measures, improve digital banking platforms, and increase service dependability to facilitate smooth adoption. Moreover, focused financial literacy programs and effective consumer awareness efforts are crucial for alleviating concerns, fostering digital trust, and expediting the shift towards a technologically integrated and financially empowered rural economy.

Key Words: E-banking, financial inclusion, Privacy and security, Digital trust, financial literacy, Cybersecurity

Introduction

The banking sector possesses a deep-rooted history that mirrors the social, political, and cultural evolution of society; however, with the dawn of the new millennium and the rise of the information age, technology has emerged as the central catalyst for transformation. The industry has witnessed a monumental shift from traditional, manual ledger-based systems to digitized, structured processes, culminating in the adoption of internet-based platforms. This evolution has propelled banks into the electronic era, positioning them as key players in the globalized economy. Technological innovations have revolutionized production efficiency and service delivery across sectors, dismantling geographical and industrial limitations, and banking is no exception. The rapid proliferation of internet usage has turned digital channels into vital mediums for service distribution. India, now poised at the brink of a digital revolution, has seen its banking institutions increasingly integrate Information Technology (IT) to remain competitive in a liberalized, privatized, and globalized market while also catering to the evolving expectations of tech-savvy consumers. This shift is further underscored by significant regulatory milestones, notably the enactment of the Information Technology Act in 2000, which came into effect on October 17 of the same year, conferring legal validity to electronic transactions and paving the way for e-commerce. Consequently, e-banking—defined as the application of digital technologies for delivering banking services and executing financial transactions via electronic channels—has emerged as a transformative innovation in the Indian banking landscape. To enable smooth financial transactions, electronic banking, or e-banking, makes use of digital platforms such as digital wallets, ATMs, mobile apps, and internet banking (Daniel, 1999). E-banking has grown globally due to the unrivalled ease provided by digital financial services, the speed at which technology is developing, and rising

internet usage (Akinci et al., 2004). Fintech innovations have transformed financial transactions in technologically sophisticated economies like the U.S., U.K., and China; yet, issues including cybersecurity risks, trust deficiencies, and regulatory hurdles still exist (Oliveira et al., 2014; Claessens et al., 2018). Government programs like Digital India, Pradhan Mantri Jan Dhan Yojana (PMJDY), and Unified Payments Interface (UPI) have significantly increased the use of e-banking in India and increased financial inclusion (RBI, 2022; NITI Aayog, 2021). Adoption gaps still exist, nevertheless, especially in rural areas where thorough penetration is hampered by digital illiteracy, cybersecurity concerns, and infrastructure limitations (Kumar et.al., 2021).

The adoption of e-banking services has been extensively studied using theoretical models like the Unified Theory of Acceptance and Use of Technology (Venkatesh et al., 2003) and the Technology Acceptance Model (TAM) (Davis, 1989), which both highlight the importance of behavioral intention, perceived usefulness, and ease of use in promoting adoption. (Rogers 2003) emphasizes that relative advantage, complexity, and observability have a major impact on the diffusion of innovation. Concerns about security and privacy have frequently been noted as major obstacles (Oliveira et al. 2014) claim that perceived risk has a detrimental effect on the uptake of online banking. In a similar vein, (Liébana-Cabanillas et al. 2017) discovered that trust mediates the relationship between user adoption intentions and security perceptions. While (Yousafzai et al., 2003) contend that perceived credibility is a key factor in determining users' willingness to accept e-banking (Gefen, 2003) emphasize the significance of customer service in establishing trust. According to research on banking efficiency, responsiveness and dependability are important factors that influence customer satisfaction and loyalty (Akinci et al., 2004). Digital literacy is still a problem in India, especially in rural regions, which has an impact on the overall performance of e-banking activities, according to (Kumar Gupta 2021). The influence of government-led digital banking programs like the Pradhan Mantri Jan Dhan Yojana (PMJDY) and the Unified Payments Interface (UPI) on advancing financial inclusion is documented by NITI Aayog (2021) and the Reserve Bank of India (2022). However, full-scale implementation is constrained by ongoing infrastructural constraints and connectivity problems (RBI Annual Report, 2022). In particular Chauhan (2020) draw attention to the difficulties Himachal Pradesh faces as a result of geographic limitations and unequal internet access. Additionally, the Himachal Pradesh Economic Survey (2022) shows that rural areas have trust and awareness concerns, but urban places like Shimla and Solan see high adoption rates. Studies conducted at the district level, including Sharma (2022) in Shimla, Kumar (2021) in Solan, and Verma (2022) in Mandi, show different adoption trends depending on digital literacy, accessibility, and banking infrastructure. Building on previous discoveries, this study uses factor analysis to identify the key factors influencing the adoption of e-banking and the resulting policy and practice implications.

Need and scope of the Study

The increasing significance of digital banking in initiatives to promote financial inclusion makes this study necessary. Due to a number of socio-economic and infrastructure-related concerns, rural communities continue to show opposition to e-banking, although urban people have embraced it with ease. Policymakers and financial institutions may improve digital literacy initiatives, address security issues, and create more effective outreach campaigns by having a deeper understanding of the unique driving forces behind the adoption of e-banking in rural Himachal Pradesh. Additionally, by identifying important facilitators and obstacles to the adoption of e-banking in a geographically distinct setting, this study will add to the body of knowledge on rural banking and digital transformation. The study has been completed by using data collected through sample survey conducted in the year 2024 and it confined to the state of Himachal Pradesh. Further it is mainly focussed to identify the factors contributing towards the adoption of e-banking.

Objective of the Study

- To identify the factors contributing for the adoption of e-banking.

Research Methodology

In order to have a thorough grasp of the adoption of e-banking in rural Himachal Pradesh, this study uses a survey method to collect data. Structured questionnaires, interviews, and focus group discussion with rural inhabitants have been used to gather data. The study has also been supported by an analysis of reports from financial institutions, government agencies, earlier studies, and official banking data. To guarantee representation across the many districts in Himachal Pradesh, the purposive and snowball sampling techniques have been employed. 360 respondents, who are e-banking users from different rural areas, have made up the sample size.

Data Analysis Techniques

Descriptive Analysis: The data has been summarized using the mean, standard deviation, skewness, and kurtosis. Further factor analysis has been used to identify the significant factors contributing for adoption of e-banking. To confirm the appropriateness of factor analysis, the Kaiser-Meyer-Olkin (KMO) test and Bartlett's test of sphericity has been performed

Kaiser-Meyer-Olkin (KMO) Test: Evaluates the suitability of sample for factor analysis; values greater than 0.7 are deemed appropriate (Kaiser, 1974).

Bartlett's Test of Sphericity: The adequacy of data for factor extraction is assessed using Bartlett's Test of Sphericity.

Rotation Method: To improve clarity and interpret the variable structure, Varimax rotation was employed.

This approach guarantees a thorough and reliable examination of the variables impacting the uptake of e-banking in rural Himachal Pradesh

Results and Discussions

This study employed factor analysis as a statistical technique to uncover the underlying factors that influence users' adoption of e-banking services. Factor analysis provides a structured and data-driven approach to identify and group related variables, thereby offering deeper insights into the motivational dimensions driving user behaviour. Such analysis is instrumental for strategic planning, enabling banks to enhance service delivery and align their offerings with customer expectations. To facilitate this, a scale comprising forty-one carefully designed statements was developed, each reflecting potential motivators associated with e-banking usage. Respondents evaluated these statements using a 5-point Likert scale, ranging from strong disagreement to strong agreement, allowing for the quantification of attitudes and preferences related to digital banking services.

The demographic composition of the respondents is systematically categorized based on key variables, including age, gender, marital status, educational qualifications, occupational background, annual income, and geographic distribution.

Table -1: Demographic Profile of Respondents

Dimensions		Frequency	Percentage
Age	Below 30	164	45.6
	30-45	145	40.3
	45 and above	51	14.2
Gender	Male	209	58.1
	Female	151	41.9
Marital Status	Married	190	52.8
	Unmarried	170	47.2
Education Level	Plus, two	62	17.2
	Graduate	133	36.9
	Post Graduate	139	38.6
	Any Other*	26	7.2
Occupation	Government	85	23.6
	Private	42	11.7

	Business	52	14.4
	Agriculture	181	50.3
Income (Per Annum)	Below 2 lakhs	188	52.2
	3-4 lakhs	63	17.5
	4-5 lakhs	53	14.7
	Above 5 lakhs	56	15.6
Districts	Shimla	120	33.3
	Solan	120	33.3
	Mandi	120	33.3

Source: Data collected through questionnaire

*Any other includes diploma holders, other certificates courses etc.

Table-1 offers a comprehensive overview of the respondent pool through its captivating tapestry of demographic, educational, and vocational information. With 164 participants (45.6%) under 30 and 145 (40.3%) between 30 and 45, there is a clear representation of young people and middle-aged people. Those over 45 make up a comparatively smaller number of 51 respondents (14.2%), guaranteeing a diverse generational viewpoint. There is a slight gender bias evident, with male respondents making up 58.1% (209 people) and female respondents making up 41.9% (151 people). With 52.8% (190 respondents) married and 47.2% (170 respondents) unmarried, the marital status distribution is about equal, reflecting a range of social perspectives. The survey highlights the high level of education of the respondents, highlighting their cerebral complexity. Although 62 respondents (17.2%) had completed upper secondary school, 133 respondents, or 36.9%, held graduate degrees. Additionally, 38.6% (139 respondents) had postgraduate degrees, and a prestigious 7.2% (26 people) had earned some professional and technical knowledge through some certificate and diploma courses. The analysis shows a diverse economic fabric in terms of occupation. Professionals in the private sector made up 11.7% (41 people), whilst those in the government sector made up 23.6% (85 respondents). While 14.4% of respondents (52 respondents) pursued entrepreneurial endeavors, the largest occupational group—50.3% (181 respondents)—was based in agriculture, highlighting the region's agrarian pre-eminence. Economic stratification draws attention to other financial realities that might affect the adoption of digital technology. While 17.5% (63 respondents) claimed earning between ₹3 and ₹4 lakh annually, a significant 52.2% (188 respondents) reported earning less than ₹2 lakh. There was a range of financial status, with 14.7% of respondents (53 people) falling into the ₹4–5 lakh range and 15.6% (56 people) exceeding the ₹5 lakh mark. A thorough geographic viewpoint was guaranteed by the careful balancing of regional participation. The study's dedication to inclusion and regional parity was further supported by the equal contributions of 120 respondents (33.3%) from each of the three main regions: Shimla, Solan, and Mandi. This socioeconomic and demographic makeup offers a deep window into the varied but interrelated lives of the respondents, providing priceless information about their goals, limitations, and lived experiences. This refined demographic analysis provides an intricate understanding of respondent characteristics, facilitating a more nuanced interpretation of behavioral patterns and influencing factors in the context of the study

Reliability Statistic:

The reliability statistics results are displayed in Table-2. The Cronbach alpha is calculated to assess the construct's dependability. For purposes, the Cronbach's coefficient alpha value is 0.6. For confirmatory reasons, 0.7 is deemed sufficient, while 0.8 is seen acceptable for the exploratory good.

Table -2: Reliability Test

Cronbach's Alpha	Cronbach's Alpha based on standardized items	No. of items
.959	.964	41

Table-2 demonstrates that the scale's Cronbach's alpha value, which is based on standardized items, is considerably above 0.7, indicating strong reliability and validity. As a result, the scale can be used.

Analysis of Factors Contributing towards adoption of E-Banking

The key elements influencing the uptake of e-banking services by consumers are clarified by the descriptive statistical analysis. The table summarizes the 41 variables' mean, standard deviation, skewness, and kurtosis. Interestingly, Wide range of products and services provided has the highest mean score (4.58), followed by It is easy to find what I need on website (4.46), demonstrating their significant impact on customer involvement with online banking. This emphasizes how important product accessibility and diversity are to the smooth transition of e-banking into consumer financial behaviour.

Table -3: Analysis of Factors Contributing towards adoption of E-Banking

S. No	Statement	N	Min	Max	Mean	Std. Deviation	Skewness	Kurtosis
1	Internet banking help me manage my accounts more efficiently	360	1	5	3.83	.880	-.934	1.428
2	Cost of adoption internet banking/mobile banking is reasonable	360	1	5	3.68	.976	-.198	-.210
3	Proper service charges	360	1	5	3.36	.900	.076	.248
4	Good performance of plastic card (Debit/Credit)	360	1	5	3.69	1.005	-.054	-.829
5	Internet banking enables me to manage my bank accounts more efficiently	360	1	5	3.04	.870	-.075	1.415
6	Easy language and information content	360	1	5	4.16	1.155	-1.331	.767
7	Experienced management team	360	1	5	3.95	.815	-.442	.010
8	The bank promptly resolves problems I encounter with my online transactions	360	1	5	3.80	.675	-2.795	7.949
9	The bank gives prompt responses to my requests by e-mail or other means	360	1	4	3.76	.630	-2.714	6.806
10	Problem solves through instant information	360	1	5	3.32	.997	.303	-.253
11	Capable of solving complaint adequately	360	1	5	3.79	.924	-.219	-.695
12	Information provided on website	360	1	5	3.04	1.065	.061	-1.037
13	Good customer feedback services	360	1	5	2.82	1.029	.528	-.573
14	The service delivered through the bank's website is quick	360	1	5	4.14	.931	-1.447	2.352
15	The website design is attractive	360	1	5	3.50	1.194	-.265	-1.160
16	It is easy to find what I need on website	360	2	5	4.46	.778	-1.359	1.163
17	Privacy/ confidentiality	360	1	5	3.21	1.191	-.031	-.561
18	Security of online banking	360	1	5	3.43	1.080	-.582	-.125
19	I feel safe in my transactions with the bank	360	1	5	2.58	1.087	.572	-.201
20	Employees approach	360	1	5	3.81	1.050	-.539	-.326
21	Up to date content	360	1	5	2.58	1.229	.177	-1.119
22	Confidence in bank's services	360	1	5	2.87	1.555	.156	-1.446
23	Wide range of products and services provided	360	3	5	4.58	.548	-.835	-.378
24	Quick transfer of funds (NEFT, RTGS)	360	1	5	3.09	1.234	-.174	-.911
25	Electronic bills payments	360	1	5	3.88	1.130	-1.352	1.178

26	Banks performs the services right at the first time	360	1	5	4.05	1.201	-1.312	.751
27	The site has customer service representative	360	1	5	3.71	1.002	-1.535	1.808
28	Good clearing service (ECS-credit / debit)	360	1	5	4.12	.857	-.819	.615
29	Bank provides facilities of digital signature & digital certificate	360	1	5	3.60	1.077	.055	-.910
30	Faster login facility	360	1	5	3.36	1.205	.142	-1.280
31	Process of transactions	360	1	5	2.53	1.023	.717	-.022
32	Quick confirmation	360	1	5	3.33	1.031	-.144	-.737
33	Log in /sign off are easy	360	1	5	3.23	.947	-.475	.478
34	Location of the bank	360	1	5	3.90	1.237	-.621	-.980
35	Sufficient number of atm machines	360	1	5	2.76	1.259	.192	-.875
36	Bank has up to date equipment and technology	360	1	5	3.19	1.425	-.156	-1.328
37	My online banking transaction with the bank are always accurate	360	1	5	2.79	1.182	.064	-.921
38	The site is always available for business	360	1	5	3.14	1.315	-.025	-1.139
39	Convenient hours of operation (24*7)	360	1	5	2.67	.901	.533	.573
40	Prompt services	360	1	5	2.98	1.423	.034	-1.278
41	Internet banking/mobile banking is cheaper than traditional banking	360	1	5	3.03	1.355	-.052	-1.167

Table-3 computed standard deviation values reveal a wide range of factors influencing the acceptance and motivation of e-banking services in Himachal Pradesh. It is possible to say that the distribution is negatively skewed when the majority of the values are concentrated on the right side of the mean, with extreme values to the right. When kurtosis occurs, the computed values are smaller than zero, indicating a platykurtic distribution for the respondents' answers. Additionally, all of the variables' mean scores were greater than two, indicating a moderate impact of the variables on performance and motivation.

The results of the Bartlett's Test of Sphericity and the Kaiser-Meyer-Olkin measure of sample adequacy are shown in Table 4. For a factor analysis to be considered adequate, the sampling adequacy measured by the Kaiser Meyer-Olkin (KMO) must be greater than 0.5.

Table -4: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.903
Bartlett's Test of Approx. Chi Square	20320.314
Sphericity df	820
Sig.	.000

Table-4 Kaiser-Meyer-Olkin measure is 0.9036, which indicates that the sample is sufficient and factor analysis is appropriate for the data. The Bartlett's test, which tests the null hypothesis that the correlation matrix is an identity matrix in which each variable correlates perfectly with itself but has no correlation with other variables, is also shown in Table 4 to be significant, meaning that its associated probability is less than 0.05; in fact, it is 0.000, meaning that the significance level is small enough to reject the null hypothesis, indicating that the correlation matrix is not an identity matrix. The reduced collection of variables is suitable for factor analysis, according to all of the measures assessed above.

The overall variance is explained in Table 5. Additionally, the table displays all of the factors that could be extracted from the study, together with their eigenvalues, the percentage of variance that can be attributed to each factor, and the factors that came before it.

Table -5: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	17.969	43.826	43.826	17.969	43.826	43.826	6.033	14.716	14.716
2	3.736	9.113	52.939	3.736	9.113	52.939	5.518	13.459	28.175
3	3.250	7.928	60.867	3.250	7.928	60.867	5.419	13.216	41.392
4	2.399	5.852	66.719	2.399	5.852	66.719	4.934	12.035	53.426
5	2.192	5.345	72.064	2.192	5.345	72.064	4.538	11.069	64.496
6	1.585	3.866	75.930	1.585	3.866	75.930	3.226	7.869	72.365
7	1.262	3.077	79.007	1.262	3.077	79.007	2.723	6.642	79.007
8	.996	2.430	81.438						
9	.808	1.971	83.408						
10	.710	1.731	85.139						
11	.672	1.639	86.779						
12	.631	1.538	88.317						
13	.589	1.436	89.753						
14	.505	1.233	90.986						
15	.445	1.085	92.071						
16	.403	.983	93.054						
17	.332	.810	93.865						
18	.278	.679	94.544						
19	.247	.602	95.146						
20	.232	.566	95.712						
21	.201	.491	96.203						
22	.187	.456	96.659						
23	.177	.431	97.090						
24	.137	.335	97.424						
25	.128	.313	97.737						
26	.118	.289	98.026						
27	.102	.248	98.274						
28	.095	.231	98.504						
29	.085	.208	98.712						
30	.076	.185	98.896						

31	.071	.174	99.071						
32	.064	.156	99.227						
33	.056	.135	99.362						
34	.052	.126	99.489						
35	.046	.112	99.601						
36	.039	.094	99.695						
37	.037	.090	99.785						
38	.030	.074	99.859						
39	.022	.054	99.913						
40	.021	.050	99.963						
41	.015	.037	100.000						

Extraction Method: Principal Component Analysis.

Table-5 Analysis of Principal Components is the extraction method. According to the table, the first factor explains 43.826% of the variance, followed by the second factor (9.113%), the third factor (7.928%), the fourth factor (5.852%), the fifth factor (5.345%), the sixth factor (3.866), and the seventh factor (3.077). The other components are all insignificant

Scree Plot

Plotting Eigenvalues against all factors is known as the scree plot, and Figure-1 shows that seven factors have Eigenvalues larger than 1. This graph is useful for determining how many factors to keep.

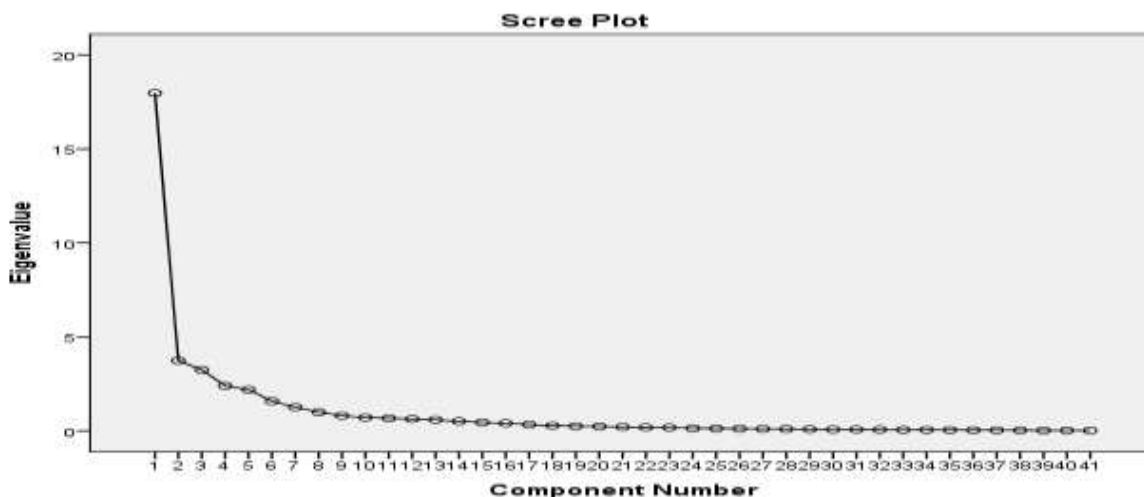


Figure-1: Scree Plot

Additionally, there is a clear inflection point in the graph where the curve starts to plateau between the seventh and eighth components, resulting in the retention of just seven important factors.

A component extraction technique is used to determine the best variable combinations that capture the most variance in the Component Matrix results, which are shown in Table 6 (Hair et al., 2010). Seven important components with noteworthy loading values are extracted since only factors with Eigenvalues larger than one are taken into account.

Table -6: Component Matrix

Components	1	2	3	4	5	6	7
Internet banking help me manage my accounts more efficiently	.885	.110	.021	-.138	-.003	.241	-.230
Cost of adoption internet banking/mobile banking is reasonable	.884	-.074	.115	.156	-.054	-.049	-.009
Proper service charges	.872	-.052	.093	-.008	.079	.138	-.159

Good performance of plastic card (Debit/Credit)	.870	-.036	-.374	-.106	.005	.005	-.103
Internet banking enables me to manage my bank accounts more efficiently	.838	.042	.210	.087	-.136	-.057	-.036
Easy language and information content	.837	.184	.012	-.121	.087	.281	-.221
Experienced management team	.827	-.200	-.167	.054	-.099	.022	-.093
The bank promptly resolves problems I encounter with my online transactions	.777	-.089	.469	-.087	-.171	-.263	-.042
The bank gives prompt responses to my requests by e-mail or other means	.776	.307	.027	-.061	-.007	.162	-.218
Problem solves through instant information	.738	-.324	-.018	.332	.036	.017	.055
Capable of solving complaint adequately	.732	-.056	.458	.012	-.166	-.310	-.003
Information provided on website	.726	-.125	.465	-.069	-.207	-.268	-.115
Good customer feedback services	.721	-.157	.451	-.029	-.181	-.347	-.088
The service delivered through the bank's website is quick	.720	-.250	-.029	.336	.115	.037	.086
The website design is attractive	.720	-.011	-.440	-.255	-.063	.031	-.169
It is easy to find what I need on website	.712	-.323	-.156	.172	.175	.265	-.052
Privacy/ confidentiality	.707	.138	-.385	-.203	-.025	.011	-.172
Security of online banking	.702	.223	-.493	-.012	-.094	-.258	.154
I feel safe in my transactions with the bank	.691	.272	-.524	-.093	-.118	-.224	.125
Employees approach	.688	.318	.010	.030	-.020	.311	-.309
Up to date content	.672	-.012	.453	-.006	-.092	-.343	-.135
Confidence in bank's services	.665	.209	-.408	-.164	-.069	-.008	-.186
Wide range of products and services provided	.664	-.465	-.105	.064	.423	.004	.032
Quick transfer of funds (NEFT, RTGS)	.628	-.082	-.024	.439	-.318	.185	.247
Electronic bills payments	.628	.563	.292	.077	.282	.076	.215
Banks performs the services right at the first time	.610	-.445	.163	-.489	-.052	.166	.144
The site has customer service representative	.591	-.486	-.003	.135	.506	.009	-.011
Good clearing service (ECS-credit / debit)	.587	.331	-.504	-.044	-.080	-.264	.186
Bank provides facilities of digital signature & digital certificate	.582	.556	.323	-.023	.261	.106	.231
Faster login facility	.575	.570	.257	.099	.329	.067	.231
Process of transactions	.504	-.001	-.315	-.242	-.157	-.200	.258
Quick confirmation	.450	.101	-.306	.014	.040	-.260	.285
Log in /sign off are easy	.381	-.318	-.105	.240	.376	-.202	.107
Location of the bank	.519	.584	.236	.041	.270	.102	.220
Sufficient number of atm machines	.525	-.550	-.165	.259	.457	-.083	-.009
Bank has up to date equipment and technology	.231	.494	.050	.213	.142	-.143	-.264
My online banking transaction with the bank are always accurate	.480	-.215	.150	-.634	-.023	.200	.296
The site is always available for business	.538	-.396	.148	-.564	-.139	.168	.162
Convenient hours of operation (24*7)	.023	-.036	.164	-.279	.127	.230	.251
Prompt services	.382	-.112	-.034	.486	-.571	.311	.220

Internet banking/mobile banking is cheaper than traditional banking	.504	-.025	.015	.412	-.543	.279	.112
Extraction Method: Principal Component Analysis.							
a. 7 components extracted.							

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.^A

The loadings of 41 variables on the seven factors that were retrieved are shown in Table 6. The factor's contribution to the variable increases with the loading's obsolete value.

Rotated component matrix

Table 7 presents the findings of a Rotated Component Matrix, derived using the Varimax rotation method with Kaiser Normalization to enhance the clarity and interpretability of the extracted components. This statistical technique identified seven distinct factors that collectively influence the adoption of e-banking services among customers in rural region of Himachal Pradesh. The variables under study have strong loadings on fewer elements according to the rotation matrix. The loading of various statements on the seven components that were identified is reported in table 7.

Table -7: Rotated Component Matrix^a

	Component						
	1	2	3	4	5	6	7
Internet banking help me manage my accounts more efficiently	.888	.131	.214	.132	.115	.127	.110
Cost of adoption internet banking/mobile banking is reasonable	.869	.102	.163	.201	.130	.142	.149
Proper service charges	.866	.146	.181	.183	.210	.145	.193
Good performance of plastic card (Debit/Credit)	.842	.151	.186	.101	.234	.175	.102
Internet banking enables me to manage my bank accounts more efficiently	.827	.106	.169	.160	.223	.048	.015
Easy language and information content	.593	.250	.241	.333	.301	.315	.076
Experienced management team	.534	.285	.414	.323	.258	.340	.074
The bank promptly resolves problems I encounter with my online transactions	.115	.874	.106	.279	.174	.127	-.017
The bank gives prompt responses to my requests by e-mail or other means	.145	.851	.179	.219	.179	.161	-.050
Problem solves through instant information	.065	.848	.070	.165	.223	.100	-.075
Capable of solving complaint adequately	.169	.658	.089	.063	.013	.090	.249
Information provided on website	.219	.606	.391	.551	.085	.150	.134
Good customer feedback services	.088	.602	.216	-.048	.180	.075	.014
The service delivered through the bank's website is quick	.132	.602	.228	.587	-.032	.057	.173
The website design is attractive	.117	.600	.103	.566	.106	.054	.009
It is easy to find what I need on website	.137	.583	.171	.576	.101	.036	.083
Privacy/ confidentiality	.118	.124	.920	.091	-.055	.032	.024
Security of online banking	.186	.036	.873	.169	.084	-.020	.160
I feel safe in my transactions with the bank	.179	.182	.832	.206	.057	.019	.218
Employees approach	.120	.172	.672	-.080	.059	-.008	-.047
Up to date content	.098	.154	.655	.423	.075	.310	.164

Confidence in bank's services	.268	.201	.631	.183	.174	.377	.025
Wide range of products and services provided	.331	.198	.630	.192	.086	.416	.039
Quick transfer of funds (NEFT, RTGS)	.352	.255	.233	.713	.311	.184	.209
Electronic bills payments	.196	.141	.076	.712	.384	.220	-.022
Banks performs the services right at the first time	.264	.225	.231	.711	.392	.139	.179
The site has customer service representative	.312	.269	.101	.633	.411	.152	.047
Good clearing service (ECS-credit / debit)	.417	.190	.411	.545	.278	.197	.174
Bank provides facilities of digital signature & digital certificate	.352	.395	.432	.442	.011	.313	.120
Faster login facility	.179	.169	.116	.145	.894	.054	.006
Process of transactions	.239	.171	.101	.182	.892	.083	.036
Quick confirmation	.232	.143	.035	.177	.872	.044	.124
Log in /sign off are easy	.143	.165	.031	.162	.849	.051	.038
Location of the bank	.106	.093	.048	.071	-.023	.916	-.002
Sufficient number of atm machines	.217	.125	.030	.206	.054	.837	-.012
Bank has up to date equipment and technology	.218	.228	.273	.112	.168	.759	.023
My online banking transaction with the bank are always accurate	.238	.189	.077	.169	.103	-.021	.831
The site is always available for business	.357	.155	.154	.236	-.091	.067	.785
Convenient hours of operation (24*7)	.382	.133	.287	.254	-.057	.074	.754
Prompt services	.147	.096	-.043	.243	.402	-.088	.441
Internet banking/mobile banking is cheaper than traditional banking	-.069	-.098	-.007	-.041	.177	-.054	.434

Extraction Method: principal component analysis

Rotation Method: Varimax with Kaiser Normalization.

Rotation converged in 7 iterations.

Efficiency (Factor 1)

Efficiency refers to how well the e-banking system enables users—especially in rural areas—to manage their banking needs with minimal time, effort, and cost. Effective Account Management: Users find internet banking highly efficient for monitoring balances, viewing statements, and handling transactions from home. Affordable and Transparent Costs: The cost of adopting internet/mobile banking is perceived as reasonable, and the charges for services are considered fair, encouraging wider adoption. Reliable Card Services: The good performance of debit/credit cards ensures smooth ATM and Po's transactions, increasing user trust. User-Friendly Communication: The platforms offer information in easy-to-understand language, essential for users with limited digital literacy. Competent Support Structure: An experienced management team ensures the smooth operation of services and reliable customer support.

Responsiveness (Factor 2)

Responsiveness highlights how quickly and effectively the bank addresses customer inquiries and problems. Prompt Resolution: Banks are perceived as responsive in resolving transaction issues, providing timely replies via email or other channels and offering instant information for problem-solving. Effective Complaint Handling: The ability to handle complaints adequately and provide good customer feedback mechanisms builds trust. Efficient Website Services: Fast and easy-to-navigate websites along with visually appealing design and relevant information, enhance user satisfaction.

Privacy and Security (Factor 3)

This factor emphasizes the safety and confidentiality of online transactions—vital for building confidence among rural users. Data Protection: Users value the privacy and confidentiality of their data and feel secure conducting transactions. Trustworthy Staff and Services: A professional and ethical approach by employees, along with up-to-date content and a broad range of banking services, contributes to users' trust. Overall Confidence: Users exhibit a general confidence in the bank's online services, indicating a strong perception of institutional reliability.

Customer Services (Factor 4)

This factor covers the bank's ability to deliver core digital services effectively and efficiently. Transaction Services: Quick fund transfers (NEFT, RTGS), efficient electronic bill payments, and accurate service delivery are key expectations. Support and Representation: Availability of customer service representatives online improves service accessibility. Extended Services: Provision of ECS, digital signatures, and digital certificates enhances the scope and professionalism of digital banking services.

Reliability (Factor 5)

Reliability involves the consistency and dependability of the online banking system.

System Performance: Users appreciate faster logins, smooth transaction processing, and quick confirmation of actions.

Ease of Use: Simple log-in and sign-off procedures reduce the risk of user errors and enhance the sense of control and safety.

Convenient Banking (Factor 6)

Convenience captures the accessibility and technological readiness of banking infrastructure. Physical and Digital Reach: Availability of branches (location), sufficient ATMs, and up-to-date equipment ensures that both digital and in-person banking needs are met. Modern Technology: The use of the latest technologies ensures smooth service delivery, which is crucial for users new to e-banking.

Prompt Services (Factor 7)

Prompt Services refer to the speed, cost-efficiency, and timeliness with which banking services are delivered through digital channels like internet banking and mobile banking. Cost Advantage Over Traditional Banking: Users perceive internet and mobile banking as more economical compared to traditional in-branch banking. The reduction in travel, paperwork, and service delays translates into direct cost savings and faster service delivery.

Efficiency, responsiveness, privacy and security, customer service, reliability, convenience, and accuracy—are identified by factor analysis, according to the results of the rotating component matrix. The variables under study have strong loadings on fewer elements according to the rotation matrix.

Conclusion and Suggestions

The study identifies the main factors affecting adoption of e-banking services in Himachal Pradesh. Despite recent improvements in digital infrastructure, broad use of e-banking is still hampered by security concerns, ignorance, and a lack of digital literacy. Efficiency, responsiveness, privacy and security, customer services, reliability, convenience, and prompt services are the main drivers behind the adoption of e-banking services, according to the factor analysis's findings.

In the pursuit of enhancing digital banking adoption in rural India, a multifaceted strategy was imperative, addressing technological, educational, infrastructural, and socio-economic dimensions to bridge the digital divide and promote financial inclusion. Foremost, strengthening security measures emerged as a critical component; banks implemented advanced security features such as biometric authentication and real-time fraud detection systems to build trust among rural users, many of whom were apprehensive about the safety of online transactions. These measures aimed to mitigate concerns about unauthorized access and financial fraud, thereby fostering a secure digital banking environment. Concurrently, increasing digital literacy was essential; financial institutions, in collaboration with governmental organizations, conducted awareness campaigns and educational programs to inform rural communities about the benefits and security aspects of online banking. These initiatives often involved local stakeholders, including schools and gram panchayats, to ensure effective dissemination of information and hands-on training. Infrastructure development was another cornerstone; expanding mobile networks and internet connectivity in remote areas was crucial to facilitate seamless digital banking services. Efforts included subsidizing internet services and ensuring reliable electricity supply to support digital infrastructure.

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