





# Identification and Prioritization of New Financial Provision Methods to Enhance Speed and Transparency in Financial Reporting Using the Analytic Network Process (ANP) Technique

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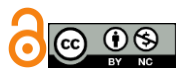
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## ABSTRACT

**Objective:** The aim of this study was to identify and prioritize new financial provision methods to increase the speed and transparency of financial reporting in private banks in Iran.

**Method:** The current research method is quantitative and survey-based. The study comprises two populations. The first population consists of 95 banking and economic managers, and the second population includes 30 academic professors with master's and doctoral degrees in accounting, financial management, and information technology. Due to the small size of the first population, census sampling was employed, and for the second population, judgmental sampling with 25 participants was used. Data were collected through a researcher-made questionnaire and a pairwise comparison questionnaire.

**Findings:** The findings of the study revealed that all considered variables, including payment technology, financial management technology, money transfer/remittance technology, international money transfer technology, insurtech technology, lending and crowdfunding technology, and capital market technology, are effective in enhancing the speed and transparency of financial reporting. Moreover, the findings indicated that money transfer technology, insurtech technology, international money transfer technology, capital market technology, financial management technology, lending and crowdfunding technology, and payment technology, in order of importance, have the highest significance in increasing the speed and transparency of financial reporting.

**Conclusion:** Financial system planners can focus on prioritizing new methods of financial provision to enhance the speed and transparency of financial reporting.

**Keywords:** *Financial reporting speed, financial reporting transparency, fintech, financial technology.*

## 1 Introduction

Transparency and speed are the core of modern financial reporting. Previous research (Barth et al., 2013; Bushman & Smith, 2001; Francis et al., 2004; Lang & Maffett, 2011) has demonstrated that transparency is one of the most important factors contributing to a company's attractiveness from an investor's perspective. Based on these studies, speed and transparency in financial reporting can increase the confidence of the investment community. Conversely, a lack of transparency can lead to skepticism and unethical behavior, ultimately resulting in poor company valuation and uncertainty. Such uncertainty creates informational risk for market participants; and capital provision in these circumstances requires a higher rate of return and consequently higher capital costs, which can lead to a decrease in share price and liquidity. Transparency increases investor awareness and confidence, and is expected to reduce the cost of capital for the company. Therefore, employing new methods of financial provision can steer companies towards faster and more transparent financial reporting (Barth et al., 2013; Bushman & Smith, 2001; Francis et al., 2004; Lang & Maffett, 2011).

FinTech (financial technologies) is one of the most important innovations in the financial industry, owing its rapid development and evolution to the sharing economy, favorable regulations, and information technology. Surveys and analyses of the quantity and quality of this significant sector in the global economy indicate a rapid increase in FinTech companies that are active in the financial services and investment industry (Morgan & Trinh, 2019).

Financial technology can serve both businesses and individuals. The main users of FinTech are small businesses, i.e., entities that are often newly established and need to keep their financial costs low while moving quickly, such as small e-commerce stores. However, FinTech is also applicable to end consumers, large businesses, and even business-to-business (B2B) interactions (Klus et al., 2018; Mashamba & Gani, 2023; Moradi et al., 2021). FinTech strives to transform the existing financial industry by eliminating extra costs, improving the quality of financial services, and disintermediating traditional financial companies. Available statistics indicate a bright future for FinTech investment worldwide, which has attracted special attention in recent years and generated high demand for innovative and technological financial services among business sector participants. Among the investments made are the establishment of accelerator companies to nurture fledgling

ideas in FinTech, the creation of idea exchanges, and the formation of venture capital firms and funds. Ultimately, it is evident that there is a significant gap before the full potential of FinTechs in the economy is realized (Coeckelbergh et al., 2018).

In Iran, in recent years, there has been special attention to the financial technology sector. For years, the financial sector in our country has experienced a closed and restricted environment due to conditions and regulations, creating a high demand for innovative and technological financial services among business sector participants, evident in the reception of FinTech startups (Moradi et al., 2021; Salehi et al., 2023; Varma et al., 2022). Given the high efficiency, ease of processes, and the possibility of using more resources with less cost in providing financial services, and consequently the movement of significant investor capital in this direction, accurately identifying factors affecting the choice of financial technologies and up-to-date concepts and information about FinTechs is one of the most essential needs of financial industry participants as well as the academic environment. Considering the issues mentioned, modern financing methods and budgeting through these means for carrying out projects in private banks of the country and utilizing the resulting services are currently one of the most significant challenges facing the country's economy. Therefore, attracting capital through new financing methods is being considered. In conventional banking systems, the primary uses of bank resources are granting credits, production and trade loans to natural and legal persons, discounting trade bills, and participating in the capital of manufacturing and service institutions. There are various methods for financing commercial activities that banks and different financial institutions can use to finance companies; and one of the fundamental prerequisites for business success is access to sufficient financial resources, proper management of financial resources, and optimal use of them. Financing methods are divided into two general types: (1) debt-based and (2) equity-based. For financing, it is necessary to accurately recognize financial resources and the characteristics governing them, as well as to understand the financial expenditures required. Shareholder contributions are used to advance project activities, and the resulting profits are entirely distributed among shareholders in the future (Kim et al., 2005). Thus, it seems that just as companies must use different financing methods considering factors such as financing cost, risk, return, etc., banks must also consider characteristics, applications, differences, and similarities of new financial provision tools for their use in

financing. In fact, what we are seeking in this research is to explain the model of employing new financial provision methods to increase the speed and transparency of financial reporting in private banks of the country. Therefore, the main research question is: what is the priority of new financing methods in increasing the speed and transparency of financial reporting in private banks?

## 2 Methods and Materials

The present research method is quantitative and survey-based. This study consists of two statistical populations. The first population is composed of 95 banking and economic managers, of which 28 individuals (29.5%) are senior managers, 53 individuals (55.8%) are middle managers, and 14 individuals (14.7%) are senior experts. The second population includes 30 academic professors who hold master's and doctoral degrees in the fields of accounting, financial management, and information technology. Due to the small size of the first population, a census sampling method was utilized. The sampling method for the second population was judgmental, characterized by 1- being limited to the field of accounting, 2- being within a specific organizational structure, and 3- including managers and senior experts, where 25 experts were selected.

**Table 1**

*Descriptive Statistics of Research Variables*

No.	Variable	Mean	Median	Standard Deviation
1	International Money Transfer Technology	3.05	3.09	0.65
2	Money Transfer / Remittance Technology	3.15	3.19	0.18
3	Payment Technology	3.18	3.21	0.68
4	Lending and Crowdfunding Technology	3.39	3.15	0.19
5	Insurtech Technology	3.35	3.39	0.94
6	Financial Management Technology	2.98	3.06	0.29
7	Capital Market Technology	3.37	3.41	0.68
8	Speed and Transparency of Financial Reporting	3.1	3.45	0.41

To determine the validity of the questionnaires, content validity was used, which involved the approval of guide

The data collection tool was a researcher-made questionnaire. For data analysis, the Analytic Hierarchy Process (AHP) was used with the objective of determining the value and prioritization of each criterion and sub-criterion relative to one another. In this study, the partial least squares (PLS) approach and Smart PLS software were utilized to examine the model, and the Analytic Network Process (ANP) approach and Super Decision software were used to investigate the internal relationships of components.

## 3 Findings and Results

The demographic characteristics of the respondents reveal a gender distribution with 23 female participants accounting for 24.2% and 72 male participants making up 75.8% of the total respondents. In terms of educational background, 3 respondents (3.1%) possess a Master's degree, 41 respondents (43.1%) are doctoral students, and 51 respondents (53.8%) hold a Doctorate degree. Age-wise, the respondents are distributed across three categories: 17 individuals (17.8%) are up to 40 years old, 42 individuals (44.2%) are between 41 to 50 years old, and 25 individuals (26.4%) are between 51 to 60 years old.

professors and experts in this field, followed by necessary revisions.

**Table 2***Reliability and Convergent Validity*

No.	Variable	AVE	CR	Cronbach's Alpha
1	International Money Transfer Technology	0.621	0.82	0.82
2	Money Transfer / Remittance Technology	0.588	0.89	0.89
3	Payment Technology	0.592	0.91	0.91
4	Lending and Crowdfunding Technology	0.512	0.9	0.9
5	Insurtech Technology	0.568	0.85	0.85
6	Financial Management Technology	0.524	0.92	0.92
7	Capital Market Technology	0.517	0.88	0.88
8	Speed and Transparency of Financial Reporting	0.52	0.86	0.84

For construct validity, the structural equation modeling method and Smart PLS software were used. To ensure the reliability of the questionnaire data analysis results, the questionnaire's reliability was examined. Reliability of a measurement instrument means that if we repeatedly measure the same trait with the same tool (the same measuring instrument), under similar conditions, how similar, accurate, and reliable the results are. In this study, Cronbach's alpha method was used to confirm reliability.

The AVE criterion indicates that all data are above 0.5, hence the indicators have appropriate convergent validity. This means that a latent variable can explain more than half

of the variance of its indicators (manifest variables) on average. Furthermore, the results for divergent validity showed that the square root of the AVE values for each construct is greater than the correlation values of that construct with other constructs. Thus, the values on the main diagonal, which are one, are replaced with the square root of AVE values. These values should be greater than all other values in the corresponding column.

Based on the results, it can be stated that the model's constructs have a better balance with their own indicators than with other constructs, in other words, the divergent validity of the study's constructs is at an appropriate level.

**Table 3***Model Fit*

Variable	Commonalities	R2	GOF
International Money Transfer Technology	0.569	0.503	0.682
Money Transfer / Remittance Technology	0.517		
Payment Technology	0.525		
Lending and Crowdfunding Technology	0.558		
Insurtech Technology	0.711		
Financial Management Technology	0.584		
Capital Market Technology	0.581		
Speed and Transparency of Financial Reporting	0.744		

The overall fit of the model in PLS is indicated by the GOF index, which can be used to assess the validity or overall quality of the PLS model. This index ranges from zero to one, and a value above 0.36 indicates an appropriate fit. The value of this index, obtained in Table 4, indicates the appropriateness of the respective index.

After confirming the model's fit indicators, the hypotheses' paths are examined. If the factor loading between questionnaire items and latent variables is more than 0.4, it is concluded that the question used for that construct adequately measures the intended latent variable.

**Table 4***Testing of Research Hypotheses*

Hypothesis	Independent Variable	Path Coefficient	t-Value	P-value
1	Payment Technology	0.511	10.055	0.000
2	Financial Management Technology	0.561	8.188	0.000
3	Money Transfer / Remittance Technology	0.657	8.414	0.000
4	International Money Transfer Technology	0.783	11.178	0.000
5	Insurtech Technology	0.727	10.877	0.000
6	Lending and Crowdfunding Technology	0.537	11.669	0.000
7	Capital Market Technology	0.637	10.223	0.000

Based on the results obtained from [Table 4](#), it can be said that payment technology with an effect coefficient of 51.1% has an impact on the speed and transparency of financial reporting. Financial management technology with an effect coefficient of 56.1% impacts the speed and transparency of financial reporting. Money transfer/remittance technology with an effect coefficient of 65.7% influences the speed and transparency of financial reporting.

International money transfer technology with an effect coefficient of 78.3% impacts the speed and transparency of financial reporting. Insurtech technology with an effect coefficient of 72.7% influences the speed and transparency of financial reporting. Lending and crowdfunding technology with an effect coefficient of 53.7% impacts the speed and transparency of financial reporting, and capital market technology with an effect coefficient of 63.7% influences the speed and transparency of financial reporting.

Based on the research's objective, initially, according to the identified criteria, an appropriate network analysis model was designed in the Super Decision software. For this analysis, the main criteria were compared pairwise based on the objective. For this purpose, a group of experts' opinions was used, and the eigenvector was calculated using the geometric mean technique and normalization of the obtained values.

The unweighted supermatrix contains the local weights of each input matrix. In sections where zero is assigned, there

were no necessary relations between factors to form a pairwise comparison matrix. This supermatrix is one of the software outputs. The weighted supermatrix contains normalized weights of the entries in the unweighted supermatrix. This supermatrix is one of the software outputs. Finally, the inconsistency rate obtained is 0.038, indicating that the pairwise comparisons are desirable. As the number of comparisons increases, ensuring the consistency of comparisons is not easily achievable, and the consistency rate must be employed to gain this confidence.

Based on the obtained eigenvector:

The "money transfer technology" criterion, with a normalized weight of 0.460, is in the first priority.

The "insurtech technology" criterion, with a normalized weight of 0.203, is in the second priority.

The "international money transfer technology" criterion, with a normalized weight of 0.159, is in the third priority.

The "capital market technology" criterion, with a normalized weight of 0.064, is in the fourth priority.

The "financial management technology" criterion, with a normalized weight of 0.056, is in the fifth priority.

The "lending and crowdfunding technology" criterion, with a normalized weight of 0.032, is in the sixth priority.

The "payment technology" criterion, with a normalized weight of 0.021, is in the seventh priority.

Figure 1

Model with Standard Coefficients

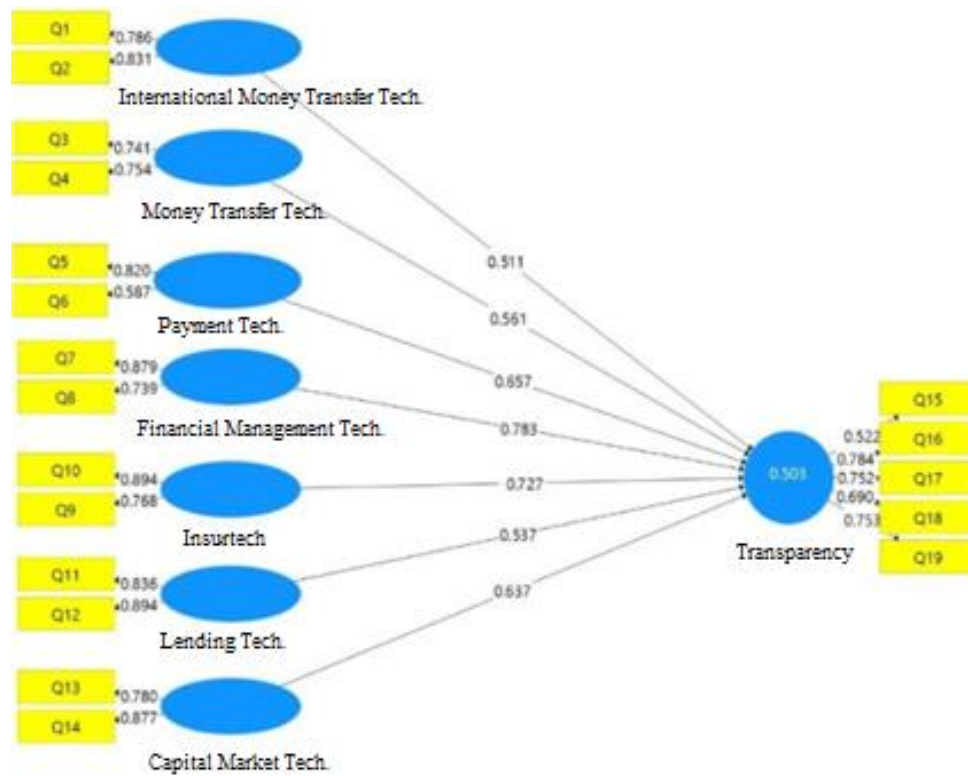


Figure 2

Model with T-Values

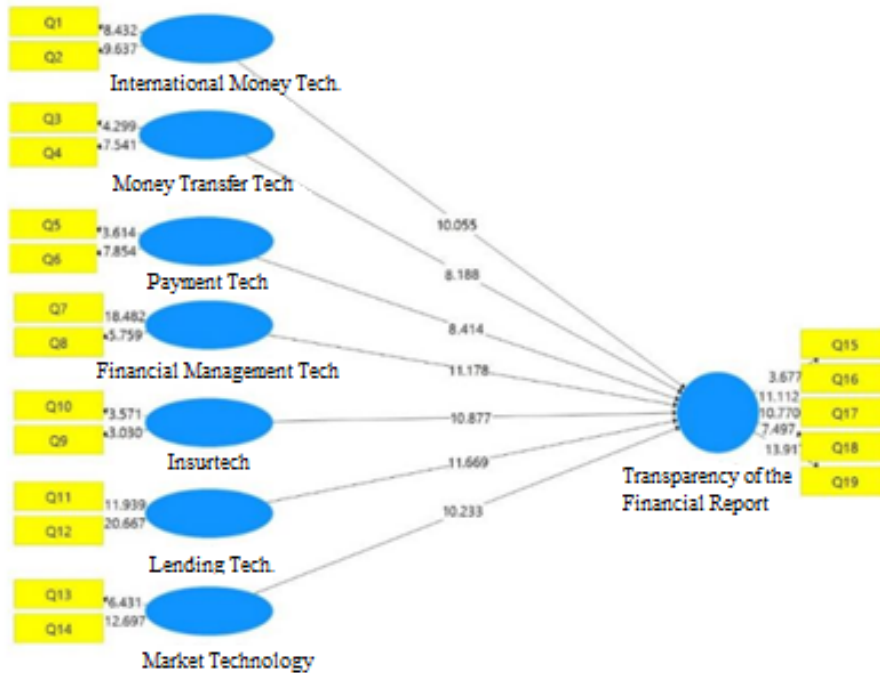


Figure 1 shows the direction between variables, path coefficients ( $\beta$ ) indicating the magnitude of the effect in

relationships. Arrows connected to rectangles represent the communal values of indicators for each construct. The

variables beside circles represent the R-Squares of endogenous (dependent) constructs.

As seen in Figure 2, significant coefficients (T-value) for all hypotheses are above the threshold of 2.56, indicating the confirmation of these hypotheses with a 99 percent confidence level.

#### 4 Discussion and Conclusion

The aim of this research was to identify and prioritize new methods of financial provision to enhance the speed and transparency of financial reporting. The results indicated that priorities include: the criterion of "money transfer technology" with a normalized weight of 0.460 in the first priority, the criterion of "insurtech technology" with a normalized weight of 0.203 in the second priority, the criterion of "international money transfer technology" with a normalized weight of 0.159 in the third priority, the criterion of "capital market technology" with a normalized weight of 0.064 in the fourth priority, the criterion of "financial management technology" with a normalized weight of 0.056 in the fifth priority, the criterion of "lending and crowdfunding technology" with a normalized weight of 0.032 in the sixth priority, and the criterion of "payment technology" with a normalized weight of 0.021 in the seventh priority. Additionally, the results showed that payment technology with an impact coefficient of 51.1% influences the speed and transparency of financial reporting. Financial management technology with an impact coefficient of 56.1% affects the speed and transparency of financial reporting. Money transfer/remittance technology with an impact coefficient of 65.7% has an effect on the speed and transparency of financial reporting.

International money transfer technology with an impact coefficient of 78.3% influences the speed and transparency of financial reporting. Insurtech technology with an impact coefficient of 72.7% impacts the speed and transparency of financial reporting. Lending and crowdfunding technology with an impact coefficient of 53.7% affects the speed and transparency of financial reporting, and capital market technology with an impact coefficient of 63.7% influences the speed and transparency of financial reporting.

The findings of the current research are consistent with the study by Chairina and Wehartaty (2019), which showed that information technology systems in accounting have a positive and significant effect on the quality of financial reporting (Chairina & Wehartaty, 2019). The use of accounting information systems in realizing and presenting

useful information as a basis for decision-making by stakeholders and achieving the goal of financial reporting is very beneficial. Additionally, research by Fazny and Setiyawati (2018) indicates that the implementation of corporate governance principles, namely transparency, affects the quality of financial reports (Fazny & Setiyawati, 2019). Implementing transparency leads to improved quality of financial reports and, consequently, an increase in public trust. Redjo (2018) in his study states that financial reports are a form of the need for transparency that information technologies such as FinTech can influence (Redjo, 2018).

Therefore, based on the research results, it is recommended that since FinTech companies offer convenient solutions for digital and mobile banking, banks should lead by developing a FinTech strategy that not only incorporates these new technologies but also creates value for their customers. Banks should be aware of how FinTech affects their services and make the necessary adjustments to keep pace with the modern world if needed.

It is also suggested that as the financial services industry transitions to the digital realm, face-to-face interaction with banks will completely disappear. "Invisible banks" are on the rise, putting pressure on creative banks to review their current status. Banks lease their data or infrastructure, such as financial management technology, to FinTech partners. Their reliable infrastructure is something that another company supports. Aligning the perspectives of employees and the provider of financial management technology can have a compounding effect on the speed and transparency of financial reporting.

Finally, it is recommended that services be made accessible, such as allowing registration through social media like Facebook, and integrating finances with daily digital life. Online international money transfer technology services should be fully implemented. This means that customers should be able to achieve the same results online as they would in person for domestic money transfers. Chic forms, nearly instant decision-making, and simple requests supported by quick follow-ups are essential components of a modern banking experience. Processes that are cumbersome or require many clicks are fast ways to send customers towards competitors who value their time more.

#### Authors' Contributions

All authors have contributed significantly to the research process and the development of the manuscript.

## Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

## Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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## Declaration of Interest

The authors report no conflict of interest.

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## Ethical Considerations

In this research, ethical standards including obtaining informed consent, ensuring privacy and confidentiality were observed.

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