

FACTORS AFFECTING ADOPTION OF AI-POWERED FINTECH SERVICES IN OMAN

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Abstract

The rapid advancements in financial technology have revolutionised the financial services industry, with artificial intelligence playing a crucial role in shaping the future of this sector. Oman, as a part of the Middle East and North Africa region, has not been immune to these transformations, and the adoption of Artificial Intelligence (AI)-driven fintech solutions has become a topic of growing interest and importance. The integration of AI into the financial industry offers numerous benefits, including improved customer experience, enhanced decision-making processes, and increased operational efficiency. As Oman continues to diversify its economy and strive for financial inclusion, understanding the determinants of consumer attitudes and adoption of these innovative fintech solutions becomes essential for policymakers, financial institutions, and technology providers. The current study is based on the Technology Acceptance Model proposed to identify the factors which influence attitudes towards AI-powered fintech services and whether attitude has a statistically significant impact on the adoption of AI-powered fintech services. The study adopted quantitative research methods. Primary data was collected from three hundred and seventy-five fintech users from the Sultanate of Oman using a purposive and snowball sampling technique. The proposed model and hypothesis were tested using Partial Least Squares-based Structural Equation Modelling. The hypothesis results show that attitude towards AI has a statistically significant effect on fintech adoption intention. Perceived ease of use of AI, perceived trust, and technological Readiness were statistically significant predictors of attitude towards AI. Partial mediation paths were inferred from Perceived Use of AI, Perceived Trust and Technological Readiness to Fintech Adoption Intention. Perceived Usefulness had not statistically significant direct or indirect effect on Fintech adoption Intention.

Keywords: Fintech adoption intention, Oman, technology adoption model

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Introduction

The rapid advancements in financial technology have revolutionised the financial services industry, with artificial intelligence playing a crucial role in shaping the future of this sector. Oman, as a part of the Middle East and North Africa region, has not been immune to these transformations, and the adoption of AI-driven fintech solutions has become a topic of growing interest and importance. The integration of AI into the financial industry offers numerous benefits, including improved customer experiences, enhanced decision-making processes, and increased operational efficiency (Al-Saedi et al., 2020). As Oman continues to diversify its economy and strive for financial inclusion, understanding the determinants of consumer attitudes and adoption of these innovative fintech solutions becomes essential for policymakers, financial institutions, and technology providers. The global fintech landscape has witnessed a remarkable surge in investment, with the value of global fintech investment reaching \$24 billion in the first half of 2025 (Innovate Finance, 2025). This growth has been driven by a combination of factors, such as the expansion of social networks, the availability of financial information, and the changing preferences of financial users. In the Middle East and North America (MENA) region, the prospects of fintech growth include employment opportunities, decentralisation, cost-effectiveness, financial outreach, networking, and the breaking of traditional financial biases. (Naz et al., 2022). While developed economies have an advantage in harnessing emerging technologies, resource-constrained economies like Oman may face challenges due to a lack of necessary skills and infrastructure. This highlights the importance of understanding the factors that influence consumer attitudes and adoption of AI-driven fintech solutions in the Omani context.

The current study is based on the Technology Acceptance Model (Davis, 1989). This model identifies two factors, 'Perceived Usefulness' and 'Perceived Ease of Use', which affect the adoption of technology-enabled services. Perceived Usefulness can be defined as the intention to use a technology as it helps them to complete their task faster and at a lower cost. Davis (1989) defines perceived ease of use as the willingness/unwillingness to adopt useful technology if they consider it too easy /difficult. Along with these factors, the current study extends the Technology Acceptance Model (TAM) model by including Perceived Trust in Artificial Intelligence (PTAI) and Technological Readiness (TR) as important factors influencing attitude towards AI-powered fintech services. The authors seek to examine the factors affecting the adoption of AI-powered fintech services in Oman. Specifically, the objectives of the study are: firstly, to identify the factors which influence attitudes towards AI-powered fintech services in Oman, secondly, to examine if attitude has a statistically significant impact on the adoption of AI-powered fintech services and finally whether attitude mediates the relation between perceived use of powered fintech services, Perceived Usefulness of powered fintech services, perceived trust in powered fintech services, technological readiness and adoption of AI-powered fintech services.

Literature Review

A range of literature was reviewed to report the studies related to the factors, determinants and the usage of Fin Tech in various countries among different variables and identified the research gap for the present study.

Al Ghunaimi et al. (2025) studied the adoption of fintech services by small and medium enterprises in Oman. Findings, based on secondary data from the Central Bank of Oman, reveal the need to strengthen the digital infrastructure and improve user experience. In a qualitative study by Rengasamy et al. (2025) found that Islamic banks in Oman use AI-based customer services to speed up transactions and automate financial services. Al Rubaia & Pria (2022) found that behavioural intention has a positive relation with fintech adoption.

Xiang et al. (2021) examined fintech adoption in family businesses and state-owned enterprises in China and found that family business has a significant impact on fintech finance, and state-owned enterprises have better access to credit in state-owned banks. Naz et al. 2022 investigated Fintech flourishing using a Multiple Regression approach in MENA zone countries for the years 2011 to 2014 and 2017 and found that there is strong evidence for the essential role of the digital platform and government effectiveness's negative impact on the freedom of opinion and expression.

Zarrouk et al (2021) investigated the determinants of the United Arabi Emirates (UAE) based on thirty-two fintech founder ventures, and the data were collected through the semi-structured questionnaire and analysed through an ordered logistic regression model and found that the availability of resources through venture capital is crucial for the accomplishment and existence of fintech as micro businesses. Yoshino et al. 2020 investigated the financial literacy and the factors which contribute to the adoption of fintech services in Japan. Data of 25K individuals, which were surveyed by the Bank of Japan, were used to analyse the relationship for the usage of fintech services and found that there is a positive association between higher financial literacy using fintech services and a negative correlation with holding crypto assets.

Al-Nawayseh (2020) examined the factors affecting the 500 citizens of Jordan during the COVID–19 Pandemic. SEM-PLS were used to test the hypotheses and found that there is a significant effect on the perceived benefits and social norms on the intention to use Fin Tech applications, and no significant effect is seen among the perceived technological risks on the use of fintech applications. Okoli & Tewari (2020) measured fintech’s usefulness, its growth, and identified the determinants in 3 emerging panels and 24 frontiers and 5 fragile African markets from 2004 to 2018. The results from the generalised method of moments estimation technique showed that, on average in Africa, fintech usefulness is a heterogeneous process, and the growth of usage of Automated Teller Machine (ATM), mobile banking and Internet banking is greater than its average in the year 2018, when compared with the year 2004.

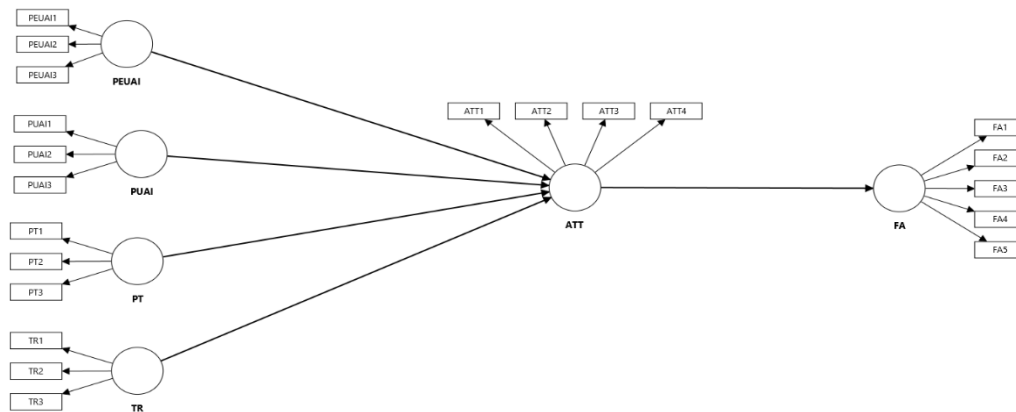
Analysed the determinants that contributed to the newly set up business models of the financial institution industry among three hundred various age groups in Malaysia for the espousal of Convergent technologies, which affect the usage of financial technology, and the results revealed the significant and positive relationship among the various factors for the intention to adopt fintech. Analysed and evaluated one thousand twenty hundred and thirty- six respondents to investigate the designated determinants of using the innovative Fintech services by Millennials in Poland aged between 25 – 40. A logistic regression model was used, and the results revealed that young men with high net income are not driven by low costs of financial services. Among three hundred and twelve millennials who have not used fintech. Ninety-seven respondents anticipated using fintech services within 6 months, and one hundred and one respondents showed their intention to use FinTech services in future.

Tamanna and Khatun (2020) examined the factors which influence the espousal of Fintech in the financial institutions of Bangladesh. Structural equation modelling was used to analyse the data from 265 employees, and the results revealed that perceived reliability, social influence, effort expectancy, and facilitating condition have a positive influence on the intention to adopt Fintech, and the age of the respondents showed a significant positive influence on all the factors of Fintech adoption.

Conceptual framework and proposed hypothesis

Based on the Technology Adoption Model and literature review the study proposes that Perceived usefulness of AI (PUAI) powered fintech services, Perceived Ease of Use of AI (PEUAI) powered fintech services, Perceived Trust in AI powered fintech services (PT) and Technological Readiness have a statistically significant positive relation with Attitude towards AI powered fintech services (ATT) and Attitude has a statistically significant impact on the behavioral intention to adopt AI based fintech services.

Figure 1
Structural Equation Modelling



(Source: Authors, based on survey results)

Proposed hypothesis

- H1: ATT has a statistically significant relationship with FA
- H2: PEUAI has a statistically significant relationship with ATT
- H3: PUAI has a statistically significant relationship with ATT
- H4: PT has a statistically significant relationship with ATT
- H5: TR has a statistically significant relationship with ATT
- H6: ATT mediates the relation between PEUAI, PUAI, PT, TR and FA

Methodology

The study adopted a quantitative research method. Primary data was collected from three hundred and seventy- five fintech users from the Sultanate of Oman using a purposive and snowball sampling technique. The sample size was consistent with previous studies and considered sufficient for a statistical power of $\geq 80\%$ for a medium effect size (Cohen’s $f^2=0.15$) at 5% significance level (Alalwan et al, 2017; Cohen, 1992). Purposive sampling ensured that the participants were fintech users, and snowball sampling helped in reaching a larger number of users. As the participants were digitally literate, the survey instrument was emailed and shared on social media platforms as a Google Docs form. Online data collection ensured the anonymity of the participants and facilitated rapid data collection. The constructions are Perceived Usefulness of AI-powered fintech services, Perceived Ease of Use of AI-powered fintech services, Attitude towards AI-powered fintech services and behavioural intention to adopt AI-based fintech services. Technological Readiness and Perceived trust were measured through scales proposed by Laukkanen et al (2007). The items were measured on a five-point Likert scale with 5 denoting strongly agreed and 1 strongly disagree.

Table 1
Variable description

Variable	Number of items	Reflective/Formative	Definition
Fintech Adoption Intention	5	Reflective	Intention to use AI powered Fintech services
Attitude	4	Reflective	Optimism towards use of AI powered Fintech services
Perceived Ease of Use	3	Reflective	Belief that AI powered Fintech services are easy to use
Perceived Usefulness	3	Reflective	Belief that AI powered Fintech services are useful
Perceived Trust	3	Reflective	Belief that AI powered Fintech services are secure and trustworthy
Technological Readiness	3	Reflective	Access to technological infrastructure

(Source: Authors, based on survey results)

The data was screened for normality and unengaged responses. The presence of common method bias was tested through the Variance Inflation Factor. According to Kock (2015), VIF values lower than 3.3 suggest the absence of common method bias. As shown in the following table, all VIF values are below the threshold limit of 3.3. In the current study, the VIF values were below 3.3, indicating the absence of common method bias. common method bias was also tested using Harman's single-factor test. The single factor explained 27.02% of the total variance.

The proposed model and hypothesis were tested using Partial Least Squares-based Structural Equation Modelling. The analysis took place in two stages: in the first stage, the measurement model was tested for construct reliability and validity, and in the second stage, the structural model was assessed to test the proposed hypothesis. The following section presents the study's results.

Results

The sample consisted of 371 respondents. Most of the respondents were male (76%), graduates (56%) and in the age group of 26-35 years (63%).

Table 2
Demographic results

Attribute	Frequency	Percent	
Gender	Male	283	76.3
	Female	88	23.7
Nationality	Omani	340	91.6
	Expatriate	31	8.4
Education	Undergraduate	123	33.2
	Graduate	206	55.5
	Masters Degree	42	11.3
Age	18-25	62	16.7
	26-35	235	63.3
	36-45	24	6.5
	More than 46	50	13.5

(Source: Authors, based on survey results)

The following section presents the results of the measurement and structural model analysis:

Measurement model

Reliability and convergent validity were assessed through Cronbach's alpha and average variance extracted. Cronbach's alpha and composite reliability statistics are above 0.7, and the average variance extracted is greater than 0.5, implying the constructs possessed reliability and convergent validity (Hair et al, 2018). Discriminant Validity was assessed through the Heterotrait-monotrait ratio (HTMT) and the Fornell-Larcker criterion. As presented in the following tables, the constructs passed both the tests for Discriminant Validity.

Table 3
Construct reliability and convergent validity

Construct	Items	Outer Loadings	Cronbach's alpha	rho_a	rho_c	AVE
Attitude	ATT1	0.68	0.838	0.852	0.893	0.677
	ATT2	0.86				
	ATT3	0.88				
	ATT4	0.86				
FA	FA1	0.87	0.885	0.888	0.916	0.686
	FA2	0.86				
	FA3	0.78				
	FA4	0.82				
	FA5	0.81				
PEUAI	PEUAI1	0.80	0.815	0.839	0.889	0.729
	PEUAI2	0.90				
	PEUAI3	0.86				
PT	PT1	0.83	0.802	0.803	0.883	0.716
	PT2	0.88				
	PT3	0.83				
PUAI	PUAI1	0.89	0.813	0.831	0.888	0.726
	PUAI2	0.85				
	PUAI3	0.81				
TR	TR1	0.84	0.851	0.869	0.909	0.768
	TR2	0.89				
	TR3	0.90				

(Source: Authors, based on survey results)

Discriminant validity was assessed through the Heterotrait-monotrait ratio (HTMT) and the Fornell-Larcker criterion. As presented in the following tables, the constructs passed both the tests for Discriminant Validity.

Table 4
Discriminate validity

Heterotrait-monotrait ratio (HTMT)						
ATT						
FA	0.546					
PEUAI	0.316	0.425				
PT	0.223	0.135	0.038			
PUAI	0.311	0.300	0.735	0.053		
TR	0.340	0.451	0.297	0.284	0.379	
Fornell-Larcker criterion						
	ATT	FA	PEUAI	PT	PUAI	TR
ATT	0.823					
FA	0.470	0.828				
PEUAI	0.264	0.364	0.854			
PT	0.186	0.099	-0.012	0.846		
PUAI	0.260	0.265	0.611	0.028	0.852	
TR	0.301	0.391	0.249	0.234	0.323	0.877

(Source: Authors, based on survey results)

FA: Fintech Adoption Intention; PEUAI: Perceived Ease of Use of AI; PT: Perceived Trust; PUAI: Perceived Usefulness of AI, TR: Technological Readiness

Structural model

The structural model was assessed based on the coefficient of determination and the statistical significance of the path coefficients. Each of these measures is discussed in the following paragraphs.

Before assessing the structural relationships, the study ensured that collinearity among the constructs was absent. Variance Inflation Factor (VIF). As can be seen from the following table, the VIF values are below 5, indicating a low probability of collinearity among the constructs.

Table 5
Variance inflation factor

Items	VIF	Items	VIF
ATT1	1.378	PT1	1.600
ATT2	2.210	PT2	2.040
ATT3	2.701	PT3	1.740
ATT4	2.269	PUAI1	2.426
FA1	2.648	PUAI2	1.664
FA2	2.563	PUAI3	1.870
FA3	1.837	TR1	2.030
FA4	2.106	TR2	1.964
FA5	2.056	TR3	2.421
PEUAI1	1.597		
PEUAI2	2.020		
PEUAI3	1.944		

(Source: Authors, based on survey results)

Table 6
Results of explanatory and predictive analysis

	R-square	R-square adjusted	Q ² predict
Attitude	0.152	0.143	0.119
Fintech Adoption Intention	0.221	0.219	0.122

(Source: Authors, based on survey results)

From the above table, it can be inferred that 15percent and 22 per cent of the model’s variation was explained by the independent variables. The predictive relevance of the model was established through Q-Square. As the Q² values are greater than zero, predictive relevance is established.

Table 7
Hypothesis Testing

Hypothesis	β	t-statistic	p- values	Inference
ATT -> FA	0.470	10.357	0.000	Supported
PEUAI -> ATT	0.158	2.288	0.022	Supported
PT -> ATT	0.138	2.359	0.018	Supported
PUAI -> ATT	0.096	1.321	0.187	Not Supported
TR -> ATT	0.199	3.172	0.002	Supported
PEUAI -> ATT -> FA	0.074	2.101	0.036	Partial Mediation
PT -> ATT -> FA	0.065	2.229	0.026	Partial Mediation
PUAI -> ATT -> FA	0.045	1.312	0.189	Not Supported
TR -> ATT -> FA	0.093	2.798	0.005	Supported

(Source: Authors, based on survey results)

Bootstrapping was performed on five thousand sub-samples. The hypothesis results show that attitude towards AI has a statistically significant effect on Fintech Adoption Intention. Perceived Ease of Use of AI, Perceived Trust and Technological Readiness were statistically significant predictors of attitude towards AI. Partial mediation paths were inferred from Perceived Use of AI, Perceived Trust and Technological Readiness to Fintech Adoption Intention. Perceived Usefulness had not statistically significant direct or indirect effect on Fintech Adoption Intention.

Research implications

The present study presents the conditions that have developed and contributed to the fast growth of the usage of Artificial Intelligence in the use of financial services. It provides empirical data to determine the vital success constituents and alternative growth drives for fintech services. The findings of this research give critical input to decision-makers so that they may design a plan to realise the goal of managing the challenge of inclusive financial development. The research finds that Perceived Ease of Use of AI, Perceived Trust in AI, and Technological Readiness are predictors of attitude towards AI in Oman.

The Sultanate should invest in developing user-friendly AI interfaces, such as Human-Computer Interaction. Fintech Service providers should educate the prospective and current users on the ease, accessibility and simplicity of use of AI. Regulatory authorities should emphasise data protection and security. The Sultanate should invest in cybersecurity to increase trust. The Sultanate should invest in digital literacy programs and encourage educational institutions to impart STEM skills. Internet access should be provided at reasonable prices. Fintech Service providers should emphasise consumer experience, take regular feedback and strive towards making AI- powered Fintech services easy to use. Trust should be enhanced through stringent data protection and privacy rules. The findings showed that perceived usefulness had no significant impact on attitude towards AI adoption. This finding

highlights the need to emphasise other social and cultural factors which resonate with Omani culture.

The extended TAM model can further be expanded by including additional constructions such as perceived risk and regulatory awareness. The cross-sectional findings are limited to the Sultanate of Oman.

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